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The Beltone Serene Family: Made for Auracast and Hearing in Noise

Presenter: Laura Schachtel, AuD, FAAA

- [Kimberly] And welcome everyone to today's webinar, The Beltone Serene Family: Made for Auracast and Hearing in Noise. We are so pleased to welcome back a very dear friend of AudiologyOnline with us, Dr. Laura Schachtel. And Laura, I will hand things over to you.

- Thank you, Kimberly. Hi everyone and welcome again to another fun filled pack full of information AudiologyOnline. I am Beltone's Product Training Development Manager, for those of you that don't know me. As I said today we're going to talk all about our new Beltone Serene product family, so full family. So we'll review all of the different products that make up our new Beltone Serene family, but then also talk a little bit more about Bluetooth Low Energy Audio and Auracast and how this is going to be kind of that new future technology that really our whole family of Beltone Serene can take advantage of right now. And then also talk a little bit more about how Beltone Serene really is that made for noise hearing aid and how patients are doing so much better with this technology than some of our previous and maybe some of our competitor technology as well.

So as always, as Kimberly said, a number of handouts for you to download. So it's our Beltone Serene product portfolio, which I believe marketing did mail out to most offices, but if you did not receive that, you can download that here. There is also the Beltone Serene technology level differences, the Beltone Serene Connectivity options, which is a slide that you'll see a little bit later in the presentation. There's the updated charger guide so you know which number goes with which type of charger and which product, the updated Solus Max cable guide and then two white papers, one on a new study we did with the streaming sound quality of our TV-Streamer+. And towards the end of the presentation I'll walk you through that study.

And then lastly, there's a white paper on our directionality option. So if you were at a Pro Fit last year, I kind of went through our timeline of how we got to CrossLink

Directionality 4. This now puts that basically in writing with great links to the additional white papers of the research for some of our past directional options. So all of this then leads us to our learning outcomes for the day. So after watching today, you should be able to list the hearing aid styles that have been added to our product portfolio, though I'm sure you already know what those are. You'll be able to describe the patient benefit of our current feature set. And then lastly, list the updates and improvements in our fitting software.

So that's Beltone Solus Max 1.18 and then the HearMax app, which is now version 1.35, I believe. So as you know, we are adding to our product family and we are now including our, there we go, our custom rechargeable and non-wireless CIC and our BTEs. So that means that now Bluetooth Low Energy Audio with Auracast capability can now be shared with even more patients in any style. So as you probably have heard, and you've probably already seen this slide, just to review the three main benefits of Bluetooth Low Energy Audio. So the first one is higher sound quality with lower battery consumption and a lower latency than what we've all been using, which is classic Bluetooth. So in other words, this new form of Bluetooth will sound better, it will be faster and you can use it for a longer period of time without draining the battery of not only our hearing aids or earbud or whatever is in your ear, but also your phone.

So who wouldn't want better and then less battery drain on all of your devices. The second thing is multi-stream. So this now will allow us to connect to multiple Bluetooth devices at the same time. And it also opens up the feature of hands-free calls to those on the Android platform and it also allows those Android phone users to now answer calls with TapControl. And then lastly, and this is probably the most exciting and probably the headliner that you've all heard about, is Auracast broadcast audio. So you know how you can share your wifi through your smartphone? Well, in a very similar way, this is how the new Bluetooth LE Audio will make it possible to share audio with other devices.

So somehow through an interface on a phone, which I'll talk about in a moment, in the future, possibly just scanning a QR code. All of this is now going to allow us to share audio with pretty much anyone that has anything Bluetooth LE Audio in their ears. And this allows a way for the whole world to connect to each other. So according to Bluetooth Special Interest Group or Bluetooth SIG, 3 billion Bluetooth LE audio devices will be shipped out by 2027. So that's only three years away. But 3 billion devices will have Bluetooth Low Energy Audio, and very soon every electronic device that you can possibly think of will start incorporating this new form of Bluetooth. So devices like headphones, cochlear implants, earbuds, televisions, computers, smartphones, I jokingly say like my dishwasher and microwave.

But that actually might be something that happens in the future. Everything even including our TV-Streamer+ and our Beltone Serene hearing aids. And it's very likely that your or your patients next phone or tablet or computer already might incorporate this technology. And now with Beltone Serene and our full family, your patients are ready to connect to the new technology immediately. Now according to MarkeTrak 2022, direct connection to a smartphone has been linked, has been listed as one of the top three satisfaction drivers and hearing aids that have wireless capabilities has increased from 56% in 2020 to 70% in 2022. And app usage has increased from 21% to 44% in that same time period. So this just shows us that our patients want and use this technology.

And Bluetooth SIG also estimates that by 2030 over 2.5 million locations, like locations, airports, movie theaters, anywhere you can think of, will offer Auracast broadcast audio streaming. And so with Beltone Serene, we are the world's first hearing aid and now hearing aid full family that can utilize Auracast right out of the box. No firmware update is needed to have this eventually at a future date. Right out of the box your patients can start using this new technology. And this technology will just transform how we all

interact with the world around us from now on. And it will help empower those with hearing loss to hear without effort in situations that are difficult for all of us. Let's see how that happens.

- [Narrator] The new generation of connectivity is made for Auracast, a new Bluetooth technology that allows audio streaming from public places to your Beltone Serene hearing aids. And it starts now. In the coming years, 3 billion devices and 2.5 million places will support Auracast. Connect at the gate to catch your flight.

- [Airport Employee] This is the pre-boarding announcement for flight 61C.

- [Narrator] Or connecting the bus, so you know the next step in your journey.

