

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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APPLE INC.,  
Petitioner,

v.

VALENCELL, INC.,  
Patent Owner.

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Case IPR2017-00317 (Patent 8,989,830 B2)  
Case IPR2017-00318 (Patent 8,886,269 B2)

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Record of Oral Hearing  
Held: February 27, 2018

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Before BRIAN J. McNAMARA, JAMES B. ARPIN, and SHEILA F.  
McSHANE, *Administrative Patent Judges*.

Case IPR2017-00317 (Patent 8,989,830 B2)

Case IPR2017-00318 (Patent 8,886,269 B2)

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The above-entitled matter came on for hearing on Tuesday, February 27, 2018, commencing at 2:15 p.m., at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia.

P R O C E E D I N G S

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2 JUDGE McSHANE: Good afternoon. This is the final hearing in  
3 the Apple v. Valencell case. It's going to be the combined hearing for the  
4 IPR2017, it's the 317 case and the 318 case. I will also note for the record  
5 that the Fitbit v. Valencell cases, the 2017-1553 and 1554 cases have been  
6 joined to these cases.

7 I think this morning we entered appearances, so we can just repeat  
8 the appearances. Are they the same appearances this afternoon? Actually,  
9 I'll seeing different counsel at different tables. So let's have appearances,  
10 please. Petitioner.

11 MR. SPECHT: Yes, Your Honor. Michael Specht for petitioner,  
12 lead counsel. With me is Jason Fitzsimmons as well as Michelle Holoubek.  
13 All of us are with Sterne, Kessler, Goldstein and & Fox here on behalf of  
14 petitioner, Apple, Inc.

15 MR. KIMBLE: Thank you, Your Honor. Justin Kimble for the  
16 patent owner. The same backup counsel are with me, Jeff Bragalone, Bill  
17 Kennedy, Jon Rastegar, Scott Rhoades, and the client representatives, Dr.  
18 Steven LeBoeuf and Mr. Todd Ackman from Valencell.

19 JUDGE McSHANE: So Judge McNamara provided guidance this  
20 morning on how we are going to proceed. Here we are going to have an  
21 hour per side. So it's going to go petitioner, patent owner, and if petitioner  
22 has reserved time, then we are going to have rebuttal.

23 One question, are there still standing objections to demonstratives?  
24 There was a joint motion filed on that as of, I think, Friday night.

1           MR. SPECHT: There are, Your Honor. As you know, we have a  
2 significant number of objections to their numerous slides. And I believe  
3 they have continuing objections as well.

4           MR. BRAGALONE: Yes, Your Honor, both sides have objections  
5 they have submitted.

6           JUDGE McSHANE: So on this issue, let me make a few  
7 comments. First of all, the demonstratives that we have here are  
8 voluminous. In particular, patent owner has demonstratives exceeding  
9 150 pages of slides for one hour of argument. This is excessive. So I'll note  
10 that, number one.

11           Number two, as to the other objections, patent owner's objections  
12 to petitioner's demonstratives are directed to the reliance on the petitioner's  
13 reply. Patent owner here may present additional arguments regarding any  
14 allegations of unacceptable scope of the reply, but we are declining to strike  
15 any portions of petitioner's demonstratives.

16           As to the objections to the patent owner's demonstratives, any  
17 figures -- now, everybody knows here that demonstratives are used as a  
18 visual aid. So they are not evidence. That said, if there are figures in the set  
19 of slides that are not in the record, we are going to be disregarding those  
20 today.

21           And petitioner also objected to new arguments and misleading  
22 statements that are alleged to be in the demonstratives as well as exhibits and  
23 figures that were not previously cited. We are going to discern the  
24 appropriateness of the arguments and the references and determine  
25 whether -- we can figure out whether they have been in the papers before  
26 and the citations and the like. So we don't have a jury here. They are used

1 as your aid and they are not going to be serving as evidence. So we'll just  
2 deal with it as it comes. And that's about the extent of it. Okay. Any  
3 questions on that?

4 MR. BRAGALONE: No, Your Honor. Thank you, Your Honor.

5 JUDGE McSHANE: One other comment, and this goes to Judge  
6 Arpin's comment this morning, we are mixing up two cases here. And to the  
7 extent -- you did a great job this morning where you were differentiating  
8 between the cases. Here there is more overlap, perhaps. With that said, if  
9 you are talking about one particular case versus another, if you could try to  
10 flag that, please.

11 So we'll put an hour on the clock for you. And I assume you want  
12 to reserve some time, counsel?

13 MR. SPECHT: We do, Your Honor. I would like to reserve  
14 25 minutes for rebuttal.

15 JUDGE McSHANE: So what we are going to do here is I'm going  
16 to put the full hour on here and then you can figure out, you know, how  
17 much time. We'll look and see how much time it is. So you got the full hour  
18 that's going to start here whenever you are ready.

19 MR. SPECHT: Again, good afternoon, Your Honors. In both of  
20 these proceedings, we have demonstrated in our petitions for each matter  
21 that all of the challenged claims are obvious and unpatentable. Patent owner  
22 has failed to rebut our showing that all claims are nonpatentable. Rather,  
23 what we find here is that patent owner has repeatedly mischaracterized the  
24 prior art and presented arguments that are inconsistent or contradicted by  
25 their own expert and the prior art. In general, with respect to our  
26 obviousness grounds that rely on combinations of references, they have

1 presented a shotgun approach to try to demonstrate that we didn't show that  
2 those references should be combined.

3 As you know, the '830 patent is a continuation of the '269 patent  
4 with claims that are very similar to those of the '830 patent. In particular,  
5 independent claims address the same embodiment represented primarily by  
6 Figures 22A and B of the '830 patent and includes the same well-known  
7 structural elements with minor variations. The dependent claims primarily  
8 add the same well-known structural elements in both patents such as a lens,  
9 processor, transmitter and light-reflective materials.

10 I am now putting slide 2, and this is from the '830 patent IPR on  
11 the ELMO. In my comments today, I will address the '830 patent IPR first,  
12 which includes one set of grounds based on the primary reference of  
13 Goodman in combination with a number of secondary references for the  
14 dependent claims as shown there, Hicks, Hannula, Asada and Delonzor.  
15 Each of these references is also used, as you're well aware, in the 318 IPR  
16 proceeding that addresses the '269 patent. In the '269 patent IPR you know  
17 that we have two sets of grounds, one which includes the Goodman  
18 reference as the primary reference, and the other which includes the Asada  
19 reference as the primary reference. I will principally address the Asada  
20 reference, the Asada grounds after going through the '830 IPR proceeding.

21 To get us back into the flow of the technology, I want to now put  
22 up demonstrative slide number 5 from the '830 patent IPR. What that is is  
23 this is Figure 22B, 22A and 23 of the '830 patent. And if we focus our  
24 attention on Figure 22B, I just wanted to walk through and give a context for  
25 our discussion and what elements we believe are in dispute and why we  
26 think that we have demonstrated that they are shown by the prior art.

1           So if you notice at the top you have an emitter 24, a light emitter.  
2 It emits light. It goes through the light transmissive material 19, that  
3 chamber. It enters into a window 74W there on the left. It goes through the  
4 finger. So this device is wrapped around your finger in this embodiment. It  
5 goes through the finger, comes out the other side of the device through what  
6 is also labeled as 74W, enters in another light transmissive material and  
7 makes its way back to the detector, which detector 26. That's the basic  
8 principle of operation of the device in the '830 and '269 patent. And as I  
9 said, the claims claim this rather broadly.

10           Now I would like to turn to Goodman. This is on petitioner's slide  
11 6. This is two figures from the Goodman reference. At the bottom you see  
12 Figure 4 which is showing the device for the sensor of Goodman wrapped  
13 around a finger. At the top you see a planar image of the device. I wanted  
14 to walk through the device, explain its operation. So if you look to the  
15 left-hand side of Figure 2C at the top, you again see an LED and emitter 24.  
16 That emitter emits light represented by the arrows. That goes through  
17 apertures 40 which we've labeled there annotated as a window. And that  
18 window is through the cladding material. Atop of that cladding material you  
19 have a light transmissive film 45.

20           And then keep in mind this is wrapped around the finger. It would  
21 be up against the finger at this point. The light goes through that light  
22 transmissive material into the finger. It travels through the finger, exits on  
23 the other side of the finger, goes back through the light transmissive material  
24 45. Then as you see the arrows, the light goes through aperture 41 which  
25 we've annotated as a window there in the cladding material, back into the

1 photodetector 14. That's the basic operation. It operates very, very similarly  
2 to the operation of the '292, the Figure 22B description.

3 Now, with that background in mind in terms of the technology,  
4 there really are three with respect to -- let me back up. The issues here only  
5 relate to independent claim 1 in terms of patent owner rebutting whether or  
6 not the references disclose these elements. All of the other issues with  
7 respect to the dependent claims all hinge on their arguments that they claim  
8 we haven't shown a motivation to combine.

9 So I wanted to talk about these three issues in particular and focus  
10 on these. And really the second two bullets are related. The first bullet is  
11 whether or not Goodman discloses a window formed in the layer of cladding  
12 material that serves as a light-guiding interface to the body of the subject.  
13 So this is a limitation in the independent claim. Our position, obviously, is  
14 that it's disclosed by Goodman, and we think that's very clear. I'm now  
15 putting back up Figure 6 -- or slide 6. And you can see here that you have  
16 the light emitting diode sending light through a window and you have that  
17 light coming back through the window.

18 With respect to the second two bullets, these relate to the  
19 limitation, the wherein clause limitation where you have a first and second  
20 direction of light that are substantially parallel in the limitation. And then  
21 the third bullet is the light transmissive material is configured such that it  
22 supports or allows the light to meet those first and second direction  
23 limitations.

24 So let's talk about those in a little bit more detail. So I'm now  
25 going to our slide 10. And this is dealing with whether or not Goodman  
26 discloses a window formed in the layer of cladding material that serves as a

1 light-guiding interface of the body of the subject, the first bullet that I  
2 identified for you. It is our position that it certainly does. We have an  
3 excerpt from our petition. Goodman discloses that opaque tape layer 37 is  
4 apertured, respective apertures 40 and 41, which I just highlighted to you.  
5 These apertures allow the light to pass. We think that's very clear.

6 Now, in patent owner's attempt to rebut this, they have created an  
7 assembly of Goodman that simply does not make sense when you look at --  
8 it's inconsistent with -- putting back up here, sorry Judge Arpin for going  
9 back and forth, but slide 6. You put slide 6 back up, what we saw in slide 10  
10 was what they did was they pushed the LED and the emitter all the way up  
11 through the cladding material. Why did they do that? Because then they  
12 could make an argument that says, well, the light is not actually going  
13 through those windows. It's the LED and the detector that are pushed  
14 through. Therefore, light doesn't go through the window. We think that is  
15 false and it's inconsistent with the diagrams and inconsistent with the  
16 disclosures in Goodman.

17 So with respect to the diagram on why we believe our  
18 interpretation is correct, a couple of reasons. You see those arrows, they  
19 show light actually going through the windows. They show light LED 24,  
20 the light is going through and emitter or detector 14, you see the arrows, it's  
21 receiving the light. It's clearly indicative of the light going through the  
22 windows.

