UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SONY CORPORATION,
Petitioner,

v.

COLLABO INNOVATIONS, INC.,
Patent Owner.

Case IPR2016-00941
Patent 5,952,714

Record of Oral Hearing
Held: July 11, 2017

Before DAVID C. MCKONE, GREGG I. ANDERSON, and JENNIFER MEYER CHAGNON, *Administrative Patent Judges.*

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The above-entitled matter came on for hearing on Tuesday, July 11, 2017, at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia in Courtroom A, at 3:15 p.m.

P R O C E E D I N G S

JUDGE CHAGNON: Please be seated.

This is the final hearing for IPR2016-00941 related to U.S. Patent Number 5,952,714 involving Petitioner Sony Corporation and Patent Owner Collabo Innovations, Inc.

Again, we'll follow the same format, with each side having 30 minutes to present their arguments. Petitioner will start, followed by patent owner. And, petitioner, would you like to reserve any rebuttal time?

MR. ZWEIG: Yes, your Honor, ten minutes, please.

JUDGE CHAGNON: All right. Great. Whenever you're ready, you can go ahead.

MR. ZWEIG: Good afternoon, your Honors. I'm Jacob Zweig with Turner Boyd LLP here on behalf of the Petitioner Sony Corporation.

Your Honors, there are three main points that I'd like to address. First, there's construction of the claim term "secured via an adhesive"; second, the related issue of whether the prior art references teach this limitation; and third, whether the references teach the insertion limitation of the claims.

Regarding the securing limitation, the patent owner argues that the, quote, "image sensing device being

secured to said package via an adhesive," unquote, limitation, some variation of which is recited in each independent claim should be construed as gluing to the package.

Patent owner then claims that gluing would exclude securing via an adhesive applied via a molding process. So, the patent owner is taking the claims, including the apparatus claims, and inserting a negative process step, the use of a mold. They then read that positive process step into the prior art and distinguish it on that basis.

But this phrase does not need to be construed. We agree with the institution decision; the plain and ordinary meaning of "adhesive" is tending to adhere, and this is sufficient.

So, the patent owner's construction shouldn't be adopted for the following reasons. First, use of the term "glue" in the exemplary embodiments shouldn't limit the term "secured" in the claims. Second, patent owner's evidence doesn't show that a molding process would interfere with the '714 patent's optical positioning process. Third, a person of ordinary skill would have understood "secured" to include adhesive applied via a molding process. And fourth, patent owner's construction of "secured" and "gluing" would be

ambiguous.

Now, on my first point, the specification doesn't use the term "glue" in an exclusive way or in a way that would implicate disclaimer of claim scope.

Also, trial was instituted in this case --

JUDGE ANDERSON: The fact is, though, that the specification uses the term "glued by adhesive" several times. So, the question becomes -- we're not under broadest reasonable interpretation for this to happen. We need to look to the specification and we need to look to the claims, the file history, to tell us what that is -- that "adhesive" should not be glued.

MR. ZWEIG: Well, the claims use the term "adhesive" rather than "glued" or "secured via adhesive" rather than "glued," and there is nothing about the way the term "glued" is used in the specification that would indicate that the invention of the '714 patent requires any particular type of adhesive.

In fact, there's no indication that "glued" would be any different from "adhesive" other than the patent owner's argument that this would exclude a positioning process.

JUDGE ANDERSON: What about -- what about the

argument or at least the testimony of Dr. Afromowitz -- Afromowitz -- any way I can do this -- Afromowitz that a molded resin is not an adhesive? Do you have anything from Mr. Guidash that would distinguish molded resin and adhesive?

MR. ZWEIG: Well, Mr. Guidash did testify that a molded resin can function as an adhesive. And we would put forth that Mr. Guidash is simply more credible on this point than Dr. Afromowitz. Mr. Guidash has years of industry opinion -- experience, rather, on -- with on hands and oversight capacity with image sensor packaging. In other words, he worked in a workshop designing image sensor packages.

On the other hand, Dr. Afromowitz, although he had a distinguished academic career in the field of optics and related semiconductors, lacks practical experience with package design. He took part in only one industry project related to packaging more than 40 years ago. He taught no classes on the subject; he did no research on the subject; and during deposition, he couldn't describe the molding processes that the patent owners would read out of the '714 patent and into the prior art based on his opinion.

Secondly, Dr. Afromowitz's own testimony contradicts his opinion about the molded resin.

Dr. Afromowitz admitted during deposition that resins, in particular thermosetting resins, were well-known adhesives in the relevant time frame. You find that at Exhibit 1028, page 48, line 5, to page 49, line 16.

And a reference from the relevant time frame, Dr. Afromowitz's own U.S. Patent 5,009,102, which is Exhibit 1030, says that the same thermosetting resins can be used in molds.

Now, the patent owner does point to a passage describing an embodiment that uses injection molding resin in the '714 paint to form the package itself, but this is an entirely different unclaimed process step unrelated to the securing limitation. And the fact that the '714 patent mentions molding in one context doesn't mean you would exclude it from every other context.