- [Bus Arrival Announcer] The next stop is Concert Hall.

- [Narrator] Connect to the concert and hear all the nuances in the music.

- [Tour Audio Guide] In its early days, this aircraft was a pioneer.

- [Narrator] Or connect to the audio guides at the museum to hear and share stories with those you love. Connect to the stadium and stay close to the action. Or connect to the TV at home to bring the action close to you. Open up the world of new connections with Beltone Serene.

- And so this graph that you probably have seen before just shows the complexity of the current landscape for wireless connectivity and you can see that some of these older technologies are already slowly being phased out. And Bluetooth Low Energy

Audio will be the universal audio standard for the next 20 years. And we'll also provide that new audio experience, again, thanks to Auracast. Now the key word here is universal. So as you can see there's many different technologies that we are utilizing right now. But not everyone and every device can connect with each other. So that means that we could be in a room full of people and we're all wearing different brands of hearing aids or headphones or earbuds and not all of us will be able to share in a common experience because what we're wearing doesn't match with something that the venue has, or it doesn't work with the particular phone that we have.

And what's most amazing is that with Beltone Serene, we are compatible with all existing wireless technology and with Bluetooth Low Energy Audio. So your patients don't have to compromise on anything, meaning that with Beltone Serene, your patients can connect to the old, the current and the future technology. They don't have to choose between what they might want their hearing aids to connect to in the coming year. So they can get these hearing aids that can connect to anything. So maybe their current phone needs one of these Android type streamings or an MFI type streaming. But their phone that they might purchase later on this year will have Bluetooth LE Audio. Well they don't have to come back and get new hearing aids or get an update for their hearing aids.

Their hearing aids can connect to what their phones have currently but will easily connect to what their phone will have in the future as well. So, in order to connect to an Auracast broadcast, patients will need some type of intermediary. So they call this a broadcast assistant. And currently we have tested out with the Samsung Galaxy S23 and that includes the S23+ and the S23 Ultra that they are the first phones that we have verified that have this assistant. So this means that patients with this particular phone who are running on that Android 14 platform can now have two way streaming, meaning they can have hands-free calls, like our iOS patients have. And they also can use TapControl to answer their calls.

So let me now walk you through the process of using an S23 or a cast broadcast assistant. Now just reminding you, our TV-Streamer+ can be set to be an Auracast transmitter. You can do that through the app once you've paired it to the TV-Streamer+. So that step has already been done in this example. So I have someone coming over to my house, they take out their phone, they tap on settings and they tap on connections and then they tap on Bluetooth. And then it will open up and show their hearing aids and they will tap on the settings or the gear icon for their hearing aids. Once they're on that page for their paired hearing aids, they will then tap the button that says find a broadcast and then they will select our TV-Streamer+ again 'cause I have turned that into broadcast mode.

Once they select this, the hearing aids will instantly start streaming whatever I have my TV-Streamer+ connected to. So my television. And then once my friend is ready to leave or we no longer are watching television, my friend will just hit the leave button and now the streaming will stop to their hearing aids. And then if there were other Auracast broadcasts in the area, you can see right below that leave button it says available broadcast. And here is where other broadcasts would be listed. So very much how we find an open wifi network where we go to wifi and it just lists everything that's in the area that we can connect to. Pretty much the same idea here with this broadcast assistant.

And we do expect that more Android phones will start to announce that they have this technology throughout the coming year. So about five months ago we launched our Beltone Serene RIE in three different styles. So our smallest rechargeable RIE, our micro 62S and then our 63 and 64 battery operated styles. So I'm just gonna quickly review all three of those styles. So our Beltone Serene microRIE is 25% smaller than our standard 63 rechargeable RIE and 16% smaller than our mini RIE. And we were able to accomplish this by using a more flexible material for the circuit board and that

allowed us to fold it and then stack the components in a much smaller space. Additionally, by using a new microphone or new microphones 'cause there's two of 'em and a newer LED light more free space was created and that allowed us to add in another component called the accelerometer.

Now to review, our rechargeable microRIE uses push to assign in the fitting software, has an LED light for charging indication and an easy one touch push button. It also provides all the current wireless connectivity that you're used to. So 2.4, ear to ear, MFI, hands-free and the Android protocol. Plus because of the accelerometer can utilize our new TapControl feature and pairs to our TV-Streamer+ through our OneTouch pairing process and utilizes Bluetooth Low Energy Audio and is ready for Auracast broadcast. Now if you remember, TapControl allows your patients to easily answer their smartphone by double tapping either on their ear or specifically on the hearing aid. They can then end the call from their phone or by pushing the push button on their hearing aid.

Now this feature works with iOS products and it now also works, since we verified, with that Samsung S23 phone. Again, they need to be, have updated to the Android 14 platform. And again we believe more Android phones will now be able to use TapControl and hands-free calls once they are launched and we've had time to verify them. So just as a reminder, TapControl is set to enable or on by default under preferences, meaning that this feature will appear on the manual control page. And on the manual control page you have the ability to kind of deactivate the feature for a specific patient. So let's say a patient really doesn't need this, you just uncheck those call buttons and now the feature isn't activated for the patient.

But just remember in the HearMax app, patients have the ability, if you've clicked off the call box, they can toggle that back on in their app. Or for whatever reason they don't want this feature, they can toggle it off themselves in their app. And our Beltone

Serene microRIE, as you know, can be ordered with our premium standard or desktop charger. And just a reminder that the insert number is the number eight. Now when it comes to battery life as always, times will vary by usage and receiver power, but our microRIE, just like any of our rechargeable products, can provide a maximum of 30 hours on one charge. But 24 hours of use on one charge is a more typical expectation for most of our patients.