23 Now I'm putting up demonstrative slide 11. And patent owner's  
24 declarant essentially admits this. So we talked to him. Contrary to  
25 Valencell's position, Valencell's declarant, Dr. Titus, agreed with Apple  
26 stating that my understanding is that the apertures, referring to the apertures

1 in Goodman, would allow light to pass through them. This is consistent  
2 with the figure. This is consistent with our expert's testimony. And their  
3 own expert made the same admission.

4 So now I want to turn to the next bullet, the second bullet on the  
5 slide which deals with the first and second directions, whether or not --

6 JUDGE McSHANE: Counsel, can we just back up. There is a  
7 dispute about claim construction for this light guide term, light-guiding  
8 interface term. And the patent owner is proposing that it would be an  
9 interface that delivers light along the path. Is it your position that Goodman  
10 meets that construction?

11 MR. SPECHT: It is our position. It is our position that that's an  
12 incorrect construction. But if the Board adopts it, we believe Goodman still  
13 meets that. We believe our construction -- and actually, I shouldn't call it a  
14 construction. Our response to their construction, if you recall in our petition,  
15 we said that light-guiding interface, a plain and ordinary meaning. And then  
16 in our petitioner reply in response to their proposed construction, we argued  
17 that it simply should be a window that allows light to pass through. And  
18 either construction Goodman teaches this element or discloses this element.

19 JUDGE McNAMARA: Does our construction of light guide in the  
20 case we discussed this morning, IPR2017-315, have any impact on light  
21 guide interface here?

22 MR. SPECHT: It does not.

23 JUDGE McNAMARA: And why not?

24 MR. SPECHT: Because what's key is we are focused on the light  
25 guide interface, the complete term. And interface is the key here in  
26 distinguishing from light guide in and of itself.

1 JUDGE McNAMARA: If we were to construe the light guide in  
2 any particular way -- I think there was some discussion it really isn't a lot of  
3 dispute as to what the light guide means in the 315 case. So assuming we  
4 adopt that construction, is it just, does the interface portion with the rest of  
5 the light guide construction apply?

6 MR. SPECHT: I believe that's the case, Your Honor. I would  
7 have to go back and look at the notes from the transcript this morning, but I  
8 believe that's the case. And the key is that this is the interface that allows  
9 light to pass through.

10 JUDGE McNAMARA: That's fine. But it doesn't change  
11 anything? In terms of the light guide itself, that's all water under the bridge?

12 MR. SPECHT: That's correct.

13 JUDGE McNAMARA: Thank you.

14 MR. SPECHT: Now I want to turn back to petitioner's slide 12.  
15 And this is focusing on the limitation --

16 JUDGE ARPIN: Counselor, before you go to petitioner's slide 12,  
17 could you go back to slide 10 for a moment, please. Now, am I to  
18 understand that the disagreement here between the two drawings at the  
19 bottom of this slide, one labeled PO's assembly of Goodman and petitioner's  
20 annotated figure of Goodman, that the difference here is the extent to which  
21 a portion of the emitter or detector extends beyond the layer 37?

22 MR. SPECHT: That's correct, Your Honor. I think when you are  
23 referring to the figures at the bottom, you are referring to Figure 7A in our  
24 petitioner reply. We used Figure 7A to further support our position that the  
25 light emitter and the light detector would not be fully pushed through the  
26 substrate 37 even if they were pushed in there somewhat. And this is

1 another embodiment from Goodman that highlights how when you push the  
2 emitter into that area, it's still not fully pushed through. It's going to be  
3 recessed, and in which case the aperture still is providing or serving as a  
4 light-guiding interface.

5 JUDGE ARPIN: Apart from 7A, is there any disclosure in  
6 Goodman that talks about how far the emitter and detector are pushed  
7 through layer 37?

8 MR. SPECHT: So we refer to the figure -- what is the figure  
9 number now -- Figure 2C which shows that they are not pushed through and  
10 really highlight the fact that shows the light passing through the cladding  
11 material interface in both cases, going into the finger and then returning  
12 from the finger. Also Goodman is concerned with conformance to the skin,  
13 which would be another reason why you won't want to have essentially  
14 pushing these devices all the way through and creating essentially bumps on  
15 the skin not being conformal to the skin.

16 JUDGE ARPIN: Well, 2C is identified in column 8, line 15 as an  
17 exploded view. That's column 8, line 15 of Goodman. So I don't know how  
18 much 2C really tells us about how far these go through. Can you explain  
19 why this is so significant?

20 MR. SPECHT: I think it's significant for one reason for sure is if  
21 you look at the rays of light that are shown there, if indeed it was an  
22 exploded view where the light was not at all going through those apertures  
23 or windows, it would not show the light going and the emitter going all the  
24 way through the window. It would have those arrows higher up.

25 Actually, let me put it back on the screen, slide 6, so that it wasn't  
26 showing a light actually going through the windows, because under their

1 proposed assembly, the light wouldn't be doing that. That's the whole  
2 difference in our opinions. And likewise on the detector side, it's showing  
3 the light going through in an opposite direction. So I think that makes it  
4 clear that there is not an intent that you are going to push these devices all  
5 the way through that layer just merely looking at this figure even as an  
6 exploded view.

7 JUDGE ARPIN: But unlike the embodiment of 7A which is a  
8 different embodiment of the invention, we don't have a similar drawing  
9 showing the unexploded Figure 2C embodiment; is that correct?

10 MR. SPECHT: That's correct. And that's why we referred you to  
11 7A. So in a situation where they would sit in there and be recessed, they are  
12 still not pushed all the way through to further support our position.

13 JUDGE ARPIN: Thank you, counsel. Please continue.

14 MR. SPECHT: Now, returning to slide 12, this is going to the first  
15 and second directions, again, being substantially parallel. And here we  
16 believe it's really straightforward. In our petition we talk about in Goodman  
17 how you have the emitter and the detector. They are disposed on the  
18 opposite sides of the body part. They are opposite from one another. So in  
19 general, you would have light that is going in substantially parallel  
20 directions. That's further explained in the petition where Dr. Anthony talks  
21 about how the emitted light is reflected and refracted within the patient's  
22 body, often multiple times. So what you'll have is a ray of light coming out  
23 of the LED. It bumps around in there. There's many different directions,  
24 and in some of those directions, a second direction as it hits the emitter  
25 would be parallel to the original or substantially parallel to the original

1 direction of the light. And that's what Dr. Anthony has testified to here and  
2 what we've highlighted in our petition.

3 With respect to the notion that the light is reflecting and refracting  
4 and going in multiple directions through the finger, I've put up slide 13.  
5 This was also confirmed by patent owner's declarant, who admitted that the  
6 light would be impinging in multiple directions from the emitter and  
7 traveling in those different directions as it hits the detector.

8 With respect to the light transmissive material, I'm now on  
9 demonstrative slide 14, the light transmissive material is configured to meet  
10 the first and second directions. So here again from our petition we highlight  
11 from page 31 is delivered through the corresponding window 40 in the  
12 cladding layer and then through the clear polyester layer. So Goodman we  
13 are talking about the light traveling through the clear polyester layer 45  
14 which is that light transmissive material, and it's acting in a very similar way  
15 as the transmissive material in Figure 22A of the '830 patent. And we  
16 reached the conclusion in our petition Goodman discloses that material.  
17 That is configured to deliver light from the emitter to the body and collect  
18 light from the body of the subject back into the detector.

19 We also provide in our reply, this is on slide 15 now, as I indicated  
20 that Goodman's light transmissive material, that clear polyester layer 45, it  
21 functions in the same way as the light transmissive material in the '830  
22 patent which is also supported there by our expert's declaration.

23 Now I want to move to slide 16. As I indicated in my opening  
24 comments, there was a shotgun approach to all sorts of potential issues,  
25 detriments, reasons why these motivations for combination wouldn't work  
26 that we presented. It's our position that we did more than what was

1 necessary to demonstrate a motivation to combine in each of these. This  
2 slide, slide 16 highlights for each of the combinations where in our petition  
3 we talk about those. I'm not going to go through all of our arguments on  
4 these. I have a couple that I want to highlight.

5 But I will emphasize the point that each of these applied references  
6 is from the field of noninvasive optical biosensors. They all have that  
7 common subject matter and focus as a starting point. When we went  
8 through our discussion on each these, we made clear to identify what the  
9 motivation was. We had a very solid background section in our petition and  
10 presented by Dr. Anthony given the state of the art the kinds of issues that  
11 individuals working on biosensors would be concerned with. And that  
12 formed the foundation for a lot of these combinations.

13 So now I'm focused on slide 17. So slide 17, there's the issue of in  
14 their patent owner response they identified some detriments with the various  
15 combinations. Dr. Anthony was aware of those. He talked about tradeoffs  
16 generally. We made our showing that there was a motivation to combine  
17 and that he was aware of those tradeoffs. And despite those tradeoffs, they  
18 still would lead a person of ordinary skill in the art to combine these  
19 references.

20 I just want to highlight one issue with respect to the motivation to  
21 combine. It's sort of representative of a lot of the arguments in a sense. This  
22 is our slide 18. At the top this relates to the ground 2, Goodman in view of  
23 Hicks rendering claims 5 and 15 obvious. Claim 5 and 15 add a lens to the  
24 system. And here at the top is Hicks Figure 6 which we have annotated in  
25 red what are the elements of that figure. And you can see there's apertures

1 92 and 88, and you have a clear substrate that sits above that, clear substrate  
2 80.

3 Now, what patent owner's inaccurately annotated figure does is  
4 they contend that there is this significant buffer in the Hicks reference shown  
5 there in the red. And in doing so, they indicate, well, that's why in Hicks  
6 you needed a lens. You don't have that kind of a buffer in Goodman, so  
7 therefore, there would be no motivation to combine these. We think that's  
8 certainly flawed because that buffer doesn't really exist. And we  
9 demonstrated that in our papers. But that is sort of representative of the  
10 types of motivation to combine arguments they have made.

11 I now am going to move forward to the motion to amend in this  
12 case. This is demonstrative slide 22. Again, three bullets here. Patent  
13 owner failed to meet its burden of responding to the instituted grounds. Our  
14 opposition, again, we provided significant and extensive rationales for why  
15 we would combine the references. And Han very clearly discloses reducing  
16 footstep motion artifacts during running.

17 The primary -- this is slide 24. The primary amendment, if you  
18 will, to the substitute claims is this clause, herein the base comprises a signal  
19 processor configured to receive and process signals, dot, dot, dot, to reduce  
20 footstep motion artifacts. That's what has been added here.

21 Moving to slide 25, so with respect to slide 25, our position is they  
22 haven't met their threshold burden. Even after *Aqua Products*, there are  
23 certain things that they must do, threshold burdens. And that was in chief  
24 judge -- his memo on the impacts of *Aqua Products* identified this issue.  
25 Motions to amend must still address the notion. The motion to amend did  
26 not address how the proposed amendments overcome the instituted grounds

1 and thus do not respond to a ground of unpatentability involved in the trial  
2 as required by 37 CFR 42.121(a)(2). They simply never address any of the  
3 references, Goodman, Hicks, Hannula, Delonzor in their motion to amend.

4 And we could stop there and deny this motion to amend, but we  
5 also think that our combination renders the proposed claim unpatentable.  
6 This is demonstrative slide 26. There were a lot of reasons that we cited in  
7 our opposition to combine Goodman and Han. Highlighted here in yellow, a  
8 person of ordinary skill would have understood that Goodman's technique of  
9 a low mass sensor that conforms to the skin would not have been effective at  
10 reducing inertia-based motion artifacts and therefore, they would look to  
11 Han to do that.