Patent owner's only other real argument that the -- the securing limitation should be interpreted in this way to exclude molds focuses on the '714 patent's optical positioning process. The patent owner argues that the optical positioning process wouldn't work unless "secured" was construed as gluing in order to exclude molding processes.

The patent owner first argues that an injection

molding process could cause the chip to move, which would undermine the positioning purpose of the '714 patent. But Dr. Afromowitz's declaration says that this is a problem with wire bonded chips, in particular, and a main point of the '714 patent is that it doesn't use wire bonds to connect the image sensor but, rather, bumps.

Now, Dr. Afromowitz also argues that a mold would get in the way of the optical positioning process, but his opinion in this point is unsupported and conclusory. He only says that a mold would necessarily -- necessarily enclose the molding resin in chips. He doesn't say anything about why this would be the case. And perhaps more importantly, this argument ignores that the positioning step takes place before the step of securing the image sensor to the package via an adhesive.

So, even assuming that applying adhesive via a mold -- I'm sorry. Was there a question?

JUDGE ANDERSON: You know, I know when I take mute off, something happens and you know I'm going to ask something, so, yes, I want to ask something.

Which claims -- there are only a few claims that actually -- excuse me -- that actually recite positioning. So, which claim did the -- position -- sensor -- I think

claims 13 is one. I don't believe claim 1 does. I don't believe claim 6 does. So, what claims are we talking about, just so we kind of focus in on this positioning argument?

MR. ZWEIG: Your Honor, it's the method claims, claims 13 through 16. They all teach optical positioning, and that takes place -- as you can see in claim 13, in column 11, lines 1 through 4, the positioning takes place before the step of securing via an adhesive.

So, the point I was making before is that even if some type of molding process would interfere with the positioning process, the positioning process would be complete before the mold was applied.

As I've also -- as I've already discussed in -- somewhat, a person of ordinary skill would have understood "secured" to include adhesives applied via a molding process in any case, based Mr. Guidash's testimony, which, as I mentioned, is more credible on this point than Dr. Afromowitz's.

And in any case, patent owner's position that "gluing" should be construed is as -- I'm sorry -- that "secured" should be construed as gluing is ambiguous. During deposition, Dr. Afromowitz only gave a circular definition of "glue" as an adhesive substance, and there's no need to

construe "adhesive" as glue if "glue" itself is defined as adhesive.

I'd like to move on, if I could, to discuss the Yoshino and Wakabayashi references in relation to the securing limitation.

Yoshino teaches on page 3 of Exhibit 1003, quote, "supporting the solid state image sensor 25 in the packaging substrate 20 via a molded resin 28."

Now, first, the term "supporting" means that Yoshino's resin secures the image sensor to the package. Patent owner doesn't explain with any particular detail why "supporting" should be read differently than "securing" in this context. And, secondly, as I've already mentioned, patent owner's expert admitted that resins are adhesive during deposition.

Now, it's true, as patent owner points out, that Yoshino describes a prior art device where the chip is, quote, "secured via a conductive adhesive," but that Yoshino mentions these terms in one context doesn't limit how other terms in Yoshino should be understood.

Also, even under patent owner's construction, Yoshino's resin would meet the secured limitation. This is because Yoshino doesn't actually disclose the molding

processes that patent owner would read out of the claims. All it says is, quote, "a molded resin."

Doctor -- Dr. Afromowitz's opinion that Yoshino teaches molding processes is conclusory. He doesn't explain why the person of ordinary skill would have understood molded to acquire any particular process step.

Now, the Wakabayashi reference, which is Exhibit 1004, also teaches securing. In paragraph 16 of Exhibit 1004, Wakabayashi states that, "the back face side of the chip is further sealed via an adhesive resin 7. By constructing the device in this way, the bump joints are reinforced."

Now, Wakabayashi also teaches in paragraph 5 that the image sensor is joined to the package via bumps. That Wakabayashi says that it's adhesive resin reinforces this connection means that the adhesive resin also serves to join or secure the image sensor to the package. Now, second, Wakabayashi also explicitly refers to its resin as adhesive.

So, even under patent owner's construction, Wakabayashi's resin would meet the secured limitation. Patent owner's construction would only exclude molding processes, and Wakabayashi doesn't even use the word "mold," and patent owner doesn't appear to argue that Wakabayashi

uses molding processes in any case.

Moving on, I'd like to discuss briefly the insertion into the opening wider area -- "opening with a wider area" limitation of claim 1.

Can we please have page 6 in the petition on the screen which shows figures 1 and 2 of the '714 patent next to each other.

Now, claim 1 teaches that the image sensor is mounted in the package, quote, "by being inserted from an inlet of the package's opening which has a wider area." Now, patent owner says that Yoshino and Wakabayashi don't teach this limitation because they show the device only in cross-section, so you can't tell which opening has a wider area. This is based on an implicit construction of "wider area" is greater area. But the claims use the term "wider." All that's required is that the opening through which the chip is inserted is wider than the other opening.