And for patients that stream a lot, we would expect them to have about 20 hours of battery life even when streaming 50% of the time. So as always it's a three hour charge that provides you that all day wear. But a quick one hour charge should provide about eight hours of usage for the patient. Now our non rechargeable 63 and 64 styles have the same great feature set that our microRIE has, except they use traditional zinc air batteries. So as a reminder, our 63 non-rechargeable uses a 312 battery and it has just the single push button. And our 64 style uses a size 13 battery and has that multi-function toggle button and it also has an onboard T-coil. Our battery operated RIEs also can use a push to assign feature in the fitting software.

And again they have all of the current wireless communication technologies, plus they can pair to our TV-Streamer+ through our OneTouch pairing process and they can have the accessibility to Bluetooth Low Energy Audio and they're ready for Auracast as well. And just a reminder that TapControl is not available on this product, it's only available on that microRIE. Now remember all of our Beltone SureFit RIEs, sorry. All of our Beltone Serene RIEs use our SureFit 3 receiver. So you just inverted some words there. So when selecting the receiver power, it's really important to not only select the receiver that provides the right gain for the patient but also one that can provide the maximum bandwidth for the patient.

So that being said, our low power receiver has the widest bandwidth that goes out to 9,400 hertz. While our medium power receiver provides a little bit more low frequency

and mid frequency gain, but the bandwidth is slightly reduced and only goes out to 9,100 hertz. So if your patient really doesn't need the additional gain, it's probably best to fit them with the low power receiver that has that wider bandwidth. If they need the gain, then obviously yes fit to the gain that they need with the medium power. Now both our low and medium power receivers can be fit with any one of our four SureFit 3 domes. Now our high power receiver actually provides more power as we'd expect for patients that need the additional power.

But again, the bandwidth has now been reduced down to only 7,100 hertz. So with that additional power, an open dome is not recommended but we recommend a more occluding dome like a tulip close or power dome. And our ultra power receiver is for those patients with that very severe to profound loss. Again, with more power the bandwidth is even more restricted and it only goes out to about 5,000 hertz. No dome will fit this receiver 'cause it's so large. So you have to order it with that encased receiver order form. And then our kind of fifth receiver if you will, is our M&RIE receiver, which has a bandwidth out to about 9,100 hertz. Now we recommend for those patients whose full audiogram falls in that green shaded area to use a tulip or a closed dome.

And for those patients whose audiogram falls completely in that darker shaded area to use a power dome or a custom ear mold. Again no open dome is recommended for a M&RIE fitting. Now if your patient's audiogram falls, you know, in the low frequencies in the green area and then the high frequency gets into that bluer area, then a M&RIE receiver is probably not recommended for that specific audiogram. And speaking of M&RIE, it is the only receiver in the industry that incorporates that third microphone inside the patient's ear canal. And that third receiver helps capture the natural shape of the patient's ear, improving localization, providing more natural sound, reducing overall listening effort and provides better hearing in wind.

And if you would like all of the white papers that prove those points, just let the training team know. We're glad to send you the six or seven or so white papers that prove these. Now, last year we did a nice little study about wind noise and if you were at Pro Fit, you probably heard me talk about this, but we put someone in a wind tunnel with the wind blowing right at their face and with our wind noise reduction feature on, we measured that our feature provided about 16 dB of attenuation. But then we switched receivers and put a M&RIE on the patient and we measured a 22 dB reduction in wind noise naturally. So we had our wind noise reduction feature turned off and just because it was the M&RIE receiver with that third microphone, we measured even more wind noise reduction because of that third microphone.

And patients that are allowed to trial or demo the M&RIE microphone, almost a hundred percent of 'em say that they'd keep it or they would like to have that M&RIE receiver after trialing with it. Now we also launched our CROS transmitter, again, in our microRIE style a few months ago. Now this hearing aid configuration is for patients with single-sided deafness or sound on the non-hearing ear will then be streamed to the better hearing ear. Sounds picked up by the CROS transmitter are processed with our advanced features like Sound Cleaner Pro and Directionality before being streamed over to the better ear side. Which is why I think a lot of you have reported to us that your patients just say, wow, this sounds really good.

Now the only adjustable feature for the CROS is something called Balance and we'll talk about that in a moment. And in order to actually program the CROS transmitter, you need to connect a working low, medium, or high power receiver to the hearing aid. This not only allows us to actually program the hearing aid connected into the fitting software, it also helps anchor the hearing aid or the CROS transmitter I should say, onto the patient's actual ear. And the CROS transmitter will provide our patients up to 16 hours of use. Remember that CROS transmitter is streaming a hundred percent of the time and just like our microRIE, it is a three hour charge to get those full 16 hours.

So as I stated a moment ago, the only feature for the CROS transmitter is Balance. And this is the sound ratio of what is being heard from both ears. So with the balance set at zero, which is the default, the better hearing ear is hearing sounds from both sides of the head equally. Now let's imagine that you're at a dinner party and you're between two different people having two different conversations. If you wanna hear more of the conversation that's happening on the transmitter side, the patient would or you could in the fitting software move the slider more positive. This increases the ratio so more of what is being transmitted is coming from the transmitter side. So more of what's going on on the CROS transmitter side is being streamed over and then heard on the better ear side.