12 The arguments that they did make, this is on slide 27, are really  
13 conclusory and unsupported by the evidence. There's two parts to that. First  
14 they talk about complexity, size or mass. We've refuted these in our papers.  
15 But they are just sort of a random shotgun approach to various things,  
16 detriments, if you will. But then also they make the argument that you want  
17 to incorporate Han's large, sturdy, solid ring into Goodman. Well, that's a  
18 red herring. We are not looking to incorporate all of the ring of Han into  
19 Goodman. What we are looking at is the sensor and the algorithm for  
20 processing data. That's not a large amount of additional elements that we are  
21 adding.

22 And then lastly, they dispute the fact that Han discloses reducing  
23 footstep motion artifacts during running. This is our slide 28. It's explicit.  
24 Han absolutely does disclose, as the first portion is, from our opposition  
25 where we highlight that Han talks about all the way up to walking or running  
26 and recognizing that impacts the sensor. And then there's an excerpt there at

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1 the bottom that very clearly shows that the Han reference is concerned or the  
2 Han device is concerned with hand motion from running, walking, et cetera.  
3 So we think it's pretty clear that it's disclosed.

4 Now I want to move to switching gears now to the '269  
5 proceeding. '269, slide 2, and this is just a summary of the grounds focused  
6 here on grounds 1 through 5 which deal with the Asada reference as the  
7 primary reference.

8 And I want to put up slide 7. Now, these are the '269  
9 demonstratives, Your Honors. Slide 7 is an annotated Figure 11. The  
10 annotations show how the Asada device works. Again, you have emitter 4.  
11 It emits light through this light transmissive material which has -- and then  
12 on top of that is the cladding where it shows two windows. Again, this is  
13 wrapped around the finger. The light goes into the finger and the light  
14 comes back through the window, through the light transmissive material  
15 back into the photodetector working essentially very similar to Goodman  
16 and -- were you going to ask -- Goodman and the '269 and '830 Figure 22A  
17 disclosures.

18 Now, with respect -- I'll leave that there for a minute. With respect  
19 to this, there are a couple of issues. One, patent owner takes issue with the  
20 annotations that we have added here that did not occur in Asada. These  
21 were provided by our expert. Our expert believed that this was the way a  
22 person of ordinary skill in the art would interpret this diagram. Furthermore,  
23 to corroborate that, he referred to the Swedlow reference that teaches a very  
24 similar device which did have labeling for each of these features, and based  
25 on that it was his opinion that a person of ordinary skill in the art would  
26 interpret this diagram this way.

1           The other issue with respect to Asada is, frankly, whether or not in  
2 the light transmissive materials those dashed lines mean that you cut out the  
3 material or the material stays. It's our position that those dashed lines, you  
4 don't -- the material is solid. There is not a window cut out in the light  
5 transmissive material. That would reduce or eliminate why you have the  
6 light transmissive material there.

7           Furthermore, from just an engineering drawing perspective, dashed  
8 lines typically don't indicate that you are cutting something out. It's  
9 represented by a solid line. Rather what those dashed lines indicate is that  
10 you are simply lining up the window with the LED emitter. And likewise on  
11 the other side with the photodetector and the window, they are going straight  
12 down, and those squares are where the windows would interface with that  
13 light transmissive material.

14           This is slide 15. Just quickly, two points. One, that Asada does  
15 disclose the inner body portion, the light transmissive material, as I have just  
16 described. And the second point is that Asada's prototype A and B both  
17 include a signal processor which is in claim 7 and a transmitter that is in  
18 claim 7.

19           So we covered a number of these issues already. This is  
20 demonstrative slide 16. This is again going to whether or not Asada  
21 discloses the inner body portion comprising light transmissive material and  
22 that the light transmissive material is in optical communication with at least  
23 one emitter and at least one detector. As I've explained, we believe it is.  
24 You see light transmissive material 3 which is placed above the emitter and  
25 the photodetector. And highlighted in yellow in the figure is the notion that  
26 the band protects optical components from direct contact with the skin

1 further supporting the notion that the light transmissive material, those  
2 dashed lines, you are not cutting the material out. It's not like there's a big  
3 hole there. If that was the case, you would have direct contact with the skin.

4 Now I'm moving to demonstrative slide 17. And just another  
5 admission importantly highlighted here, Valencell's declarant confirmed that  
6 if the dashed rectangle in light transmissive later were apertures, the optical  
7 components would be exposed and directly contact the skin, which was in  
8 direct conflict with the figure captioned saying that we wanted to avoid  
9 contact with the skin.

10 Slide 18, now we are moving on to whether or not Asada discloses  
11 a signal processor or a transmitter. And here again, this is from the  
12 declarant's admission, their declarant, patent owner's declarant: A person of  
13 ordinary skill in the art would have understood that prototype B included the  
14 signal processor like the early prototype A and that Asada's description of  
15 prototype B focuses on improvements and modifications.

16 So that's our position in our petitioner reply. And then we go on to  
17 say, Indeed, Valencell's declarant admits that prototype B likely has a  
18 microprocessor.

19 The whole point of Asada was to have a wireless sensor. It's going  
20 to have in all embodiments, a processor, a transmitter or a receiver if it's  
21 going to be a wireless device.

22 And demonstrative slide 20, again, same sorts of situation for all of  
23 the combinations. We provide ample support throughout our petition. We  
24 respond to their arguments in our petitioner reply in terms of the motivation  
25 to combine. And also to highlight again, each of the applied references and

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Case IPR2017-00318 (Patent 8,886,269 B2)

1 the only new one here being Al-Ali is from the field of noninvasive optical  
2 biosensors.

3 I want to jump to the patent owner's motion to amend. In this  
4 case -- this is slide 27. Again, three points here that we want to make and  
5 focus on is, one, the substitute independent claim 12 lacks written  
6 description to support and is indefinite; two, patent owner did not argue the  
7 prior art fails to teach any of the added limitations; and lastly, we provided  
8 significant and extensive rationales for why you would combine the  
9 references, which is where their primary arguments are.

10 I remind everyone substitute independent claim, this is  
11 demonstrative slide 29, and here we have a signal processor -- this is the  
12 primary change to the claim, a signal processor configured first to receive  
13 and process signals produced by at least one optical detector and a motion  
14 sensor to extract physiological and motion-related information; and second,  
15 reduce motion artifacts by moving frequency bands from signals that are  
16 outside a range of interest using the one band filter to produce precondition  
17 signals that also will be related to physiological and motion-related  
18 information; and then third, we generate parsed output data. That output  
19 data is also going to be somehow related to physiological and motion-related  
20 data; and then finally, at the end we said that this is fed into a multiplex  
21 output serial data string comprising motion-related and physiological  
22 information.

23 And our position is that this claim is indefinite. It is unclear how  
24 the last instance of motion-related and physiological information relates to  
25 the first instance of where it's reversed physiological and motion-related  
26 information. And there's no antecedent basis. There's no connection

1 between this data. So a person of ordinary skill in the art would not  
2 appreciate what this claim is seeking to cover.

3 Now slide 30, just quickly on claim 12 lacks written description  
4 support. This specifically relates to the band-pass filter limitation. It's our  
5 view that there is no written description support in the '269 patent for a  
6 band-pass filter that in and of itself reduces motion artifacts as is claimed. In  
7 the specification there's a discussion about a band-pass filter, but in and of  
8 itself, that band-pass filter is not removing frequency bands. So we believe  
9 there is a lack of written description support.

10 And just quickly on slide 32, we believe there is ample motivation  
11 to combine Asada and Swedlow. As highlighted here from our opposition,  
12 Asada recognizes reliability and comfort are important design  
13 considerations. Those are the same things that Swedlow offers to improve  
14 the design. Again, this is slide 33 highlighted a person of ordinary skill  
15 would have been motivated to further process the pulse signal and motion  
16 signal in Asada to detect a patient's heart rate and impacts indicating that the  
17 patient has fallen over, as taught by Gupta. So Gupta has a motion sensor.  
18 It detects or can detect when a patient falls. This would be an added benefit.  
19 And there are indications in Asada, which many of their discussion deals  
20 with hospital patients, that this would be desirable for them to have as well.

21 Furthermore, with respect to this last point, our opposition was not  
22 seeking to combine all of the elements of Gupta and Asada but rather to  
23 process the pulse signal and motion signal in Asada to detect the patient's  
24 heart. So we think we've demonstrated in our opposition that there is ample  
25 motivation to combine.

26 And with that, I am going to stop unless you have questions.

1 JUDGE ARPIN: No questions at this time, Judge McNamara.

2 JUDGE McSHANE: Thank you, Judge Arpin. So we'll give you  
3 23 minutes and 30 seconds for rebuttal.

4 MR. BRAGALONE: Thank you, Your Honor. I'll be attempting  
5 to reserve the last ten minutes of our argument time for argument by  
6 Mr. Rhoades on the motion to amend.

7 I would like to start with the Goodman reference. And I'm going  
8 to skip all the way ahead to slide 34 in our presentation. So -- I'm sorry, 54.  
9 Judge Arpin, it's 54 in the presentation. I'm going to go to the Goodman  
10 reference. So the overview of the Goodman reference makes it clear that  
11 this is directed to providing a noninvasive, reliable and continuous  
12 monitoring of an intensive care patient. And this is important because we  
13 are monitoring the most critical patient treatment information of the most  
14 dire conditions. And an overview of the Goodman reference and the two  
15 figures that the petition relies upon from Goodman in the actual petition are  
16 2A and 2B. As you can see, this is a wired connection to an external signal  
17 processor and the unit is disposable and thus sanitary for intensive care  
18 purposes.

19 Moving to slide 56, Goodman eliminates the motion artifacts by its  
20 conformance to the skin. It's a very thin layer of a sensor with a very low  
21 mass. And Goodman notes that this is critical to its ability to eliminate  
22 motion artifacts.

23 Turning now to slide 57, in contrast, Asada is meant for out of  
24 hospital use without doctor supervision.

1           Slide 58, Asada, of course, relies on the battery power device and  
2 it is wireless. It's also a device with appreciable mass in that it has all these  
3 electronic components.

4           Slide 59, Asada's wireless features actually came with a design  
5 cost because they had to limit the clock cycles of the CPU and they had to  
6 limit the distance between the LED and the photodetector. So they made  
7 some tradeoffs there.

8           Now, this is critical. As disclosed in slide 60, petitioner's entire  
9 premise for combining Goodman and Asada, aside from the fact that they  
10 are noninvasive biosensors, but we need more than that to have a motivation  
11 to combine, obviously. So they say, well, a person of ordinary skill in the art  
12 would combine Goodman with Asada in order to reduce motion artifacts.  
13 They say Goodman's concern about reducing motion artifacts would have  
14 logically led a person of ordinary skill in the art to Asada. But the device of  
15 Goodman is described as eliminating motion artifacts. There is no  
16 legitimate motion to combine. You wouldn't combine Asada, especially  
17 with the detriments that come from that combination in order to solve a  
18 problem that doesn't exist in Goodman. In fact, the low mass of the sensor is  
19 the feature that allows it to eliminate the motion artifact. And yet they  
20 would combine Asada with that, increase the mass and alter that.