This is necessary because, as can be seen in figures 1 and 2, the chip has bump bonds on either side that need to be bonded to leads on the lower edge of the narrower upper opening. So, the bottom opening of the package has to be wider than the top opening along the axis between these two rows of bumps, and this is what the Yoshino and

Wakabayashi references teach.

But even under patent owner's construction, you can tell from these references that the lower opening has a greater area.

Turning first to the Yoshino reference, Exhibit 1003 -- could we please have page 9 of the petition on the screen that compares '714 patent figure 2 to Yoshino figure 1.

MS. GU: What page?

MR. ZWEIG: Page 9 of the petition, please.

Now, Yoshino is presented in the petition under an anticipation ground, and the inserting limitation is inherent in Yoshino.

Yoshino teaches inserting the image sensor into the package using the term, quote, "incorporating." Yoshino also teaches that the top opening is sealed before this happens. And, so, the sensor must be inserted into the bottom opening. As the figure shows, the bottom opening is wider, but you can also tell that the bottom opening has a greater area.

As we discuss in the reply, Yoshino teaches that the size of the smaller opening corresponds to the area of only a part of the image sensor, the light sensitive portion.

This means that the image sensor chip itself has a greater area than that of the upper opening, and, so, the lower opening in which the chip is depicted as mounted must also have a greater area than the upper opening.

Now, the Wakabayashi reference is present under an obviousness grounds. The analysis is little bit different.

Zhuanjia, can we please have page 10 of the petition comparing '714 patent figure 2 to Wakabayashi figure 2.

Wakabayashi does not expressly teach that the top opening is sealed before the image sensor is inserted. So, the petitioner, therefore, argues that it would have been obvious to insert the chip in the bottom opening, which is shown as wider, for three reasons that are set forth in the petition.

For example, inserting through the wider opening would have been seen by the person of ordinary skill as the most predictable result for achieving success. The patent owner doesn't appear to contest this reason -- reasoning but only argues that you can't tell which opening has the greater area from the cross-section of the figure.

JUDGE ANDERSON: So, counsel, two things. I understand you to be basing the wider area being shown by

either Yoshino or Wakabayashi on the drawing figures. You've got that; right?

MR. ZWEIG: Insofar as it is being interpreted as wider along one axis, yes. If your Honors are inclined to take patent owner's position that "wider area" should be construed as greater area, then, as I mentioned with Yoshino, there is a disclosure that allows you to conclude that the bottom opening has a greater area, which I mentioned regarding this -- the size of the upper opening corresponding only to the -- the light receiving portion of the chip and, therefore --

JUDGE ANDERSON: So, help me out briefly, and I mean briefly. If you don't remember anything, that's fine. I don't recall anything in the record that says for some technical reason, the upper opening would be smaller than the bottom opening so that light could more efficiently or going to have better access to the image sensor. Is there anything like that of record?

MR. ZWEIG: Your Honor, there are a few portions where Mr. Guidash discusses this, not necessarily in the context of discussing which opening is wider than the other opening, but it is of record that this is what these devices are intended to do.

For example, with the Wakabayashi reference, Mr. Guidash discusses in his declaration, which is Exhibit 1002, on -- in paragraph 254, citing Wakabayashi's paragraph 5, talking about that the opening opposite the light receiving face of the image sensor must be open, which implies that the purpose of this opening is so that the light receiving face can receive light.

This indicates that the point of the top opening is to expose the imaging area of the chip to the light. And since the imaging area of the image sensor is the part that has to receive the light, it makes sense that the opening area would correspond to this portion of the chip's area, i.e., the chip will be bigger than the top opening and so would the bottom hole in which the chip is mounted.

Now, patent owner has hypothesized that an upper -- the upper opening could be larger but hasn't proposed any design reason to expose more of the chip than the imaging area.

And, also, Dr. Afromowitz admitted at deposition that the shape of the opening would generally correspond to the shape of the image sensor.

Furthermore, discussing the Wakabayashi obviousness ground, Wakabayashi says that its package is

meant to be compact and, given this teaching, it wouldn't make sense for the upper opening to be unnecessarily wider than the bottom opening along either axis.

Your Honor, I would also point you with regard to your last question to the discussion in the reply of the passage I mentioned in Yoshino, which talks about -- let's see if I can quote it here -- so, in -- in the reply, we cite Yoshino Exhibit 1003, page 3, that says the smallest area of the opening 23 formed by this is set to the size that can at least cover the effective photosensitive section of solid state image sensor 25, which indicates that the opening -- the purpose of the opening is that the -- to allow light to reach the photosensitive region of the image sensor.

Let's see. I have one minute remaining, and if your Honors have no further questions, I would like to reserve that time for rebuttal.

JUDGE CHAGNON: Nothing from me.