Now if the patient goes, oh this conversation is boring, I wanna now listen to the other conversation, so they wanna hear more of what's happening on their hearing aid side, well, move the slider more negative. Now this increases the ratio. So more of what is being heard comes from the hearing aid side versus the transmitter side. Now these changes, these ratio changes do not change the perception of overall loudness. Now if the patient has their, you know, mixed ratio, let's call it, exactly where they want it, but they want everything louder, then they would go ahead and make a volume change on their hearing aid side, that would then increase the volume of the ratio. Now patients can adjust the balance themselves from their push button.

So you would set like the short press to be CROS up and the long press to be CROS down. And then just wanna point out that we've changed the wording to minimum CROS. I think before it was called minimum volume and that created a lot of confusion as to what was happening. So now everything on that CROS transmitter side is labeled CROS. And patients also have the ability to adjust their balance from the HearMax app. And I just wanna point out that in the updated HearMax app version again is version 1.35. We now have brought sound enhancers back when fitting a Serene 17 with a

CROS transmitter. So if you've already fit someone a few months ago and they didn't have the sound enhancers, once they update their app, they will now have sound enhancers that again will affect how their hearing on the hearing aid side.

And just a reminder, only 17 level products have sound enhancers. Now for those patients who prefer a custom hearing aid, as you all know, like my mom, we now offer our rechargeable custom and our smaller non-wireless CIC. So our custom styles come in the colors of anthracite, light beige, beige, medium brown, brown and dark brown. And you can request the shell of either of our custom styles to be red and blue with any color face plate. So if it helps the patient to distinguish right and left, even though it's a full shell you can order it that way and then you can put on the anthracite face plate if needed. Now our Beltone Serene custom rechargeables have field replaceable microphone filter ring, an LED light, a push button.

Again, if needed they can use the push to assign feature in the fitting software. But as you probably know, there is no telecoil on these products. Our custom rechargeables also have all of the connectivity that you're used to me talking about, plus as you're probably sick of me talking about compared to our TV-Streamer+ through our OneTouch pairing process and use Bluetooth Low Energy Audio and are ready for Auracast. Please note again, TapControl is only available on the microRIE. Now during our training event last year, it was discovered that not everyone knew that the microphone filter rings on our custom rechargeables could be field replaced. So let's watch Jeff show you how easy this is to do in your office.

- As we all know, it is important that the microphones and the hearing aids stay protected in order for the hearing aids to function most effectively. On the Beltone rechargeable custom hearing aids the microphones are protected by a microphone

filter ring. With use over time it is possible that the microphone filters within this ring can become clogged with wax or other debris. When this happens, the microphone filter rings can be replaced. Previously, the only way to have the microphone filter ring replaced was to send the hearing aids in for repair. We now will be offering a microphone replacement service kit and different colored microphone filter rings that can be ordered from customer service and will allow you to change the microphone filter ring in your office.

Let's ensure we have all the tools that we will need. There are two tools, one to remove the old filter ring and one to attach the new filter ring. We should also ensure that we have the new microphone filter ring in the correct color. Ordering instructions are at the end of the video. First we will need to remove the old microphone filter ring with this removable tool. Ensure that you're using the end that is flat, the one that looks like a standard screwdriver. Insert the tip of the tool between the mic filter plate and the microphone filter ring. Lift the tool to remove the filter ring. Next we will attach the new mic filter. All filter rings have a clear cover on one side of the filter and a blue color on the other.

Remove the clear sheet from the mic ring. When the clear sheet is removed, you will see a hole on the microphone filter. You will notice that the attachment tool has a metal pin on the top. Attach the mic filter to the attachment tool. Once attached, remove the blue film cover. Now we're gonna locate the LED light on the hearing instrument. Align the metal pin with the LED and carefully attach the filter ring to the hearing aid. You will need to press firmly to ensure that the filter ring is securely attached.

- And I know Jeff mentioned that the directions are to follow, but we had the wrong part number on the direction. So if you need the tools and the different colored rings, please just call customer service. The directions are those little like drawing animations that should be in the packet with the tools. But if you need help finding that, please just

reach out to training and we'll do our best to get you those directions. Now as with all of our other rechargeable products, your patients can have all day charge, again, even when streaming. But just remember the charge time for our custom rechargeables is five hours. And that in order for the hearing aids to charge the charger needs to be connected to an AC power supply and that the lid of the charger needs to be closed.

And then just please make sure that those custom inserts are placed correctly in the charger. Otherwise the hearing aids don't sit right in the charger and then the lid doesn't close all the way so the charging elements don't make contact and then the hearing aids don't charge. So just ensure everything is in alignment and charging will occur. And this brings us to our smallest Beltone Serene style, which is our CIC, which also uses a 10A battery. And it also is, again, not wireless, meaning there is no ear to ear 2.4 or any type of Bluetooth. You do have an option though to add a push button, but just keep in mind adding the push button might increase the size of the hearing aid.

So just keep that in mind as you counsel the patient on their options. Now to program this, you will need to use a cabled connection into Beltone Solus Max. So either use your SpeedLink or a HiPro II and you will need the gray cables with the CS63 flex strips. Now for those patients that might benefit from traditional BTEs due to the severity of their loss, dexterity issues, perhaps needing a more robust hearing aid that's easier for them or a caretaker to take care of, we have our two BTE styles, the 76 and the 86. And our Beltone Serene BTEs also come in the same colors as our RIEs. And that would be sparkling silver, champagne, gold, bronze, warm gray, espresso, graphite and deep black.

Now our Beltone Serene 76 BTEs can be configured with a thin tube or in Solus Max with that plastic ear hook. And our 86 BTEs can be configured in Solus Max to either have the plastic ear hook or the metal ear hook. Just a reminder that the metal ear hook adds an additional about five to seven dB of low frequency gain. And also just

reminding you with these new BTEs, the ear hook and thin tube just pull off the body of the hearing aid. And then with the new ear hook or thin tube you just snap them back on. There is no more twisting to get those components off of the body of the hearing aid. Our Beltone Serene BTEs also have field replaceable microphone filters, a telecoil, an LED light that can be programmed and our 86 style has DAI.