21           Turning to slide 61, in its reply after realizing that their premise for  
22 combination is faulty, they tried to muster a series of other statements. First  
23 of all, they suggested that a person of ordinary skill would just ignore the  
24 plain language of Goodman. They would say, well, I know it says it  
25 eliminates motion artifacts, but you can't really eliminate them all, so  
26 therefore, you would add all these other components. So I don't think a

1 person of ordinary skill in the art, we can't assume that they would ignore  
2 the teaching of the reference.

3           Then they say that you might have motion artifacts due to inertial  
4 movement. But they forget that Goodman is designed for use with an ICU  
5 patient. There's not a lot of movement, not a lot of jogging going on in that  
6 intensive care hospital bed. So they also say in reply Goodman's  
7 nonadhesive embodiment would support this because you might have a  
8 motion artifact in the nonadhesive embodiment. The petition was not  
9 instituted on the basis of the nonadhesive embodiment. That's a different  
10 embodiment. They can't mix and match features of embodiments to justify a  
11 combination with the adhesive embodiment.

12           And in any event, that's flawed because you would still be adding  
13 all of these components to the sensor device of Goodman which has to  
14 cutaneously conform to the skin. It's a very thin, very low mass device.

15           Turning to slide 63, this is the photograph of the embodiment  
16 prototype A of Asada. And Asada is the kind of appreciable mass high  
17 aspect ratio device that Goodman specifically says it is trying to avoid.  
18 Goodman lacks three limitations from claim 5. And I'm talking about a  
19 dependent claim here, of course. So petitioner simply attempts to fill in the  
20 gaps by using Asada and then also alternatively Hannula. I'm looking at  
21 slide number 64. You can't just use the patent as a roadmap or a shopping  
22 list and pick and choose from various features in the prior art and cobble  
23 them together, but yet that's exactly what they have done here.

24           So as shown on slide 65, Goodman explicitly notes that its low  
25 mass is a most important contributor to its successful design. That's what  
26 allows it to eliminate a motion artifact. Yet, they would add significant mass

1 by adding all of these features from Asada. So this actually works against  
2 the features of Goodman that allow it to eliminate a motion artifact.

3 Conformance to the skin, slide 66, is also one of the most  
4 important aspects of Goodman. The disclosed adhesive fastening conforms  
5 to the element apparatus so completely to the patient's skin that motion  
6 artifact is eliminated. That's a quote directly out of Goodman. And yet they  
7 would add to it significant material that would interfere with the cutaneous  
8 conformance, such as a microprocessor. They would add a second optical  
9 detector and a new reflective mass. All of that is going to increase the size  
10 of that sensor, the thickness of the sensor and it's going to decrease  
11 cutaneous conformance. And that's actually not disputed.

12 Another feature, as noted on 67, is that Goodman is entirely  
13 disposable and thus sanitary. This is meant for use in an ICU. So for  
14 individual patients you want to be able to dispose of that sensor unit. And  
15 yet they say that -- I'm sorry, petitioner notes that a person of ordinary skill  
16 in the art would add all of these things, that these would decrease  
17 disposability. You aren't going to be adding a microprocessor to Goodman  
18 and then throwing it away after each use.

19 JUDGE ARPIN: Counselor, is this an advantage of all of  
20 Goodman's embodiments or is this just one possible advantage?

21 MR. BRAGALONE: So every one of Goodman's embodiments  
22 does rely upon the cutaneous conformance and the low mass. Those are the  
23 two features that are touted in Goodman and that allows it to overcome the  
24 drawbacks of other prior art devices that had bulky PPG monitoring systems.  
25 So, yes, these are advantages. And all of these, as admitted by even  
26 petitioner's expert, would be detriments and would increase the mass. They

1 would decrease cutaneous conformance. So all of these work against the  
2 teachings of Goodman.

3 JUDGE ARPIN: I'm talking, though, about the sanitary and  
4 disposable feature.

5 MR. BRAGALONE: Yes, I don't believe that there was a  
6 nondisposable version of Goodman. In fact, it emphasizes that it's entirely  
7 disposable because it's actually hooked up to a separate signal processor. So  
8 the guts of it, if you will, the processing power is plugged into the wall and  
9 it's hooked up with wires.

10 JUDGE ARPIN: Counselor, also Asada's device is admittedly a  
11 prototype, and prototypes are not always as the designer would like them to  
12 be. And Asada's prototype is bulky. Can we assume that every device that  
13 Asada uses is this bulky?

14 MR. BRAGALONE: Well, all we have before us, of course, are  
15 the prototypes. And the petition relies upon combining elements of those  
16 prototypes with Goodman. It doesn't suggest that there would be some  
17 future less bulky version of the prototypes that would have these elements to  
18 combine them. And in fact, I think some of them, while certainly  
19 microprocessors have become smaller over time, that's nevertheless going to  
20 add a significant amount of bulk as well as expense and things that you  
21 wouldn't want to dispose of to Goodman. So I believe that the petition relies  
22 upon the prototypes as they are. And there's no suggestion that we could  
23 ignore the prototypes and just assume that they would become more easily  
24 integratable with Goodman.

25 JUDGE ARPIN: But does petitioner rely on this bulky  
26 construction or does it rely on the features and elements of this prototype?

1 MR. BRAGALONE: That's interesting, Your Honor, because  
2 actually, petitioner mixes and matches from the various prototypes of  
3 Goodman without any analysis as to why you would rely on element A for  
4 one prototype, prototype A, and a different element from prototype B. So  
5 there's no obviousness analysis for why you would pick and choose from  
6 those elements. But the defaults that attend to using any of these features  
7 from Asada don't go away based upon which prototype you rely on.

8 JUDGE ARPIN: Well, the picking and choosing problem is  
9 usually one we associate with anticipation in the *Arkley* case. The picking  
10 and choosing that you are asserting is improper in petitioner's combination,  
11 is it from vastly different prototypes or is it from features of all prototypes?

12 MR. BRAGALONE: Well, there is no teaching in Asada that  
13 these features are common to the prototypes. There is an assumption that's  
14 made by petitioner's expert in a reply declaration that, well, they are the  
15 same. In order to support that assumption, he relies on one sentence that  
16 says that there was actually a difference in the collection of light between the  
17 two. It doesn't suggest that everything else in the prototypes was the same.  
18 In fact, they talk about a significant difference in energy use between the  
19 prototypes, which would suggest that they were not merely iterations of the  
20 same or that they have all the same elements. That's an assumption that's  
21 made by petitioner that's not directly supported by Asada.

22 JUDGE ARPIN: On a different note, petitioner notes that I think  
23 your substitute or it believes your substitute claim is indefinite. Is that  
24 something that we consider in evaluating a motion to amend?

25 MR. BRAGALONE: The motion to amend arguments will be  
26 addressed by Mr. Rhoades, respectfully. So I'll defer that question to him.

1 JUDGE ARPIN: Sorry. Thank you very much. Please continue.

2 MR. BRAGALONE: Thank you, Your Honor. So moving to  
3 slide 69, on cross-examination Dr. Anthony was forced to concede, as  
4 petitioner admitted, that all of these were detriments that were caused by the  
5 combination. So added mass, decreased conformance to the skin, decreased  
6 disposability and decreasing blood perfusion, all of those are detriments of  
7 adding those three components that you propose to Goodman? Answer:  
8 Correct.

9 So he agrees that those are all detriments. And yet, in slide 7, he  
10 now says that, well, the desire for us to go wireless outweighs all these  
11 detriments. We would suggest exactly the opposite is true. Goodman is a  
12 wired device intended for intensive care patients in the hospital. It's  
13 admitted that a wireless device that runs through wifi and wireless  
14 connections, and this is connections as of the latest 2009 wifi technology,  
15 that that would have unreliability issues and you could easily have situations  
16 where the device could run out of battery or lose its wireless connection.  
17 And this is leaving an intensive care patient without vital monitoring. In  
18 those scenarios, that's what Goodman is trying avoid with its device. That's  
19 why the wired nature of Goodman is essential to its use and why a person of  
20 ordinary skill in the art, in fact, any person with any sense of decency would  
21 not allow a critically ill ICU patient to be monitored with a battery and a wifi  
22 device.

23 And in fact, this isn't just mere speculation or conjecture. Asada  
24 itself discloses that when it was benchmarking its wireless device in a  
25 hospital environment, it was required to use a tethered version, in other  
26 words, a wired version instead of a wireless. And that was due to hospital

1 regulations. So petitioner has not met its burden to show that adding  
2 wireless capability outweighs all the detriments of adding the mass, the  
3 noncutaneous conformance, all of these additional elements to the sleek  
4 sensor of Goodman. A person of ordinary skill in the art just would not  
5 make that combination.

6 Turning to slide 72 in ground 10, so claim 6 and 7, dependent  
7 claims, they now want to add two more things to Goodman, a signal  
8 processor and a transmitter. That exacerbates the problems that we've  
9 already covered. These are going to add mass. In addition, they are going to  
10 add tissue pressure and they are going to reduce conformance with the skin.  
11 Adding a transmitter means that you also have to add a battery which also  
12 adds mass to the device of Goodman. Remember, this is a small device  
13 that's designed to go directly in contact with your skin over your fingertip,  
14 and yet they are going to add all of this to it.

15 The signal processor itself is redundant. Goodman already has a  
16 signal processor. It processes the signals off of the device in the tethered  
17 unit that's attached to the sensor. So you don't need to add a signal processor  
18 on the device.

19 So there's an insufficient motivation to combine Goodman and  
20 Hicks as well. Hicks adds a lens. There's no lens needed for transmittal  
21 PPG such as Goodman. A transmittal PPG, as disclosed in Asada, benefits  
22 from unfocused light. In fact, it relies upon unfocused light, so it's a more  
23 robust signal and it's less susceptible to differences and to being directed to  
24 the wrong part of the body. If you have a focused light, then disturbances  
25 will cause that to focus on the wrong part of the body. Whereas, unfocused

1 light works better with a transmissive PPG. And also, of course, adding a  
2 lens decreases disposability.

3 Let me skip ahead to slide 76. Petitioner supplements Goodman's  
4 lack of a lens with a purported disclosure of Hicks to add a lens. But there's  
5 no reason to add a lens to Goodman. Goodman says that its signal is  
6 perfectly robust. And there's no reason that you would add all the detriments  
7 of additional unwanted pressure, unwanted motion artifact in order to fix  
8 something that's not broken. A person of ordinary skill, as disclosed on 77,  
9 would have understood that, as noted in Asada, a transmittal PPG benefits  
10 from unfocused light.

11 Skipping ahead to slide 78, Hicks itself says you don't use a lens  
12 unless the light is not already properly directed or focused.

13 Skipping to 78 -- I'm sorry, 79, adding a lens to Goodman actually  
14 decreases its ability to cutaneously conform to the skin causing at least two  
15 problems. It adds motion artifact, which Goodman had already eliminated,  
16 and it adds unwanted pressure to the skin. Even a small thing that's added  
17 such as a lens is going to add unwanted pressure because it puts pressure on  
18 the very area that you are trying to measure. And this notes that you want  
19 the blood flow being interrogated to be undisturbed. But putting a lens in  
20 there is just like putting a pebble in your shoe. That's going to cause  
21 unwanted pressure in that area.