MR. ZWEIG: Thank you.

JUDGE CHAGNON: Thank you.

MR. KIMBLE: Thank you, your Honors. Again, this is Justin Kimble for the patent owner.

I'm going to start with slide 2 of our demonstratives with respect to the anticipation ground, and I

won't belabor this, but we list here several cases of import to this analysis in this particular circumstance about what petitioner is required to show. And that is that the petitioner must show that each and every element as set forth in the claim is found in the reference, that the, quote, "identical invention" must be shown in as complete detail as is contained in the claim, and that all the limitations are arranged or combined in the same way as recited in the claim. Under these cases, all these federal circuit cases, all identified in our brief, Yoshino simply does not anticipate.

And, so, I will turn first on slide 3 to --

JUDGE ANDERSON: Let me just ask, counsel, can't we look, also, into what would be understood by a person of ordinary skill in the art to confirm the reference even in an anticipation?

MR. KIMBLE: There -- you can look at what is inherent, but even there, in that -- and we cite that in our -- you know, in the quotes we have in slide 2, that the claim is anticipated only if each and every element as set forth in the claim is found either expressly or inherently described.

So, even there, yes, and I think that's what you're alluding to, your Honor, but it still must be inherent

as set forth in the claim. And, so, it's not an obviousness type analysis; it still needs to be there either expressly or inherently, and we don't believe we -- patent owner don't believe that Yoshino has such a disclosure.

And, so, turning first to ground one and the issue of the construction of "secured," this is on slide 3, all the claims require that the image sensing device be secured to the package via an adhesive.

And as your Honor alluded to in questions to opposing counsel, the specification, indeed, does describe this "secured to via an adhesive" several times in the context of gluing to the package. I've listed a couple here on slide 3. We have additional ones cited in our papers. In fact, there's no example where -- in reference to the figures or otherwise, where "secured to via an adhesive" is referred to in some other manner than this.

Just by way of example, at column 3, lines 27 through 29, the patent says that "a back side of the CCD chip is glued to the package via adhesive." Then at column 8, lines 18 through 22, quote, "ultraviolet hardening adhesive 30 is injected in a specified quantity from the dispenser which is situated beside a press fit jig to glue four sides of the CCD chip 41 to the package 21."

JUDGE MCKONE: I have a question for you as far as how you're understanding the claims and -- and gluing. By "glued" or "gluing," are you referring to the process by which an adhesive is affixed or is -- by "gluing" do you mean that the adhesive has to be glued?

MR. KIMBLE: The first. The -- the former. It -- the point is -- look, the way this issue --

JUDGE MCKONE: I want to make sure I understand. A resin is -- do you disagree that a resin can be an adhesive?

MR. KIMBLE: Yes, we disagree.

JUDGE MCKONE: So, a resin -- a resin cannot be an adhesive?

MR. KIMBLE: At least in terms of -- well, we disagree that the -- that the molded resin example shown in the references at issue here satisfy "secured via an adhesive" as set forth in the patent at issue. I'm -- I guess I shouldn't go so far as to say there's no instance in which a resin could potentially act as an adhesive but --

JUDGE MCKONE: The reason why I ask, what I'm trying to get at, is is what you're saying is that the resin of the prior art cannot be an adhesive because it is injection molded rather than glued?

MR. KIMBLE: In fact --
JUDGE MCKONE: Is that the distinction that you're drawing?
MR. KIMBLE: Yes, and, in fact, the record as we've shown in our papers and as I'm going to explain here contrasts the two. Yoshino itself --
JUDGE MCKONE: Just on the flip side of that, if I use -- if I applied resin in the way that the challenged patent describes gluing or applying adhesive using a method of gluing, would that satisfy the claim limitation? Would that be securing via an adhesive?
MR. KIMBLE: Just so I understand, is your Honor asking if the patent, the '714 patent, had some disclosure that says instead of what I --
JUDGE MCKONE: No.
MR. KIMBLE: No?
JUDGE MCKONE: No. What I'm saying is if -- if I were to apply a resin, the material that is described in the prior art, if I were to apply it using the process of gluing, would that satisfy the limitation "securing via an adhesive"?
MR. KIMBLE: Well, I think my answer to that has to be no. I -- I'm not sure -- I'm trying to think about how to answer that in the abstract and the practicalities of it.

JUDGE MCKONE: Well, let me -- I'm not trying to hide the ball here, so I'll lay my cards on the table. I'm concerned that -- we have claim 1, for example, is an apparatus claim. I'm concerned we're trying to inject into this claim a process step of the way that an adhesive is applied. Is that really what's going on here? Is that what we're -- what we're trying to do, put in a process step such that adhesive has to be applied in a certain way?

MR. KIMBLE: No. No. The issue is -- is -- is really what -- what does that -- what does that adhesive do in the claims. And the claims say it secures. Yoshino contrasts that itself with using molded resin to, quote, "support." And -- and our contention is securing and supporting are just different things. And, so, the -- the claimed adhesive has to secure the package. And -- and --

JUDGE MCKONE: But Yoshino's res -- does Yoshino's resin keep things together, make sure things don't fall apart or fall out?