Our BTEs also have all of the current wireless and ear to ear communication that you're used to me talking about, plus and I'm sure you can repeat with me, they compare to our TV-Streamer+ through our OneTouch pairing process and use Bluetooth Low Energy Audio and are ready for Auracast. And again, our BTEs do not have TapControl 'cause that's only available on the microRIE. Now as I stated a moment ago, the LED light on our BTEs can be differentiated for other things besides charging. So under, I think it's the manual control page, you have these options for the rechargeable BTEs. And this is helpful for a caretaker so they can actually see if the changes they've done to the hearing aid actually like have taken effect.

So the default is for the LED light control to be disabled, meaning that the LED light will only indicate the charging status. But you can change it in the software to the flash once option, meaning that in addition to the charging status, the LED light will indicate the manual control changes. So again, a third party can verify, yes, we are now in program two, or yes I did increase the volume. If the continuous flash option is selected, the LED light will flash quickly every five seconds, so flash twice every five seconds, again, indicating to a third party that the hearing aid is on and working. That is in addition to the same information for manual control changes and the charging status.

Now using the desktop charger, our rechargeable BTEs again will fully charge in three hours and will provide all day use even when streaming. Now please remember that the insert shape and size is going to be different between our two BTE styles as the 86

style is a little bit bigger and it has the additional manual control. 'Cause the 86 has volume and a push button, where the 76 just has a push button. On the packing for the chargers, it will indicate which hearing aid style it is for. But just for your reference, the desktop charger for the 76 style will have a number 70 in the charging well and you'll see a number 80 for the 86 desktop charger. So before we get to the features, this is a simple overview of our newly completed Beltone Serene family.

And this is the Beltone Serene connectivity options handout that you can go ahead and download. And it's just a nice kind of glance of what type of technology, connectivity technology is in each one of the styles. Okay, so onto the great feature set of Beltone Serene. So one of the reasons why Beltone Serene performs so well in noisy environments is because of the environmental classifier, which if you've heard me talk, I like to refer to it as the air traffic controller of our hearing aid. So the classifier listens to the environment and it gathers information and based on what it's hearing, it selects when to activate and deactivate certain features. But if the classifier isn't sorting or isn't hearing the environment accurately, then the hearing aids might change into a directional mode or a feature might somehow turn on or off that then impairs the patient from actually hearing what they want to hear, which is the absolute last thing that any of us would want to happen.

So last year, and again I talked about this at ProFit, we did a study comparing our classifier to four other brand's classifiers. And we tested them in three different types of environments that was quiet, speech and noise and then just noise. Now averaging the scores for those three environments, you can see that Beltone was the most accurate, 91% accurate. And we were almost by about 50% more accurate than brand A, that was the least accurate of the bunch. Now this means that we can accurately adjust our features automatically so that your patient is able to just hear their best without needing to make a manual change on their hearing aid, without going into their app

and having to change settings and answer questions to try to hear what they wanna hear.

They just hear. So based on this study, we can claim that Beltone has the most accurate environmental classification system in the industry. Beltone also has the industry's narrowest beamformer and you can see that for yourselves here with these circular spectrograms. Just to remind you that when we took these images, we only had the right hearing aid on. So you're only seeing the beamformers for the right ear. You see really nothing for the left ear. So, with us you can very clearly see an area of very focused audibility in the five degree azimuth in the mid frequency range, between one and 5,000 hertz. That is our binaural beamformer, which helps make speech that much more audible in background noises.

And then you can see this area of wider directionality in the higher frequencies above 5,000 hertz. This is the area where multi-band directionality is applying a more hypercardioid response to preserve spectral cues as the patient is hearing objects or people move in their environment and it helps with localizing sounds. So they say a picture is worth a thousand words. So now compare our beamformer to the other manufacturer's latest and greatest product. And what do you see? Well, most of them have a lot more diffuse, less focused areas of directionality, specifically the bottom row, brand, C, D, and E. It really just looks like they're in a directional mode. I don't see any type of narrowed beamforming.

With brands A and B, I sort of see in that five degree azimuth, some beamforming, but it's not as tightly confound to that one area as ours is. So when comparing the improvement in beamformers now between our Beltone Serene 17 and our Beltone Serene 9, we can measure an almost 4.5 dB improvement. Meaning with the CrossLink directionality for beamformer in Beltone Serene 17, the noise could almost be twice as loud, making speech understanding that much more difficult and patients still had the

same speech understanding performance as someone using the beamformer in Beltone Serene 9, which as a reminder, is CrossLink Directionality 3. And also almost 90% of users recommend Beltone Serene for hearing in noise. So just wanna compare how much more benefit your patient gets by going up to a Beltone Serene 17 versus a Serene 9.

They're going to hear twice as good in those noisy situations. So just a reminder that with Beltone Serene products, you can decrease the gain down to negative 10. But in order to actually see the gain go negative in the fitting software, you will need to turn off the vent corrections feature from the display options menu. Now speaking of vent corrections, we realized that not everyone knew about this feature or what it actually does. I realize not everyone grew up in Beltone like I did and some other manufacturers handle this in a different manner. So vent corrections provide you the ability to see how your venting or dome selection affects the gain. So vent corrections is enabled or turned on by default in our fitting software.