22 And petitioner does not even address the issue of unwanted  
23 pressure here as a result of the lens of Hicks in its reply. Their only  
24 response, a conclusory allegation from Dr. Anthony that, well, that would be  
25 negligible thickness. But we have to remember that the thickness of

1 Goodman, as assembled, is a very thin, tight structure. So anything is going  
2 to affect conformance to the skin.

3           Skipping ahead to slide 81, it also contradicts Dr. Anthony's  
4 testimony where he admitted that adding relatively small components to  
5 Goodman would decrease conformance with the skin. So he's already  
6 admitted that even adding these devices is not only going to add mass, but  
7 they are going to decrease cutaneous conformance.

8           Now, patent owner mislabeled the buffer of Figure 6. And you  
9 heard Mr. Specht take us to task on that. Yes, it's correct that this buffer  
10 does not exist in Goodman and we misidentified it there. However, it's  
11 correct to say that this buffer does not exist in Goodman, and I'm on slide  
12 82, the green buffer there.

13           JUDGE McSHANE: That buffer? Which buffer?

14           MR. BRAGALONE: So this is in Hicks. And patent owner  
15 misidentified --

16           JUDGE McSHANE: I understand. But the next one, I'm sorry, on  
17 that one, what exactly are you referring to there?

18           MR. BRAGALONE: So a buffer exists in Hicks. And it's formed  
19 by the air pocket in the aperture of 88 when foam layer 86, when it's  
20 assembled. Hicks discloses that the reason that it uses a lens is in order to  
21 dissipate heat that builds up in this air pocket with this buffer in Hicks.

22           JUDGE McSHANE: Repeat again where you are saying the buffer  
23 is.

24           MR. BRAGALONE: So the buffer is, and I'm sorry the figure is  
25 so small, it looks like both 92 and 88.

26           JUDGE McSHANE: Ninety-two and 88.

1 MR. BRAGALONE: And we've highlighted 92, but it also  
2 appears again in 88, in between the components. So there is no dispute that  
3 Hicks has a buffer and that the lens is to address the air pocket that's caused  
4 by this buffer. But what's missing from petitioner's analysis is the fact that  
5 Goodman doesn't have this buffer. So this buffer does not exist in  
6 Goodman. So the very reason why you have a lens in Hicks in the first place  
7 is not present in Goodman. So there's no reason to add a lens because you  
8 are taking the good unfocused light and turning it into focused light, which  
9 is bad in the transmittal PPG.

10 Turning to slide 83, this just recaps that focusing the light can  
11 focus it on the wrong part of the body. And they say, well, a person of  
12 ordinary skill in the art would have known how to design a sensor to avoid  
13 this. But that's just a conclusory statement. You can't ask for a combination,  
14 suggest a combination to solve a problem that doesn't exist with a buffer  
15 that's not even present in what you are trying to add it to and then say, well,  
16 the problem that we've now created, a person of ordinary skill in the art  
17 would know how to get around the detriment. That's just conclusory.

18 Skipping ahead to 84, there's no support for the statement that this  
19 would have added minimal cost. It ignores all the cost of having to perhaps  
20 redesign the algorithm because now you are dealing with focused light from  
21 the lens, the placement of that. And what about disposability? They  
22 actually say, well, you wouldn't necessarily dispose of the lens of Hicks.  
23 But Goodman says the entire unit has to be disposable. So yes, you would  
24 be throwing away that lens too. And certainly you aren't going to have  
25 hospital personnel picking out lenses out of used sensors. So this would

1 have to be disposable as well. So it's going to add to the cost and decrease  
2 the disposability of Goodman.

3 Slide 85, petitioner never offers any legitimate benefit of adding a  
4 lens to Goodman to focus light other than they need it to meet the claim  
5 limitation of dependent claim 5. That's the only reason it's there. Their  
6 motivation to combine just simply doesn't hold water.

7 Skipping to slide 86 and claim 4, Goodman in view of Hannula, so  
8 they turn to Hannula for the light-reflective material on at least a portion of  
9 the outer surface. When viewed as a whole, Goodman and Hannula are not  
10 combinable.

11 Now, I want to skip ahead, and I'll briefly touch on this, but  
12 Goodman relies almost exclusively on adhesives and actually disparages  
13 Velcro attachments.

14 JUDGE McSHANE: Hold on. You have to slow down. So we  
15 are on slide 87.

16 MR. BRAGALONE: Thank you, Your Honor.

17 JUDGE McSHANE: I know you have limited time.

18 MR. BRAGALONE: I'm really trying to use these slides to my  
19 best advantage. But they are ignoring the fact that while there is a  
20 nonadhesive embodiment of Goodman, that's not the embodiment on which  
21 institution, on which the petition was based. And moreover, they are really  
22 ignoring the fact that you need to look at the combinability of the references  
23 as a whole. The entirety of Goodman teaches away from using Velcro.  
24 They actually disparage the use of Velcro devices because they don't  
25 conform to the skin. So the idea that you would combine Hannula, which is  
26 a Velcro device, with Goodman which disparages Velcro devices really is a

1 failure of the petitioner to evaluate the combinability of the references as a  
2 whole.

3           So turning to slide 88 -- I'm sorry, let me skip that and go on slide  
4 89. Petitioner argues that Goodman is concerned with poor signal pickup  
5 during periods of low blood flow. However, if you read this closely, it is  
6 concerned with that, but it notes that that's the problem of the prior art. Low  
7 blood flow and poor signal pickup is what their device solves. A person of  
8 ordinary skill in the art would not look for a solution to a problem that  
9 Goodman actually says it solves. So, yes, poor signal pickup is a problem in  
10 the prior art, but that's the prior art as referenced in Goodman, which  
11 Goodman actually teaches how to solve that problem. So this is not a  
12 legitimate basis on which you would find a motivation to combine.

13           The reply doesn't save the faulty premise. They say, well,  
14 Goodman is really only talking about the nose embodiments. Nonsense.  
15 Nonsense. Goodman is referring to all of its embodiments. And when it  
16 says the disclosed invention increases the blood flow of critically  
17 compromised patients and that it provides a light, nonpressure-asserting skin  
18 seal which prevents motion artifact, it's talking about the invention. And it's  
19 also talking about Figures 2B and 2C which are finger embodiments. Not  
20 nose embodiments. So that's just nonsense. A person of ordinary skill in the  
21 art would not look outside of Goodman for a solution to a problem that  
22 Goodman itself solves.

23           Slide 91, what's worse is if you add Hannula's reflective mask, you  
24 actually make Goodman worse. So if you add this reflective mask, it works  
25 against the goal of improving poor signal pickup during periods of low  
26 blood flow because you are going to impede the blood flow by adding an

1 additional element in there and adding pressure. And Goodman notes that  
2 only nominal pressure from their invention to the patient can be applied  
3 locally. So you don't want to add components.

4 Petitioner only counter argues that a person of ordinary skill in the  
5 art would have understood that this thin flexible layer would have a  
6 negligible effect. Again, all the detriments that we pointed out they  
7 conclude and say it would be negligible, but that actually goes counter to the  
8 teachings of Goodman.

9 Now, let me turn to the arguments for Goodman itself as  
10 invalidating. And I'm on slide number 93 now. So it's important because  
11 when the embodiment shown in Figure 2C is assembled, the layers are  
12 adhered together such that the substrate portions 14 and 24 fill the entire  
13 thickness of tape layer 37. And this is a point of major contention between  
14 the parties because the exploded view here and petitioner's reliance on that  
15 exploded view ignores what happens when you assemble it together. They  
16 fail to note that Goodman itself has explicit assembly instructions. It says  
17 that you actually adhere sensors, optical sensors 14 and 24 to layer 30, which  
18 is the body, via the adhesive layer 32. And then only after those are adhered  
19 and stuck into place do you then adhere on the top layer, which is 37. That  
20 goes down over it. So those sensors fill that entire aperture.

21 JUDGE McSHANE: On this one, counsel, I am going to add for  
22 the record that the -- what's shown in this modification in the upper portion  
23 of the figure there, that patent owner developed that. It's not anywhere in the  
24 papers --

25 MR. BRAGALONE: That's correct. And we noted that explicitly  
26 in our patent owner response. We were careful to note that. That's

1 absolutely the case. We tried to do that to illustrate what happens when you  
2 follow those explicit assembly instructions. And the point is that there's no  
3 support for the idea that they would not completely fill these apertures. In  
4 fact, all of Goodman teaches that you want to conform the device to the skin  
5 so that it becomes virtually inseparable with the skin. They actually say it  
6 becomes like part of the skin. So you don't want these air gaps in there at  
7 all.

8           Now, they show an embodiment with an air gap, and that's  
9 Figure 7A. But as Judge Arpin pointed out, that's a completely different  
10 embodiment. The petition was never instituted on that embodiment. The  
11 first time they raised that embodiment was in their reply. We objected to  
12 that. We asked that we be allowed to sur-reply or that it be stricken and we  
13 would be able to file a motion to strike. And we were told, and I'm turning  
14 now to slide 95, quote, we are not changing our position from the petition in  
15 terms of the embodiments we rely on. We are not relying on Figure 7A to  
16 support or the embodiments in Figure 7A to support our arguments or to  
17 make our prima facie case. That's not the case. And yet it sure sounded like  
18 they are relying on that as disclosing how the diagrams of Figure 2 are put  
19 together. But that's very different from Figure 7A.

20           And also, I would point out, we asked Dr. Anthony about this, we  
21 said, well, what's the basis for annotating with these arrows there that you  
22 put in that seem to show light coming out? Because as it turns out, there's an  
23 opaque layer that overlies the entire light source of 7A. So there's no  
24 discussion of why you would look at this for instruction. It's actually a very  
25 different embodiment.

1           There's also no support for the direction or how these rays are  
2 drawn whatsoever. And in fairness, Dr. Anthony admitted in a roundabout  
3 way that he really didn't know. He said, quote, the intimate details of how  
4 transparent it is or how opaque it is at different angles will depend on the  
5 sort of different design considerations.

6           So in other words, he doesn't know. They drew those in there  
7 suggesting that that layer acts as some kind of a light-guiding interface,  
8 which it absolutely does not. There is no window there once you think the  
9 device is assembled because those apertures are filled. That's absolutely the  
10 case.

11           Now, I would like to turn to --

12           JUDGE McNAMARA: Excuse me just one quick second. In your  
13 demonstrative 93 where you had the drawing that you just noted is your  
14 version of compressing the Figure 2C, I notice you stop at layer 37. What  
15 about layers 45 and 50?

16           MR. BRAGALONE: So layer 50 is, I believe, the release tape  
17 that's on the top that just comes off that layer. And then layer 45 is the layer  
18 above that of the --

19           JUDGE McNAMARA: What is it?

20           MR. BRAGALONE: It's a transparent clear polyester layer, I  
21 believe. And it's actually adhered to that on top.

22           JUDGE McNAMARA: Thank you.

23           MR. BRAGALONE: So moving ahead to slide 96, the claim  
24 construction issue, so patent owner's claim construction is directly supported  
25 by the specification. And while the specification here is referring to light

1 guide, it's pointing out that these light-guiding aspects are delivering the  
2 collective light.

3 JUDGE McNAMARA: Excuse me, let me interrupt you one more  
4 time. I'm sorry to do this, because I'm studying that figure again, 93. That  
5 layer 45, as I see it from Figure 2C, does not appear to have an indentation  
6 in it. Whereas, your assembled version appears to have this device 24  
7 protruding up. I don't see an indentation to accommodate that in layer 45.