MR. KIMBLE: Well, so, it's -- and it's in our papers where it distinguishes these two. I would -- I will say to you that, you know, the table that I'm looking at right here is supporting a cup of water. I don't think -- I don't think in the normal understanding of this, it's

securing that cup of water. I think "support" definitely is different than "secure." And I think that the patent -- the '714 patent's way of describing what that means is describing it in the context of glue.

And, so, the reason, you know -- as in any construction context, you know, we have -- we're looking at this with a view of what the prior art -- you know, what is at issue here, and what's at issue are these references that talk about this molded resin, and the way that those act is just different than what is described as "securing via an adhesive" in the patent. And, moreover --

JUDGE MCKONE: So, it's your contention -- and I'm sorry to cut you off. It's your contention that the Yoshino resin does not adhere, therefore, it is not adhesive.

MR. KIMBLE: I think that's right, yes, your Honor.

JUDGE MCKONE: Okay. Thank you. I understand your position better now.

JUDGE ANDERSON: I had one additional question sort of along that same line. It's confusing to me that -- for example, you cite in your slide 3, I guess, the spec that says, "the chip is glued to the package via adhesive." But isn't that really just saying that we're securing the -- the

chip to the package -- and that's what the claim says -- by adhesive? That is what -- what the claim says; right?

MR. KIMBLE: That's right. And -- and I think this gets somewhat to the argument that you heard from petitioner about sort of building sort of a negative limitation or something like that. Although that is often what you -- what you -- what you have here, where the question at issue really ultimately is, in several of these references, whether they disclose a device where it is secured to a package via an adhesive.

And, so, as a way of pulling out, drawing out why that is not the case, patent owner has focused on this repeated use of this term "glue," "gluing," "glued," as to what that means and contrasted that with the -- the injection molding.

And I would say the patent itself, and we cite this in our papers and also in our -- in our slides -- this still -- I'm on slide 4. It's -- it starts at the bottom of column 4 where the patent describes -- this is column 4, 67, it's the sentence that begins the last word on the page, and it says, "Epoxy resin mixed with inorganic filter is injected into a mold where the lead frame 24 made up of phosphor bronze, et cetera, is disposed and is -- is molded at a high

temperature."

So, this is where the patent, when it talks about this type of injection molding, it -- it says it. But just at the bottom of that paragraph, when it's talking about "securing via an adhesive" -- this is column 5 now -- this is, I think, what I just cited to -- line 18, although this same language is used three or four times -- and where it says, "at the same time, ultraviolet hardening adhesive 30 is injected in a specified quantity from a dispenser which is situated beside a press-fit jig to glue four sides."

So, the, patent -- the inventors knew what to say when they were talking about using this resin versus when they were trying to describe securing versus an adhesive -- or via an adhesive. I apologize.

JUDGE MCKONE: But they also know how to say, "glue," if that's what they meant.

JUDGE ANDERSON: Yeah, exactly. Is there a single claim -- I don't think there is -- that says, "glued," as opposed to "adhesive"?

MR. KIMBLE: No.

JUDGE ANDERSON: And, so, we've seen this a couple of times today, you're taking something from the specification, arguably, and reading it into the claims in

order to construe "adhesive"; right? And that really is what you're saying.

MR. KIMBLE: Well, you know, I heard what your Honor say -- says. In this instance, in particular, given the repeated consistent use of "glued" to describe "securing via an adhesive," I think -- I think it may be that glued -- "glued" and "secure" -- "glued" and "secured" are synonymous here. It is a way to try to distinguish the petitioner's attempt to read these claims, we think wrongly, onto art where the package is not secured via an adhesive. So --

JUDGE ANDERSON: Well, but you just said something that I agree with and that is when you look at your slide 4 again, it says the chip is glued to the package by adhesive, and you just said gluing is the equivalent of secure. And, you know, it's very difficult to see how you can go from that statement to say, well, the adhesive is glue. You're going to have to -- now, I'll give you the opportunity. Does Dr. Afromowitz say anything about that?

MR. KIMBLE: Well, the patent itself, you know, says this. I mean I -- well, okay. Let me back up.

Our construction has been that "secured to said package via an adhesive" means that it's glued to said package via an adhesive. We're -- we're not trying to say

that -- again, it's an attempt to draw the bounds on what is fairly -- fairly covered by these claims, and what is not covered is the molded resin that's shown in the prior art.

We think that the patent's description, the use of "glued" to describe what "secured via an adhesive" means illustrates that point. So, at the end of the day, whether the term is construed, as we propose, or not construed, this disclosure -- in view of this disclosure, the prior art, Yoshino and I'll say Wakabayashi, neither one secure package via an adhesive.