This means that the graph and the gain adjustment screen displays the estimated amplified gain received by the eardrum based on the selected dome or venting of the hearing aid. It does not change the prescription gain targets. If you turn vent corrections off, then the estimated gain will match the prescribed gain targets. So why does any of this actually matter? Well, let's say you fit your patient with an open dome, right? They have essentially normal low frequencies. Clearly we're fitting with an open dome. This allows all the low frequency amplification to leak out of the ear canal 'cause right, they have essentially normal low frequency. So why do I need to amplify this? And that's why you see the reduced gain in the low frequencies.

With an open fitting most low frequency sound is going to be heard by the eardrum naturally with whatever residual hearing the patient has. Again, that's why we're fitting them open. So anything that's amplified, again, just leaks out of the ear. But somehow

your patient states that she wants a little bit more low frequency gain. So you probably go into the fitting software, highlight the low frequency gain and click increase, increase, increase, increase. But again, a majority of whatever added gain you're pumping into the fitting software will again most likely leak out of the ear and will never be heard by the eardrum. Now in this example I click the low frequency gain several times and I tried to increase it by almost 11 dB but it doesn't reflect that on the graph.

So, if my patient said, hey, I need a little bit more low frequency gain, the better or the better approach to actually have more low frequency gain reach the eardrum would be to reconfigure the dome and put a more occluding dome like a power dome on this patient. And now you can see that more gain is actually reaching her eardrum. But remember, with that open dome, I did try to increase the low frequency gain. I did, by 11 dB. But I could never match my target. Or it increased slightly but again, I never got it to match. But had I disabled vent corrections, I would've seen that I was actually providing quite a significant amount of low frequency amplification.

But again, most of that is just gonna flow out of the ear naturally 'cause it's an open fitting and they hear low frequencies normally or almost normally. So this now means that the hearing aid is being asked to provide a lot more low frequency gain than what the patient actually needs. And honestly the patients not ever gonna hear that anyways. So this can reduce sound quality and it can contribute to unnecessary battery drain. So wouldn't it be nice if there was some way to indicate that maybe you should change to a different type of vent or dome, or maybe look at a different view to see if you're making the correct low frequency change for your patient?

Well, now we have something like that in Solus Max 1.18. It's a notification message that will appear on the gain adjustment screen to do basically this. So the message says, in order to realize the desired low frequency gain, ensure that vent correction display option is unchecked or deselected and then you might wanna consider fitting

with a more occluding earpiece. This message will appear when the gain handles of 250 and 500 hertz are exclusively selected and then increase more than 10 dB above the targets and the gain at 1500 and above remain within 10 dB of the target. Now this message will appear for about 20 seconds, but you can always dismiss it by clicking the little X box and this message will be seen with every product style and product family that you can fit within Solus Max.

Now since open fittings are very common, we wanna make sure that our patients aren't experiencing feedback. So now we know kind of how to handle the low frequencies with an open fitting. Let's just review to make sure that we don't get any feedback now that we're dealing with high frequencies. So I think most of you know how our Feedback Eraser 2 works, right? It applies some type of counter wave to kind of deactivate or eliminate feedback. And this is done with a phase-inverted signal. But what is that counter wave? Well it's really two systems here. The first system is a static system which helps to control feedback due to unchanging contributors to feedback, such as the physical properties of the hearing aid.

Like the venting, like the microphone and receiver placement, like the patient's actual ear geometry. The second is the dynamic system. And this helps to control feedback due to significant moving changes in the feedback pathway, like giving someone a hug, or putting a hand to the ear, chewing. This system is always monitoring and is on the lookout for feedback. Now these properties are determined by the maximum stable gain or MSG calibration, which is why this needs to be completed in the patient's ear and not on the table. Once you've run the calibration, the MSG calibration result will be displayed on the gain graph and it reflects the maximum available feedback-free gain for the patient's ear anatomy with that hearing aid and that dome vent configuration.

Please remember though that now within Solus Max, if you want to see the MSG calibration curve, you need to check the box for it, which is found under the display

options, the same location where the vent corrections is located. So what you see now in Solus Max is this gray area called the feedback guard area, which just says if your gain is within there you're gonna have feedback. But if you're used to, like I am, looking at the actual MSG calibration, you just need to check that box for your patient so you can see that light blue or if it was the right ear, that light pinkish shaded area for your MSG curve. So then what do we actually adjusting in Solus Max?

Like I don't see anything that says static or dynamic. What we're actually adjusting is something called the gain stabilization feature. And the gain stabilization feature now works in tandem with our static and dynamic system that is calibrated with the MSG. So that means Feedback Eraser 2 really has three different systems running simultaneously to help control feedback for your patient. So how does it work? Well, when the calibrated system cannot control feedback on its own, then gain stabilization kicks in to help control it. So for example, if feedback is within the range of the dynamic system, which is the dash lines here, then gain stabilization is not activated. But if this patient were to place their hand over their ear, then feedback's likely to occur as you see by this red line.

And as you can see, that red line is well out of the dynamic systems range. So now gain stabilization will kick in to the degree that was selected in Solus Max. Now a mild setting will provide gain stabilization very infrequently, only in those extreme conditions like you see here where the dynamic system can't control it on its own. Now for stronger settings, such as strong with WhistleStop, gain stabilization occurs even when the calibrated system could have handled it all on its own. Meaning that the gain stabilizing feature might overcompensate to fight feedback, meaning it can interfere with sound quality and reduce gain. So therefore we advise that you only use strong with WhistleStop when gain settings are well into or exceeding that MSG calibration.