8 MR. BRAGALONE: Judge McNamara, to be clear, this was put  
9 together with what we had in the elements from Figure 2C. We didn't shrink  
10 them down. But because it's disclosed as being occupying the same  
11 thickness, the best correct way to draw that would be for the LED and the  
12 photodiode to actually be even with that layer so that layer 45 rests  
13 completely on top of that. So there would be no need for indentions and it  
14 should be absolutely even.

15 JUDGE McSHANE: I'm sorry to interrupt. Where is the  
16 disclosure about the same thickness and which thickness are you referring to  
17 specifically?

18 MR. BRAGALONE: So we are referring to the entire thickness of  
19 tape layer 37.

20 JUDGE McSHANE: And there's disclosure in the reference?

21 MR. BRAGALONE: So column 9, beginning at lines 40, at the  
22 same time they conform to the thickness of the photoactive substrates to the  
23 overall thickness of the flexible adhesive strip to which the attachment  
24 occurs. So they equate the thickness of the photoactive portions to the  
25 thickness of the flexible adhesive strip.

26 May I mention the claim construction issues?

1 JUDGE McSHANE: Again, what slide were you starting on?

2 MR. BRAGALONE: Yes. I'm going to move ahead to slide 98.

3 So the question that was asked whether or not we would take guidance from  
4 the claim construction in the related matter of the 315, we answer that  
5 question differently. Absolutely you should. You should not disregard that  
6 because while that's construing light guide, it's certainly informative. The  
7 Board there found that the proper construction, they agreed with the patent  
8 owner's proposed construction that it is a mechanism for delivering light  
9 along a path. And they agreed that that was the broadest reasonable  
10 interpretation. So we believe that a light-guiding interface would be an  
11 interface that delivers light along the path. So I believe that construction is  
12 informative. It's not absolutely binding. It's not the same term, but it's  
13 certainly informative.

14 JUDGE McNAMARA: Or is it an interface to a mechanism that  
15 delivers light along the path?

16 MR. BRAGALONE: Yes. And I would say that the biggest issue  
17 here is the problem with the proposed petitioner's construction. By the way,  
18 their expert noted that light is guided along some direction, some path. So  
19 they agree with the idea that light-guiding interface is guiding or directing  
20 light along a path.

21 Now, petitioner's construction is a window that allows the light to  
22 pass through the cladding material into the body. Now, initially light doesn't  
23 pass through the cladding material. That's some new limitation that they've  
24 added here. And it may be just an imprecise way of stating what they are  
25 trying to state, but the cladding material does not allow light to pass through  
26 it. So their definition at the outset is ambiguous.

1           But essentially what they are saying is it's a window that serves as  
2 a window. They actually read out of the claim term the very term that they  
3 are construing, which is light-guiding interface. It has to be something more  
4 than a window. The applicants knew what a window was and they knew  
5 how to use the term window when they meant window. This is a window  
6 that serves as an interface that delivers light along a path. So we have to  
7 give some construction that gives meaning to the term, not that reads it out  
8 or that makes it just redundant.

9           JUDGE McNAMARA: So does the light-guiding interface itself  
10 do some kind of light guiding or is it an interface to a light-guiding  
11 mechanism?

12           MR. BRAGALONE: So I believe that our construction is that the  
13 window must serve as a light-guiding interface. And our construction is that  
14 that interface delivers light along a path. So it does more than just let light  
15 in. It delivers it along a path. And that's key because that's construing  
16 light-guiding. We are giving meaning and breathing meaning into the terms  
17 light-guiding by saying it's delivering light along a path.

18           Now, the Board wanted notice when I was turning to the 317  
19 arguments. So the arguments that I just referenced from Goodman in the  
20 combination of Asada, Hannula and Hicks all overlap both IPRs. But I  
21 would like to turn to some unique arguments to the 317 IPR briefly.

22           So most of it is overlap. I'll skip past the claim terms. But there's  
23 an element that the first and second --

24           JUDGE McSHANE: I'm sorry, where are you?

25           MR. BRAGALONE: I'm on slide 107. So the limitation is  
26 wherein the first and second directions are substantially parallel. So to meet

1 this limitation, petitioner relies only on Goodman. But none of those  
2 citations in Goodman make any indication of the direction of the light  
3 delivered from the light source or received at the photosensor such that you  
4 could determine whether or not the light is substantially parallel. We believe  
5 that a lack of evidence is fatal to the petition.

6 Now, they simply assume that because there's some orthogonal  
7 light on opposite sides and some of it is received that the directions would be  
8 substantially parallel. But Goodman provides no guidance as to the  
9 direction of either of these. In fact, if I could move ahead to slide 110,  
10 Asada actually teaches that while it's difficult to derive the exact photon  
11 path, it's essentially a banana-shaped arc connecting the LED and the  
12 photodetector as shown in this figure.

13 So contrary to the drawings that they have annotated from  
14 Goodman of it's actually a banana-shaped arc what you are looking at here.  
15 That's not substantially parallel. They can't just assume that the orientation  
16 that they want is found in Goodman because every finger is going to be a  
17 little bit different. And the top and the bottom of the finger are not  
18 uniformly parallel such that you can assume that the orientation of light  
19 traveling from the LED or into the photodiode are going to be substantially  
20 parallel. So you can't make that assumption here.

21 And in reply they make an argument that, well, there's lots of light  
22 and it's going in multiple directions passing through the tissue. So some  
23 photons somewhere are going to be traveling substantially parallel to other  
24 photons that are going a different direction.

25 I would like to draw the Board's attention to the fact that that exact  
26 argument which they make for the first time in this IPR in reply, that that

1 was made in the petition in the 316 proceeding in which this Board denied --  
2 this panel denied institution. And in fact, almost the same argument was  
3 made. On page 12 of the institution decision petitioner assumes that, quote,  
4 some of the emitted light will be received back at the photodiode along the  
5 path that is also orthogonal to the PCB but in the opposite direction as the  
6 light emitted from the LEDs into the body, close quote.

7           There is no further explanation or evidence provided in support of  
8 this short of petitioner's declarant referring to the emitted light being  
9 reflected and refracted multiple times. But this doesn't necessarily mean that  
10 light will be delivered in an orthogonal direction. And the Board found on  
11 this record we are not persuaded that the petitioner has presented sufficient  
12 evidence that the light -- to meet this very element here.

13           So we already have a situation where the Board has rejected the  
14 very argument that they now turn to in their reply and said that's insufficient  
15 to meet the standard. And we agree.

16           Moving back to the slide deck, if I could, to slide 113, so there's  
17 another element that's required by these claims. And petitioner really kind  
18 of breezed past this because while they quoted in their slide 14 from their  
19 petition evidence, and if I could put their own slide 14 back on the ELMO  
20 briefly, you'll notice that while this refers to delivering light, there is  
21 nothing, no argument in the petition whatsoever that polyester layer 45  
22 delivers the light in one direction. So it has to deliver the light in the first  
23 direction and that it's also configured to deliver the collected light from the  
24 body of the subject in a second direction to at least one optical detector.

25           Their entire petition evidence, and this is in paragraph 31 of their  
26 original petition, doesn't even have a reference to the directional

1 components, the directional limitations of this claim. They don't even argue  
2 that it's there. They kind of breeze past that and they leave it out. The  
3 reason, Goodman doesn't say anything about it. Goodman doesn't give any  
4 indication of any directionality of light much less that layer 45 is configured.  
5 So that layer 45 would have to be configured to deliver the light along the  
6 first direction and then in the second direction.

7 I would like to now jump back to the top of my presentation and  
8 talk about some of the Asada references. Let's turn to slide 7. So Asada's  
9 Figure 11, first of all, what we know about it is it's only referenced in one  
10 place. All the annotations that they provide, none of that is in Asada. None.  
11 So 1, 2, 3, 4, 5, 6 and 7, none of those annotations appear anywhere. There's  
12 no labels that appear anywhere. The only discussion occurs in the legend  
13 that's right beneath the figure, the caption and in this one short paragraph  
14 that talks about the redesigned band here.

15 So Asada's Figure 11 is totally silent, especially as to the element  
16 that they now rely on which is what they have identified as light  
17 transmissive material. Now, it's that thin tiny little area that's bounded by 3.  
18 So they say based only on their expert's testimony that that must be light  
19 transmissive material.

20 But Asada does not use the phrase "light transmissive material." It  
21 doesn't teach or suggest anything that's related to the claimed inner body  
22 portion comprising light transmissive material. That's just a made-up  
23 assumption. And they conveniently annotate it with the language of the  
24 claim. So patent owner's position, I think, more accurately reflects this.

25 And these dotted lines, we agree that's assembly directions. Those  
26 are assembly directions. So 1 appears very much to be the top Velcro strap,

1 the top little Velcro tab; 7 appears to be the mating Velcro strap. So when  
2 you take this and you turn it into a sensor and you bend it into a circular  
3 sensor band, the tab of 1 will mate with the tab of 7. And in fact, that  
4 actually does serve to protect the optical element because you have got that  
5 buffer of the Velcro tab.

6 JUDGE McSHANE: Protect it from what?

7 MR. BRAGALONE: From contacting the skin. So they find fault  
8 with our enumeration here saying, well, if that's not a clear layer that lies  
9 between there, then you could touch those. And by the way --

10 JUDGE McSHANE: The emitter and the detector can touch the  
11 skin?

12 MR. BRAGALONE: Can touch the skin. That's not what our  
13 expert testified to at all. In fact, he was pressed about this at length in his  
14 deposition. They gave you a citation to a portion of the deposition, but they  
15 didn't tell you what he actually said. He was asked several questions. He  
16 said repeatedly that they would not be touching the skin. And then finally he  
17 was asked, but without a cover over the optical elements, quote, "you could  
18 still touch them with your skin, your finger, correct?"

19 Answer: "Yes, you could certainly touch them if you wanted to.  
20 Meaning you could take your finger and dip down into the assembly and  
21 touch the detector with your finger."

22 That's what he testified to. He did not testify that this band as  
23 assembled would allow the optical emitter and detector to make contact with  
24 the skin. In fact, the Velcro tabs actually operate to prevent that.

25 So we suggested another more plausible annotation -- and by the  
26 way, this is not in our petitioner's -- I'm sorry, our patent owner response.

1 But they made up what element 3 is. Actually, they ignore the language of  
2 the legend because the legend refers to a redesigned sensor band that  
3 protects optical components from direct contact with the skin. That's what  
4 the Velcro does. And it hides wires from outside environment. Where is the  
5 showing the hidden wires? I would suggest that the aperture layer there, 3,  
6 those are your hidden wire connections because that's what --

7 JUDGE McSHANE: I'm sorry, aperture 3 you are saying?

8 MR. BRAGALONE: Yes. There's no reason in Asada whatsoever  
9 to assume that that's a light transmissive layer. It's not even depicted as a  
10 layer. It doesn't even have the thickness of a layer. And yet they say that's a  
11 light transmissible layer. There's no support for that. None whatsoever in  
12 Asada. They just made it up. It's actually more plausible with the caption to  
13 say that those are the hidden wire connections.