So, I guess to tie all that up, we do think it ought to be construed as we've proposed. I am saying even if you were not to do that, for example, because you find that it's a necessary, given the way that the patent uses the term "glue" in conjunction with adhesive like the claim uses "secured" -- using that reading of the language and that understanding of what "secured to a package via an adhesive" means, it cannot read on the prior art references at issue here.

JUDGE ANDERSON: Would you move -- I'm going to do what we did before because I think there are some issues here we want to hear about. What about this "wider area" term in claim 1?

MR. KIMBLE: Yes, sir. And, so, I was going -- to be brief on that, I would say a couple of things. So, we'll, you know, generally rely on our papers. But I did want to say -- not sure I totally follow the distinction between "wider area" and "greater area." The bottom line is it has to be an area and area requires two dimensions.

So, our point is that the disclosure in the prior art references shows a dimension. It doesn't show the totality of the area and -- and based on our expert's opinions and based upon other art, we've shown this -- it's actually mentioned in our slides and in our papers, there's a wide variety of ways to have these opening structure, there's just not sufficient information to conclude that it has a wider area.

And I would point out that what I heard petitioner say is we, as patent owner, has not provided a sufficient basis to explain why it couldn't. Well, that's, respectfully, in our view, not our burden. It's their burden to show that that disclosure is there, and we simply don't think that it is.

JUDGE MCKONE: Now, why is -- is this even a limitation, "mounted in said package by being inserted from an inlet of said opening which has a wider area"? The

opening itself that had the wider area is not -- does not seem to be recited as a part of the structure of claim 1. Rather, this seems to be a step of assembly of the product. So, why should we consider that a limitation of a -- of an apparatus claim?

MR. KIMBLE: So -- and I'm trying to answer your Honor's question. I'm thinking about it. So, you're asking -- so, taking claim 1, for example --

JUDGE MCKONE: Yes, that seems to be the -- the biggest offender here, as far as I can tell.

MR. KIMBLE: And, so, you're asking why -- why the claim language in the third, you know, paragraph there of claim 1 about "inserted from an inlet of said opening which has a wider area," why that ought to be a limitation on the claim?

JUDGE MCKONE: Right, the -- the process -- it seems to me that this is a process of assembling the apparatus, where "inserting from an inlet of said opening," this inserted -- this inserted process. Well, is that just simply -- it's a method step for assembling and, if not, how -- how do we view this as structure?

MR. KIMBLE: Well, your Honor, I can't -- I guess my response is I don't know of how -- what would be the basis

to just read out that -- that language all together and pretend like it's not there. I don't think it is simply -- I do think there is structure there. I mean it's talking about the relative areas of the -- of the -- you know, the through hole, the top and the bottom. I think that's structural.

So, I think that it is -- I think that it is a limitation, and I think that, from either perspective, whether you were looking at it from an infringement perspective or invalidity perspective, you would have to make some showing about it. I suppose I don't --

JUDGE MCKONE: There's some ways to look at this that have been going through my mind. One is sort of a product by process claim where we look at the final product that's created by the -- the process steps recited in the claim but not -- but we don't necessarily require a showing of the process by which that product was made.

And another way to look at this is we have method steps recited in an apparatus claim which may be problematic under some of the Federal Circuit case law.

So, I'm hoping you can help guide me in how I should understand this language in claim 1 that looks sort of method-like.

MR. KIMBLE: Well, I -- I think that -- I think

that regardless of how it's ultimately -- how it's inserted, there still has to be the presence of an opening with a wider area. I -- I don't see another way -- I don't see another way around it. And maybe I'm just not following because I haven't considered that question. That's possible.

JUDGE ANDERSON: So, what about this wider area? You argue that "wider area" is a greater area. That seems to require that we construe "wider area" in some way; whereas "wider area," the plain language says the wider area. The wider area could be ten feet wide and one foot high and the -- the area -- the upper area could be three foot wide and ten feet high and then it would be a wider area. I mean I don't see why -- how we get to the overall area as opposed to a wider area.

MR. KIMBLE: I do understand what you’re -- what you're asking and what petitioner argued in their remarks. I -- our -- I would say our view, when we were responding to the petition, was that petitioner had just disregarded the word "area" and was just focused on the -- or assumed something, assumed something about the depth to show that there's a -- you know, the area's larger on top than on bottom.

JUDGE ANDERSON: Well, but -- I get that. I get

that. They're pointing to these drawing figures and saying the lower area is wider than the top area; ipso facto, that's what we're after. But you're saying that there's a construction issue here, at least as I understand the argument, so how would we get to that construction. If you -- I don't recall anything in your papers other than your argument that says it's the wide -- it's the larger area as opposed to a wider area.

MR. KIMBLE: Well, I think, in our papers, we have -- we looked at the wider area to -- in a different way than the way your Honor described it a few minutes ago where you said, you know -- you know, it's greater in the width direction and not so much concerned about the depth, as I understood what you said.