So, if you remember all of our now Beltone Serene products, except for the non-wireless CIC will connect to our TV-Streamer+. And again our TV-Streamer+ does have Bluetooth Low Energy Audio. Now our research team just recently completed a study, and that's the white paper you can download, showing the benefit of streaming sound through the TV-Streamer+. So let me walk you through this study. We basically set up a living room, had a flat screen TV mounted on the wall and then we took a soundbar, connected it to the television. So now whatever's coming out of the television is actually going towards the patient. 'Cause most modern televisions have their speakers in the back of the tv, which if it's mounted on a wall means the sounds going into the wall.

So had a soundbar, did a word recognition test with the hearing aids and the words coming out of the soundbar and then ran the exact same test but had the sound streaming through the TV-Streamer+. Our patient was about 10 feet away sitting on a nice comfy couch while this test took place. And I'll show you the results that happened in quiet, but you could probably guess that the patient probably scored about the same streaming from the TV-Streamer+ versus just hearing it out of the soundbar from the tv. But we know that most of us don't watch TV in quiet. There's some type of life happening around you. So to make it a little bit more challenging, we added some common domestic sound or noises while we then repeated the word recognition test.

So we had two speakers on either side of the patient about seven feet away and then we played the sound. So our friend, the vacuum cleaner, we played some cooking sound, we played people talking and then we played some kids playing noise. And as you can see from the results, if you look all the way on the right, in quiet, like I said, scored pretty much the same. But if you look at the noise situations, every single test subject we tested, all 15 of them, did significantly better when the audio was streamed through the TV-Streamer+. And the settings were left at the default settings that we

have, so we didn't really change anything. But you can see like in the vacuum situation, 30% better word understanding because the audio was streamed through the TV streamer versus just hearing it off of the TV soundbar because of the competing background noise.

So again, about a 30% better speech recognition score when patients stream with the TV-Streamer+. Now there's something else if the hearing aids are connected to the app that patients can do while they're streaming audio if they're in a noisy situation. And that would be to actually mute their hearing aid microphones. So we retested to see if there was any additional benefit for our patients if they actually muted their hearing aid microphones. And as you can see here, there again is significant benefit when the patients mute their hearing aid microphone. So again, they can turn off while the kids screaming and yelling behind them and then just really hear the audio of the television that they want streamed.

So just real quickly, our TV-Streamer+ has three simple pairing steps, right? Pair the hearing aids to the TV-Streamer+, this can be done in the fitting software or out of the fitting software with our OneTouch pairing. Pair the hearing aids to the phone and the app. And then an optional third step that has to be done last is to then pair the TV-Streamer+ to the HearMax app. And this allows patients to then turn their TV-Streamer+ into that Auracast transmitter. Now real quick, let's just review how we can use our OneTouch pairing process.

- Pairing our Beltone hearing aids to the Beltone TV-Streamer+ is so easy you'll think it's magic. Simply place the powered on hearing aids next to the TV-Streamer+, no further than two inches. The TV-Streamer+ will pair to each hearing aid individually. To pair, ensure that the TV-Streamer+ is connected to AC power. The white LED on the back will indicate this. To begin the process, push the pairing button on the back of the unit. The LED in front will flash green as it pairs to one of the hearing aids. Pairing takes

about 12 seconds. Pairing is complete when the LED is solid green for one second and then turns off for about three seconds. The pairing process will automatically start for the second hearing aid.

Pairing is complete when the LED is solid green. Once both hearing aids are paired, Beltone's TV-Streamer+ does a final 15 second search for any other compatible hearing aids.

- And if your patient had a second TV-Streamer+ you would pair their hearing aids to that second one in exactly the same manner. Remember there are no specific accessory channels that you now have to pair into with our new accessory. And what's nice is you can now in your HearMax app in demo mode show your patient how they can utilize the TV-Streamer+. So you can show them how they can switch between if they had two TV-Streamer+es, how they can go in and rename their accessories if they needed to, how they can go in and turn their TV-Streamer+ into that Auracast broadcast mode, or if they're having any type of lip syncing issue, they can adjust the sound delay.

So you can do all this now in demo mode and any changes you made while showing patient A, soon as you close out the app and then relaunch it for patient B, everything goes back to the default settings. So now let's talk about the adjustments that you can make in Solus Max 1.18. And some of these adjustments are great improvements for you and your patients. So we heard you guys, as you talked about our reports page that it was really hard to navigate. You weren't sure like what section was being added to a report, when you tried to print, it was too small, you couldn't print in a different language, you couldn't, you know, download it, you couldn't attach it to an email.

So we completely redesigned our reports page in Solus Max 1.18. So you'll now notice that both the reports for clinician and patients are housed under the reports tab. So

you're just gonna have to toggle between who you're building the report for. Some of these test options are already pre-listed for the clinician and for the patient. Then we have some other feature options over to the side and if you wanted to add a feature to one of your reports, you would just click the feature. So I'd click the box for Sound Cleaner Pro, I'm under the clinician report. It would add Sound Cleaner Pro to my clinician report. You can also edit any of the options that have a pencil icon.

So next appointment I can go in and edit and actually put the patient's next appointment in there. Also see how it has that nine square button, they call that a waffle button. That then allows me to reorder. So if I didn't want the next appointment to be the very first thing the patient sees, I can move that down, just kind of grab and pull it down into the order that I'd like it to be. Again, you can print this report for you or for the patient probably in almost any language that you will see from that drop down list. And there's a lot of languages there. So for a non-English speaking patient, this is great 'cause it can be printed out in their language so they can actually understand how to use and maintain their hearing aid better.