14 But what I'm suggesting here is that when they just speculate as to  
15 what an element is, that doesn't meet the burden of proof. We can speculate  
16 that that's the wires that are hidden, and that's just equally as plausible. The  
17 point is that Asada doesn't give us guidance as to either one.

18 So element 3 is not light transmissive. And that's because of the  
19 problem of shunting. So under this shunting, and I want to be very quick on  
20 this and clear, their expert admits that shunting would occur if you had a  
21 clear layer that laid over the top of both the optical emitter and the detector.  
22 Why? Because the light wouldn't go out to the body, reflect off the blood  
23 supply and back into the detector. Instead, it was travel directly across. And  
24 this was identified in the Delonzor reference which is at 14 and 15 of the  
25 slides. I want to go to slide 16 and show that the yellow portion that we  
26 have annotated, that actually shows how shunting would occur. And this is

1 not disputed. Their expert agrees that some shunting would occur. And the  
2 problem is that that renders this completely ineffective.

3 JUDGE McSHANE: But again, that figure is, that's your  
4 representation. That's patent owner's --

5 MR. BRAGALONE: I'm sorry. Let me be clear. We don't know  
6 what 3 is. But if you assume it's a clear transparent layer without apertures,  
7 then it's undeniable that that would create a shunting situation. That's why  
8 we say it cannot be an unaperture. There has to be apertures there because  
9 without apertures there, you are placing a clear transmittal layer over a  
10 detector and an emitter and you are allowing light to pass directly from the  
11 optical, the LED to the detector without ever interacting with a bloodstream.

12 JUDGE McSHANE: I understand your argument, counsel. My  
13 only point is that that's your annotation.

14 MR. BRAGALONE: Absolutely. Yes. Thank you for the  
15 clarification, judge. I would like to leave the last nine minutes to my  
16 co-counsel for the motion to amend.

17 JUDGE McSHANE: Thank you.

18 MR. RHOADES: Thank you, Your Honor. I'm going to address  
19 the 317 IPR initially and then --

20 JUDGE McNAMARA: Actually, counsel, before you address  
21 either of them, this is something that's bothered me. It's come up a couple of  
22 times today and I think it goes across a number of these motions to amend.  
23 There's an argument that's been made, as I understand it, that particularly,  
24 for example, with the 317 that the claim has been amended but there was no  
25 discussion of how the amendment distinguishes over the art that was cited in  
26 the challenge. And I believe the response in the patent owner's arguments

1 are, well, a motion to amend is okay. We don't have to do that as long as  
2 we've narrowed the claim. So is it your position that as long as you have  
3 narrowed the claim, you don't need to discuss a distinction over the basis of  
4 the challenge?

5 MR. RHOADES: Actually, I don't believe that is our full  
6 argument. If I could have the ELMO, we believe that we've set forth a  
7 discussion as talked about in our initial motion to amend. In the motion to  
8 amend, like I said, this is for the 317, on page 17, we stated that the patent  
9 owners reviewed the prior art of which it is aware, including the prior art of  
10 record in the '830 patent and the prior art cited in this proceeding, whether  
11 forming the basis for the institution or not.

12 We then go on to state that that prior art does not disclose, and then  
13 we specifically identify the claim element that we've added in this  
14 amendment to get over the art. What we did not do, we said the instituted  
15 art instead of saying specifically Numaga or Asada. We used the term in  
16 combining it. But we did describe in detail and said that that art, the art that  
17 was the basis for the petition, the art that you found against the claims as  
18 included in the prior art and the prior art does not disclose these specific  
19 elements. Not the entire claim. The specific element that we added.

20 JUDGE McNAMARA: Okay.

21 MR. RHOADES: So our position is it's that detail along with  
22 clearly we amended and narrowed the claims is sufficient to respond to a  
23 purported ground of unpatentability.

24 JUDGE McNAMARA: Thank you. I just wanted to make sure I  
25 understood what your position was.

1           MR. RHOADES: And that is a product of multiple ones, and I  
2 was waiting for an opportunity to present that. I want to make sure that  
3 everyone understands our position on this clearly. Great.

4           If we turn to slide number 2 -- I appear to have broken it. I will  
5 have to just talk generally, Your Honors. I apologize. If you have, I have  
6 provided hard copies of the presentation here and I know that we've  
7 submitted electronically the other versions.

8           JUDGE McNAMARA: Just tell us what slide you are on. That's  
9 fine.

10          MR. RHOADES: The key element, they have similar claim  
11 amendments that are shown on slides 2 and 3. The key element we want to  
12 focus on in the short time I have is the during running by the subject  
13 elements.

14          JUDGE McSHANE: Is that the 318 set?

15          MR. RHOADES: I want to focus on the element during running,  
16 which is at the very bottom of the wherein clause that we added for this.  
17 We've now turned to -- let's go to slide 16. With slide 16 we deal with the  
18 importance of running. In the '830 patent the inventor stated that at high  
19 motion such as during running the noise associated with footsteps is strong  
20 enough to overwhelm the smaller signal associated with the heart rate. And  
21 so the footstep-related contribution dominates the overall signal. That's at  
22 column 25, lines 27 through 31. This is one of the key elements that  
23 Valencell wanted to overcome.

24          We know that the motion artifacts established between walking,  
25 jogging, running are quite different. If we turn to slide 17, Han fails to

1 disclose filtering sufficient to address footsteps related to artifacts of running  
2 and never really addresses running at all.

3           If we turn to the slide 18, you'll see the table that you saw  
4 previously in petitioner's presentation. What's important to note that this is  
5 just showing a simulation of running. To get the simulation of running in  
6 Han, they wagged their finger or they move their hand at 3 hertz, and they  
7 did this and said, well, those are the motion artifacts that occur when  
8 someone is running. That is a speculative at best. It does not disclose what  
9 actually happens at running.

10           Petitioner's expert testified that a runner could hit 20 miles an hour  
11 running or a marathoner could hit 10 miles per hour. At those speeds there  
12 are significant motion-related artifacts that would impede the ability to get  
13 the heart signal. The applicants --

14           JUDGE ARPIN: Counselor, some people run fast, some people  
15 run slow. How does running give us any way of limiting this claim? I  
16 mean, I may run at the pace another person would walk.

17           MR. RHOADES: I think a definition then would probably be  
18 jogging. Not running. Running, like I said, we set forth examples that were  
19 provided by petitioner's expert where running at 20 miles per hour,  
20 marathoners which is running is 10 miles per hour. There has to be a  
21 significant speed at which you would consider running. And that's the  
22 element and that's what the claim is directed toward is getting over and  
23 being able to separate out the heart signal from the motion-related artifacts  
24 that's caused by running.

25           JUDGE McSHANE: Counsel, I'm looking at the amended claim,  
26 and it says basically this whole step for reducing the footstep motion of

1 artifacts, it says, you know, you take the input from -- the process signals  
2 from the optical detector and the motion sensor, but then it just says to  
3 reduce footstep motion artifacts but it doesn't specify how you are going to  
4 do that or any details on that; is that correct?

5 MR. RHOADES: The claim element reads as the claim element  
6 reads. There is the information that's there.

7 I see that I'm over.

8 JUDGE McSHANE: You know what, I'll give you, if it's okay  
9 with the panel, I'll give you another two minutes if you just want to briefly  
10 address the 318.

11 MR. RHOADES: Certainly, I'll be real quick.

12 JUDGE McSHANE: Your co-counsel didn't give you much time.

13 MR. RHOADES: What we want to talk about here is the  
14 combination of Asada and Gupta. Asada has been discussed fairly much at  
15 length here today.

16 JUDGE McSHANE: I have a question for you, counsel. And this  
17 has to do with the challenge on the written description basis. My question is  
18 this. In your reply, you address it and you refer to the disclosure, the spec  
19 disclosure I think was the previous version, continuation, but in any event,  
20 you refer to what you are relying on as Exhibit 2107 at 39:5-13. And this all  
21 has to do with that step ii which is that band filtering step there. And you  
22 seem to be relying on that portion. And that is what you are relying on?

23 MR. RHOADES: I'm sorry, where are you looking at?

24 JUDGE McSHANE: This is your reply.

25 MR. RHOADES: In our reply?

26 JUDGE McSHANE: Yeah, on the written description.

1 MR. RHOADES: Okay. I apologize. What is the section again?

2 JUDGE McSHANE: I'm looking at page 2 of your reply. And in  
3 the middle you talk about or you have a block quote from that specification.  
4 And you are relying on that?

5 MR. RHOADES: Yes.

6 JUDGE McSHANE: I just wanted to be clear on that.

7 MR. RHOADES: If I may have just a few seconds for the claim, I  
8 want to point out that if you look at the claim, which is claim 12 substitute  
9 claim, petitioner keeps focusing on that a band-pass filter must do  
10 something, but that's not what the claim reads. The claim reads a signal  
11 processor is configure 2 and it's what's doing the stuff. If you look at its  
12 configure 2 and then you look at element 2, reduce motion artifacts by  
13 removing frequency bands from the signals that are outside the range of  
14 interest using at least one band-pass filter to produce preconditioned signals.  
15 So it's not the band-pass filter that's doing this. It's the processor. And it  
16 says it's using at least this, that there's other elements it could be. It's using  
17 at least this to get preconditioned signals. And then it's removing the  
18 artifacts. It's not the band-pass filter that's removing the artifacts.

19 JUDGE McSHANE: It's not -- it says -- I'm looking at element 2.  
20 It says reduce motion artifacts by removing frequency bands from the  
21 signals.

22 MR. RHOADES: Yes.

23 JUDGE McSHANE: That's what it says.

24 MR. RHOADES: Right, but it's the signal processor configured to,  
25 and then you go to ii, and it's reduce motion artifacts. It's the signal  
26 processor. Not the filter that's reducing the artifacts.

1 JUDGE McSHANE: I see. That's your argument. Okay. Thank  
2 you.

3 MR. RHOADES: Thank you.

4 JUDGE McSHANE: So counsel, you have 23 minutes and  
5 30 seconds.

6 MR. SPECHT: Your Honors, I would like to start by commenting  
7 first on our objections and the numerous new arguments. Much of what we  
8 heard today, as expected based on their slides, was entirely new argument.  
9 We want to make clear that our silence is not some way of acquiescing to  
10 those new arguments. We confirm our objection.

11 And also with respect to our objections, we identified numerous  
12 reasons why new arguments, exhibits not previously cited, et cetera. And  
13 with respect to the items that were not previously cited, they are part of the  
14 record not previously cited. We also directed the Board's attention to the *St.*  
15 *Jude* case which you identified in your trial order, IPR2013-00041, where it  
16 states that demonstrative exhibits cannot rely on evidence that, although it is  
17 in the record, was never specifically discussed in any paper before the  
18 Board.

19 So here we have totally new arguments. And we appreciate that  
20 some of those were identified and pointed out during the course of their  
21 comments, but we also have many things that were in the record but never  
22 relied on previously and cited to, and we just want to confirm our objections  
23 to that.

24 Next I would like to comment, I started this morning or this  
25 afternoon my comments indicating that patent owner has oftentimes  
26 mischaracterized the references in misleading ways. There was more of the

1 same here this afternoon. And I don't have time to go through all of those,  
2 but I would like to highlight one or two that are particularly germane. And  
3 I'm putting up the patent owner's demonstrative, this is slide 82. And here  
4 patent owner today for the first time suggests or indicates that they  
5 mislabeled the buffer of Figure 6. Well, I think while they are coming clean  
6 in the sense of mislabeling, I think they further lose credibility for  
7 characterizing this as simply mislabeling.