We looked at it as an area, period. You know, an area -- to me, "area" has a pretty fundamental meaning. You have to have different dimensions, two dimensions, to come up with the area, and I guess we thought of wider area and greater area as the same thing, not as a distinguishing between those -- between those two.

I'm not sure -- and I was thinking this as I was sitting here listening to the opening arguments -- that I've ever thought about a -- I mean outside this context, even, of

a wider area. I mean an area is an area. Either it's more or less, to me. So, that's just not something -- not something that I think that we had addressed in that way.

So -- so, I guess, to go back to your question, are we asking for a construction that "wider area" means greater area, I didn't think that was necessary before today. To the extent that it is, I think an area means -- there's one meaning for "area," in my opinion, and that is that there's more of it -- if you're comparing one area to another, either there's more of it or there's not or they're the same or whatever, not wider area or, you know, thinner area or whatever, you know, limitation one would want to put on it.

We didn't understand the patent to mean to distinguish it in that way.

JUDGE ANDERSON: Okay. Can you talk about -- I don't want to take you out too far afield of what you want to do here, but can you talk about claim 8, which talks about the shading film covering the entire upper surface except for the -- the image sensor is. I may be able to help you here. I think that's on your slide 14.

MR. KIMBLE: Yes, that's right, your Honor, we treat that on slides 14 and 15. And for purposes of

expediting, I was going to just rely on our slides and papers but as we -- as we -- as we do say there here, let me, for purposes of folks in the room, let me get to slide 14.

Okay. So, as we say here, it's our contentions that the references don't disclose a film that covers an entire upper surface except for the upper surface of the solid state imaging sensing device.

Hirosawa, which is what we understand they're looking at here, has this transmission means between 2L and 2R -- this is again shown on 14 -- and the contact pads around the edges. And, so, the film is -- there is more than just the upper surface of the solid state imaging device exposed is our -- is our -- is the argument that we've made.

JUDGE ANDERSON: All right. I hear your argument and I think I want to hear what the petitioner says about that. So, perhaps.

What about the method claims and the positioning issue which you argue -- I think I recall that this is argued not really focusing on any particular claim, but I think claim 13 really is about positioning. So, what is it that your -- that your -- and I think that's in slide 19. Is this -- is this a motivation in the mind argument? Looks like it.

MR. KIMBLE: That's right. And there was another point brought up in the opening remarks about that and the question of whether -- and this is shown in their reply, too, about whether the '714 patent discloses wire bonding, as opposed to just some of the claims talk about connecting versus a bump. And there's certainly figures that -- that disclose that.

However, there are also figures, like figures 6 and 7, that clearly show the connection where it's wire bonded via a metal wire. This is, just for the record, figure 6. The CCD chip is 41. 47 are the wires. It's described in the accompanying disclosure. So, it's not limited to the use of the bumps.

In addition to that, here, as you pointed to me -- pointed me to on claim 19, Fujii, which is -- is what petitioner is looking to combine with Wakabayashi, does not claim that the ledges improve the design, and petitioner doesn't explain why a person of ordinary skill would be motivated to use the ledge, in other words, what benefit there would be to look to Fujii to pull those ledges into Wakabayashi. Why would you do that if there's -- there's no apparent benefit to them? And, so -- and our expert, Dr. Afromowitz has testified that that combination would

provide no design advantages.

So, there's no reason -- it's -- it's -- there is no reason to make the combination they're trying to make. It's just this would be the impermissible finding of a limitation of some other prior art and just saying, "Oh, it's over there." There's no explanation of why you would combine those together.

And my time is running low, but I did want to make one point just here where I've cited to Dr. Afromowitz because there's been a few comments here during this matter. There's no contention -- I just want to be clear, there's no contention that Dr. Afromowitz is not qualified, that he's not a person of ordinary skill in the art. There's not this heightened standard that petitioner seems to be implying.

He's certainly well qualified enough to analyze these patents and the references and determine whether there are differences or whether persons of ordinary skill in the art at the time would make modifications or combine them.

I see my time is -- I'm over the limit now. Are there other questions you would like me to answer or should I conclude?

JUDGE ANDERSON: Yeah. Let me just clarify something I said, which was that slide 19, claim 13 --

grounds 13 in claim 2, and you addressed that. So, just so the record is clear, I did not say that.

MR. KIMBLE: Okay. Thank you, all.

JUDGE CHAGNON: Thank you.

MR. ZWEIG: Your Honor, I would like to begin by addressing the shading film limitation in claim 8. Now, the petition doesn't argue that Hirosawa or Nita's shading film should be bodily incorporated into the Yoshino device. Rather, the petition says that protecting peripheral circuit elements with the shading film while leaving the image sensing elements unshaded was a well-known technique with well-known advantages that would have been well within ordinary skill and cites those two differences as examples of this.