Also, a larger font. So it default prints in a font 19, but if you check the box for larger font, it will print in a font size 22. And then you do now have the ability to print it. You have the ability to save it as a PDF, and then you have the ability to then upload that and email that to a patient if you have their email address. So if you can email it to them, plus print it so they have it in two locations. Something else that has changed is how patients consent to remote care. So that flow has changed. We kind of streamlined it 'cause a little odd that the patient was consenting in your fitting software.

So now all you need to do is ensure remote care is enabled, help the patient download the app, pair the hearing aids, which I'm sure all of you do. Then the patient has time at their leisure, at home, wherever they want, to read through the consent form and then consent to the services. And then you can see in the fitting software that your patient

has actually consented. The consent process for the patient is pretty much the same as it has always been. They have to consent to part A, but part B is optional. And again, in the fitting software under the remote care page, you will then see that the patient in green accepted and the date they accepted.

If your patient wants to withdraw their consent for whatever reason in their HearMax app, they'll go to the more menu, click on legal information, click on G on online services, then they will click on the edit button and then they can go in and withdraw their consent. And should they do that, again, under the remote care tab, you will see this with the date it was withdrawn. A few months later your patient realizes that was a mistake. They want to re consent to remote care. Again, going back into their app under the my Beltone page, they can just tap on activate Beltone remote care and then re consent to the process. And then you will again see that in the fitting software.

Just to note for you that should you send your patients new settings and they install them and they don't like those new settings, they can go back to what they just let go of, but they can't go any further back. So they can only roll back their settings one step. This is a change from how we've previously handled that. And then also you'll notice in the more or hamburger menu that the patient consent has now been removed. And then one last thing, which I think is really great, to make it easier for you to make sure that you're entering the correct serial numbers on order forms or any other type of documentation. From the patient profile screen and from the instrument setup page under the details option, you can click on the serial number and it copies it and then you can paste it into whatever document you want.

So now you know that you're making sure the serial numbers are correct and you're not accidentally inverting a number. So with all of that, let me just summarize real quick. Beltone Serene is now a full family available in our three RIE styles. That includes our microRIE and our rechargeable BTEs, our rechargeable customs and our

non-wireless non-rechargeable CIC. Oops, get the cursor going here. There we go. With Beltone Serene, again, your patients have the benefit of best hearing in noise with Cross-Link Directionality 4 and Ultra Focus 2. And again, they now can connect right out the box to anything that has Bluetooth Low Energy Audio and to anything that is streaming Auracast, which currently not much.

We're still kind of in the infancy of it. But throughout the year we'll see more and more devices and more and more locations that can do this Auracast broadcast. And with the update to Solus Max 1.18, again, we've redesigned the reports page so it's easier for you to customize. You can print in a different language, print in a bigger font, email it to your patient. And then also the consent for remote care has been removed out of the fitting software and put on the patient side in the HearMax app. Also in the app, patients can have access now when they're fit with a CROS transmitter of having the sound enhancers with their Beltone Serene 17. And our TV-Streamer+ can now be viewed in demo mode so you can show patients how easy it is to access and play around with that.

So with all of that being said, I just wanna thank all of you for taking an hour out of your day to learn more about our Beltone Serene full product family. I see that there is one question in here, so I'm going to look at that in a moment. But if you have questions, please go ahead and type those into the question and answer box. Otherwise, if you have questions, please reach out to the training team on Beltone University. There are online self-paced read at your own pace type modules. So if you have questions about the different styles of Beltone Serene, or you wanna learn a little bit more in depth about the fitting software changes, take either the Beltone Serene Full Family course or the Solus Max 1.

18 course to learn more. And again, please make sure if you haven't already to download Solus Max 1.18 from Beltone Community. I think a web update was pushed

if you download that way. If you need a USB, you can call customer service to get that as well. And again, handouts are here on AudiologyOnline. A lot of the same handouts can also be found on the Beltone University homepage. That's www.beltoneuniversity.com. Is wind noise reduction improved when in, so I'm assuming when using a M&RIE receiver in CrossLink Directionality 4? And I'll have to remind myself 'cause I know with CrossLink Directionality 4 and 3, some features were on purpose deactivated 'cause it caused bad sound quality. But the study with M&RIE was just showing because with wind coming over it, okay, so with wind coming over the microphones, traditionally it's gonna hit all four microphones and that's just a lot of noise.

But because the M&RIE microphone is tucked into the ear and it's covered by our concha and our tragus you just naturally don't hear as much noise. So the clarification was when you're programming, if you select M&RIE as the directionality option versus CrossLink, is wind noise reduction improved? Yes, a little bit because of that study. But as that study showed, even with our wind noise reduction feature on, so let's say that is CrossLink Directionality 4, you're still getting 16 dB of wind noise reduction, which is phenomenal. You just get a little bit more if you were in that M&RIE mode because of where it's placed. But that M&RIE mode is really an omnidirectional mode. So that means weigh that out with the patient.

So, if your patient has like an outdoor program with the M&RIE microphone, great, 'cause then they can have the noise reduction and they have that extra benefit of the M&RIE microphone really not picking up all that external sound. But if they only have one program, I would probably leave it with CrossLink Directionality 4 or 3 because that's gonna help them more in noise, which is where they're at. And they're probably not in wind as often as they are in a noisy situation. And again, our feature still does a phenomenal job. So hopefully that clarified that question for you. If there's any other

questions, please feel free to type them in. But I haven't seen anything else pop up, just those few.

So again, if you need to run and see a patient, thank you so much. I hope to see a lot of you at our upcoming national meeting or at hopefully some type of upcoming training event later this year. So thank you so much everybody, and have a great rest of your Wednesday.