8           This is not mislabeling. It's misleading and a mischaracterization.  
9 They ignored the fact, first of all, that this was an exploded view in coming  
10 up with this buffer, this large buffer in the first place. They created out of  
11 thin air this red highlighted buffer. They base their entire argument for not  
12 combining Hicks and Goodman on the existence of this large buffer. You  
13 wouldn't do that if this was simply a mislabeling. Mislabeling means to me  
14 instead of calling substrate 80, it's substrate 81. That's a mislabeling. This  
15 was a misrepresentation of the reference.

16           Furthermore, during deposition, their expert continued to argue  
17 that this was a buffer, this red buffer here exists. That's not mislabeling. To  
18 us and to me that's misleading. And I think that colors many of their  
19 arguments. Many of their arguments today they have picked and choosed  
20 [sic] from references to ignore specific disclosures.

21           I will talk about another one of those which is important for the  
22 case here. With respect to the Asada reference and the relationship between  
23 the Asada reference and the Goodman reference, we heard a lot of  
24 discussion that Goodman was for hospital patients and Asada, you wouldn't  
25 apply it. Well, Asada in paragraph 2 of Asada, this is page 28, APL1005  
26 indicates four hospital inpatients who require CV monitoring, cardiovascular

1 monitoring, current biosensor technology typically tethers patients in a  
2 tangle of cables. Whereas, wearable CV sensors could increase inpatient  
3 comfort certainly applicable for folks in intensive care and may even reduce  
4 the risk of tripping and falling, a perennial problem for hospital patients who  
5 are ill, medicated and in an unfamiliar setting. So certainly Asada does deal  
6 with a hospital environment the same way as Goodman does.

7 Further to that point and going back to the mischaracterization of  
8 the references, there is in the Asada reference, there is a discussion of a trial  
9 that they use. And I believe it was at Mass General. And in there, so  
10 petitioner in our reply, when trying to make the argument that you would --  
11 I'm sorry, in patent owner's comment in trying to make the argument that  
12 you would not combine Asada with Goodman because Goodman is for  
13 hospital patients and Asada is not suitable for hospital use, Valencell alleges  
14 it runs, quote, the risk of unreliability in an interrupted monitoring similar to  
15 the arguments made today because the device can run out of battery or lose  
16 its wireless connection. Valencell claims this is why Asada discloses that its  
17 wireless device was prohibited from use in a hospital environment, referring  
18 to this Mass General test.

19 But upon cross-examination when we cross-examined their expert,  
20 Dr. Titus, he admitted he did not know if this was actually the reason why  
21 they weren't permitted to use the wireless device in the hospital. That's  
22 APL1101, his testimony, 90:13-18.

23 To the contrary, he acknowledged that there are benefits to using a  
24 wireless device rather than a wired device in a hospital setting. It removes  
25 the cumbersome wires consistent with the Asada disclosure and makes  
26 transport easier. That's cited at our petitioner reply. And again, we are

1 citing to Dr. Titus' deposition. So the arguments earlier about not combining  
2 Asada and Goodman because Asada is not relevant for a hospital  
3 environment are just not based on the record or the facts. It's ignoring these  
4 facts, and that occurs time and time again.

5           We also just want to clarify, this is from the Hicks reference. This  
6 is Figure 15. We also got the impression that the lenses we were talking  
7 about were the size of the Hubble telescope lenses. These are tiny. One of  
8 their arguments was, well, you wouldn't want this big cumbersome lens,  
9 right. This is from Hicks showing one of the lenses. Item 200, that's a lens.  
10 It sits right in the substrate. These are tiny little lenses, which refutes one of  
11 their main points of all this weight and the problem with adding these lenses.

12           There was a discussion earlier that Goodman eliminates entirely  
13 the motion artifacts and we are picking and choosing from embodiments.  
14 We are not. Our embodiment that we discussed was what we showed. This  
15 was our demonstrative slide 6. That's an embodiment that we use. It's the  
16 device. There are two different ways it's affixed in Goodman. One is with a  
17 gauze. One is with an adhesive. Goodman identifies that with the gauze  
18 you are still going to have motion artifacts.

19           And throughout Goodman they are concerned with motion artifact  
20 impacts. Even when it's affixed to your finger with the adhesive, you are  
21 still going to have motion artifacts. If that finger moves, you have motion  
22 artifacts. There's two types of motion artifacts, one based on the device  
23 shifting with respect to the finger and then just the movement of the hand  
24 changes the blood flow in your finger which can create motion artifacts.  
25 Those aren't entirely eliminated in Goodman, as they have suggested.

1           There was also an argument made with respect to -- I should  
2 probably just leave it up there, Goodman. And it was cited back to the  
3 Goodman patent column 9, lines 39 through roughly 43 about how the LED  
4 emitter and the photodetector would sit perfectly in the cladding layer. That  
5 is at odds with what is disclosed here. It starts out strip 37 is apertured at  
6 respective apertures 40, 41. These apertures allow light to pass. The  
7 apertures are clearly allowing light to pass. That's exactly what's stated in  
8 the reference. That's our position in this proceeding.

9           There was also arguments made about the various prototypes in  
10 Asada, prototype A and prototype B and the notion that prototype B doesn't  
11 necessarily inherent all of the characteristics of prototype A. We are not  
12 requiring that prototype B incorporates all of the characteristics. What we  
13 are relying on the fact is the disclosure and the focus of Asada is that it deals  
14 with wireless sensors. And any of those prototypes, A, B, C, which are  
15 certainly related to one another and in characteristics of each other have to  
16 have a processor, have to have a transmitter, have to have a receiver if they  
17 are indeed going to be wireless, which is the focus of the entire paper. So  
18 that was another red herring argument.

19           There was also an argument, and I didn't entirely follow this, I  
20 believe this was the first time I saw this one also, that we were relying on the  
21 Velcro from Hannula. We are not relying on the Velcro from Hannula. We  
22 are simply relying on the reflective mask and combining Hannula with our  
23 primary references for that reflective mask. The Velcro has nothing to do  
24 with it. We are not bodily incorporating Hannula into Goodman or Asada.  
25 We are just using the reflective mask feature of Hannula.

1           I want to go to petitioner's slide 10. I think this will be my last  
2 comment. I appreciate this has been a fairly long day. So I'm putting up  
3 petitioner's slide 10 -- I'm sorry, patent owner's slide 10. First of all, first  
4 time we have ever seen this -- that's not true. I take that back. We saw it a  
5 couple days ago when they presented their slides to us. Entirely new  
6 argument. And it makes no sense. To the extent that we need to refute this,  
7 the apertured layer with wired connections, why would you have wired  
8 connections running across where the LEDs and the emitters are? It's just  
9 inconsistent with the design. You are not hiding the wires there. It would be  
10 more reasonable if you were hiding the wires in the lower portion. And this  
11 is a new argument.

12           I think looking at the various credibility that you provide to the  
13 experts, I encourage you to look at Dr. Titus and his testimony and the  
14 numerous inconsistencies. And to the extent that you need to give weight to  
15 more or less weight to one of the experts, I would suggest that Dr. Anthony  
16 has been much more forthright and consistent in his positions than Dr. Titus  
17 was reverse course on numerous times.

18           With that, Your Honors, unless there are any further questions --

19           JUDGE McSHANE: I'm going to follow up on Judge Arpin's  
20 question. What is petitioner's position on whether indefiniteness can be  
21 considered in a motion to amend?

22           MR. SPECHT: I believe it is one of the threshold issues on a  
23 petition to amend, that the initial burden is on the patent owner to ensure that  
24 there is written description, the claims are not indefinite. I don't think *Aqua*  
25 *Products* changed that burden from being on the patent owner. And then it  
26 is our burden to demonstrate to the extent that they have shown a claim that

1 has written description support and it's not indefinite, that that claim is  
2 obvious. And that's what I think we have done here.

3 JUDGE McSHANE: Let me ask, are there any other questions  
4 from the other panel members?

5 JUDGE ARPIN: Well, petitioner, this is Judge Arpin. I think the  
6 rules talk about support. They don't talk about definiteness. And I am not  
7 sure that you can lump support and definiteness together. That's why I asked  
8 the question.

9 MR. SPECHT: In my experience we have done that or I have seen  
10 it done. And I believe it's appropriate here because it's an initial burden for  
11 them to show that you have a baseline claim that works. And if it's  
12 indefinite, how are we to make our showing that that claim is obvious if it's  
13 not a definite claim? So logically it would seem -- I mean, just logically,  
14 they have to put forth a claim that is not indefinite. Otherwise how can we  
15 do our job or meet our burden to show that it's obvious?

16 JUDGE ARPIN: Well, for example, counselor, in the ex parte  
17 world, *In re Steele* has been cited to show that if the claim is indefinite, we  
18 can't address it.

19 MR. SPECHT: So if a claim is indefinite, if they are proposing in  
20 a motion to amend that the claim is indefinite, then I believe this panel  
21 would be required to deny that motion to amend because then you would be  
22 allowing an indefinite claim. So either way, I think you should deny it.  
23 Assuming that that precedent applies, it should be denied because the  
24 indefinite claim, we can't consider it. And assuming that I am correct, then  
25 they have not met their burden to demonstrate that it is not indefinite. So  
26 either way, I believe you need to deny their motion.

1 JUDGE McNAMARA: There may be a subtle distinction, I think,  
2 in some cases, AIA cases, where we have declined to institute because of  
3 indefiniteness. We've dismissed the petition. So the subtle distinction here  
4 might be as opposed to denying the motion, it gets dismissed.

5 MR. SPECHT: I think that would be fair, yes, in this context.

6 JUDGE McSHANE: And to be fair, can we hear patent owner's  
7 position on that issue? Do you have a position?

8 MR. RHOADES: I just want to make sure I understand. The  
9 question is whether or not the Board has the ability to examine and  
10 determine indefiniteness in the claim?

11 JUDGE McSHANE: To evaluate it, yes.

12 MR. RHOADES: It's my understanding that based on that they do  
13 not. I would say that that would be our position today.

14 JUDGE McNAMARA: On what grounds? What would be your  
15 analysis?

16 MR. RHOADES: Just as you stated earlier, it's not within the  
17 purview of the Board to be doing that. I understand that appears to be kind  
18 of a catch-22, but I haven't seen any case law that specifically addresses this  
19 point either way.

20 JUDGE McNAMARA: In which case, would we dismiss the  
21 motion to amend? It seems inconsistent to say we would grant a motion to  
22 amend on a claim that we can't understand.

23 MR. RHOADES: That wouldn't be dismissing the motion to  
24 amend. You would be finding indefiniteness, which is outside the purview  
25 to begin with. I understand. And I have not seen this addressed in the IPRs

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1 before. So I would love to tell you the answer to this, especially if it was in  
2 my direction, but I honestly don't know.

3 JUDGE McNAMARA: Thank you very much. I'm sorry, I didn't  
4 mean to dismiss you.

5 JUDGE McSHANE: Thank you very much. We really appreciate  
6 the arguments today. They were well presented and they are helpful. And  
7 the cases are submitted and we are adjourned.

8 (Whereupon, the proceedings at 4:18 p.m., were concluded.)

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