Combination argues that if you use such a shading film with the device of Yoshino or Izumi -- Yoshino and Izumi or Nagano, rather, the person of ordinary skill would know to shade the light receiving elements and not shade the other portions of the device -- I'm sorry -- not shade the light receiving elements and shade the other portions of the device and that would lead a person of ordinary skill to that claim limitation.

Now, patent owner's response doesn't address this

obviousness argument. Instead, patent owner argues that Hirosawa and Nita don't use enough shading film to meet the language of claim 8 on their own, but the way that patent owner would read the shading film limitation would exclude embodiments of the '714 patent.

Just briefly, the Nita reference, which is Exhibit 1011, patent owner doesn't dispute that Nita's adhesive layer 3 is a shading film or that the portion of Nita's substrate, the chip, 1 -- chip 1, that is not the image sensor is underneath the shading film. Rather, patent owner says that the shading film wouldn't protect against light entering at an angle because of the space between the substrate and the film. But this space between the substrate and the film is just what figure 7 of the '714 patent shows.

Regarding the Hirosawa reference, Exhibit 1020, patent owner mentioned that Hirosawa teaches single transmission means but doesn't say that these are shaded. But the Hirosawa reference doesn't teach that the signal transmission means are on an upper surface of the substrate, and this is what claim 8 requires to be shaded.

On a different subject, patent owner mentioned that in certain embodiments of the '714 patent, chips are mounted onto a substrate using wire bonds. However, this is

relevant to the arguments that the resin applied might move the chip with wire bonds, as Dr. Afromowitz testified. However, the resin shown as applied in the figures of Yoshino and Wakabayashi doesn't reach the interior portion of the substrate where these chips are to be mounted. It only reaches as far as the bump bonds to reinforce those bonds and, so, this wouldn't be an issue even then.

Turning to another point, patent owner argued that there are no examples in the specification of "secured via an adhesive" being referred to as anything other than gluing. However, there is one such example, or at least one such example. In column 6, line 38, of the '714 patent, Exhibit 1001, the patent refers to the CCD module is fixed to the package 21. The term "fixed" is different from the term "glued."

One more point on the securing. Patent owner argued that "supporting" is different from "securing," and in this -- in the context of these particular references, that's not the case. Patent owner used an argument or an example, rather, of a glass of water being supported by the table. Now, this might be right for the ordinary understanding of what the term "supporting" means in everyday use that, you know, something is supported against the force of gravity by

something underneath -- underneath that thing, but that's not what Yoshino is describing and it's not what Wakabayashi is describing. They're talking about a resin that supports the chip in the package. It keeps it in the package regardless of what direction force is being applied. It's a different situation.

Also, if Yoshino's resin is not a self-adhesive, it's not clear what's keeping it in the package.

Patent owner argued that there isn't really a distinction between "wider area" and "greater area," but, of course, area is not measured in width, as your Honors mentioned.

So, two more points I'd like to address. With regard to patent owner's last argument about Dr. Afromowitz's qualifications, I remind your Honors that qualifications are not the point here. We are not arguing that he is unqualified as an expert in his fields; rather, the point is credibility on the particular matters upon which he opined. And as we set forth in our reply, Mr. Guidash is more credible on these particular points.

Now, finally, turning to the ground 13 combination regarding the ledge, this is the combination with Wakabayashi in view of Fujii, I would point out that the petition on page

55 actually does describe a reason to -- to make this modification -- could you bring up page 55 of the petition -- states one of ordinary skill would have known to extend the edge of Wakabayashi's packages upward in order to hold Wakabayashi's transparent lid, which is sealing glass 8, creating the ledge disclosed in Fujii. And Mr. Guidash discusses this in his declaration.

There were two possibilities for how this lid could be held, and one of skill would immediately have been able to visualize both with no unpredictable results. That's why the petition says that this is a simple substitution of one element for another in order to obtain predictable results.

Now, the function of the ledge in claim 2 is structural. The inner leads are adjacent to the ledge's lower surface. But this part of claim 2 is actually taught by Wakabayashi.

If you can scroll up on page 55, it shows Wakabayashi's figure 2.

The bottom portion of the ledge holding the inner lead is present in the unmodified figure 2 of Wakabayashi. The only thing that Wakabayashi doesn't disclose is an inwardly projecting structure that has a separate upper

surface than the upmost surface of the package body itself, that step shape that you can see in the figure.

Now, the claims don't ascribe any particular function to the upper surface of this ledge. Figure 7 and 8 of the '714 patent show a transparent ledge -- sorry -- transparent lid sitting on the upper surface of the ledge, but this is not a claim feature. And this is what the petition argues that one of skill would have made this combination in order to accomplish to sit the lid inside the package, not related to any of the claim features.

Unless there are no further questions, your Honors, I will wrap up my presentation at that point.

JUDGE ANDERSON: Nothing further from me.

JUDGE MCKONE: Nothing further from me.

JUDGE CHAGNON: All right. Well, thank you, everybody, for your presentations today. It's been very helpful. This hearing is adjourned.

(Off the record at 4:15 p.m.)

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