UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL
AND APPEAL BOARD
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ALBANY INTERNATIONAL CORP.,
Petitioner,
-against-
VOITH PATENT GMBH,
Patent Owner.

U.S. PATENT NO. 11,261,566
Case No. IPR2025-01116
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REMOTE VIDEOTAPED DEPOSITION OF
CHRISTOPHER M. PASTORE
Ambler, Pennsylvania
August 6, 2026

Reported By:
ERIC J. FINZ

August 6, 2026
9:04 a.m.

Remote Deposition of CHRISTOPHER M. PASTORE, taken by Patent Owner, pursuant to Notice, before ERIC J. FINZ, a Shorthand Reporter and Notary Public within and for the State of New York.

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DAVID BROOKSTEIN

CHRISTOPHER M. PASTORE

CHRISTOPHER M. PASTORE,
having been first duly sworn by the Notary Public (Eric J. Finz), was examined and testified as follows:

EXAMINATION BY
MR. KONSTANTAKOPOULOS:

Q. Good morning, Dr. Pastore. Can you please state your name for the record?

A. Yes, I can. Christopher Pastore.

Q. Where do you live?

A. In Ambler, Pennsylvania.

Q. What is your address?

A. 1640 Terrace Drive.

Q. Are you located there right now?

A. I am.

Q. And is the address that you gave your home or office address?

A. Well, technically both. But my home.

Q. And is there anyone else in the room or your house with you today?

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A. No.

Q. Do you have any communication devices in the room with you, other than the computer you're using for this Zoom call?

A. I have a cell phone.

Q. Is it silenced?

A. Yes.

Q. Okay. And I think we've established you are using the computer -- you are using the computer to access the exhibits on Exhibit Share. Correct?

A. Correct.

Q. Do you have any printed documents with you?

A. I do not.

Q. Okay. Now, you understand that even if we're -- even though we're taking this deposition via remote video, you are under oath today. Right?

A. I understand that.

Q. Is there any reason you cannot give truthful and accurate testimony today?

A. No, there is not.

Q. Do you take any medications that may impair your ability to give true and accurate testimony?

A. No, I do not.

Q. You submitted two declarations in this proceeding, Exhibit 1003 was your first declaration, and Exhibit 1053 is your second declaration. Correct?

A. I'm not certain about the numbers. But yes, I submitted two declarations.

Q. And you were deposed in this matter once before on March 23, 2026. Correct?

A. Correct.

Q. And I know you've been deposed many times before. But let me go through some ground rules. The court reporter is transcribing the deposition, and to keep the transcript clean, I will ask you to wait for me to finish my question before you answer. And then I will try to wait for you to finish your answer before I go

to the next question.

Sounds fair?

A. That sounds fair.

Q. And can you please give verbal answers, not nods or anything that cannot be transcribed?

A. Yes.

Q. Okay. If a question is unclear, please let me know and then I'll try to rephrase. Okay?

A. Okay.

Q. And if you answer a question, I will assume that you understood it.

Is that fair?

A. That is fair.

Q. And we can break whenever you like. I only ask that there is no pending question during the break.

And this is an IPR proceeding, and I believe you understand that if you're discussing the contents of the testimony with counsel during breaks, I'm entitled to know what you discussed. Correct?

A. Correct.

Q. And counsel may object, and unless you are instructed not to answer, you're here to answer my questions. Okay?

A. Okay.

Q. Now, Exhibit 1053, which is the second declaration you submitted in this IPR, is available on Exhibit Share.

When did you start working on your second declaration?

A. When did I start working on it? I don't think I documented that. Of course it was after the deposition on the first declaration. But I don't think I can give you a definitive date, I'm sorry.

Q. It's okay.

Did you start working on your second declaration after Patent Owner filed the Patent Owner's response?

A. Most likely, but I'm not certain.

Q. Do you remember reading Patent

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Owner's response or Dr. Brookstein's declaration before starting to work on your second declaration?

A. Again, I'm not certain. I've read both of those documents. I don't remember if I started working on a second declaration before or after reading those. I just don't recall.

Q. You understand your second declaration to be responsive to Patent Owner's response and Dr. Brookstein's declaration. Correct?

A. And also responsive to your questions at the deposition.

Q. Okay. Now, can you open Exhibit 1053.

A. Let me see. No. It's giving me a little white sickle with a diagonal line through it. You do not have permission to perform this action.

Q. So you clicked the file.

A. Here we go. Okay. I had hit -- download is not permitted, but viewing is. I see now.

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Q. All right.

Can you turn to paragraph 4?

A. Yes.

Q. You write, "In forming this second declaration, I have considered, among various documents, the following." And then you list documents that you reviewed. Correct?

A. Correct.

Q. So when you say among various documents, what do you mean?

A. I mean these in particular are referenced in this declaration. And are important to the declaration.

Q. Did you review documents not listed in paragraph 4 to form the opinions in your second declaration?

A. Well, of course. Because all of my education comes to bear in forming my opinions. So anything I've read in my professional career is relevant in a certain sense.

Q. Can you identify any documents other than what is listed under paragraph

4 that you relied on specifically to form the opinions in your second declaration?

A. No. To the best of my ability, this is the list of documents that are specifically cited and referenced as basis for opinions.

Q. And you reviewed the complete and final version of Exhibit 1053 before signing it on July 16, 2026?

A. 1053 is this document, yes.

Q. Correct.

Did you perform the numeric calculations in your declaration?

A. Yes.

Q. Did you check them before signing your declaration?

A. Yes.

Q. What tools did you use for the numeric calculations?

A. For the numeric calculations?

Q. Correct.

A. I used a calculator in some occasions. Microsoft Excel in some occasions.

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Q. Did you do any calculation by hand?

A. I don't think so. I think I confirmed everything with a calculator at a minimum.

Q. Okay. Did you perform each of the pixel measurements reported in your second declaration?

A. Yes.

Q. You mentioned some software that you used, like PDF Images and Photoshop. Who operated that software?

A. I did.

Q. The Adanur file that you measured came from counsel. Correct?

A. Correct.

Q. Can you explain the process of recording the measurements? And I can point to you paragraphs 36 and 37 of your declaration.

A. So you're talking about the measurements of yarn dimensions from the P-TACTS PDF file?

Q. Correct. If you go to

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paragraph 36, you start with "to perform these new measurements." So I'm referring to these new measurements. Can you explain the process of recording these measurements?

A. Yes.

Q. Can you please.

A. So I received PDF file that was confirmed to be downloaded from the P-TACTS web server. Then I extracted the pages of interest, for Adanur, it happened to be page 13 of Exhibit 1021. I extracted that as a single page using Adobe Acrobat. Extracted the page, saved it as a file. Then I used a Linux tool called PDF Images. PDF Images will go through a PDF file, find graphical inserts, like figures, and identify what the native resolution of those images is. And just extract the image from that page.

I used the PDF Images tool to extract that image, saved it as a JPEG file. Opened that JPEG file in

Photoshop, making sure that the pixel grid was turned on so it would not allow fractional pixels to be displayed.

Then in Photoshop, I used the same technique I did with my original measurements. I used the line tool and for each line element I would find a starting point and an ending point, draw a line, and record the length of that line in pixels to a file.

For things that involved a circle, I drew a circle and then used the resizing tool to find what I considered the largest circle that could fit inside the seam loop in Adanur's MD image.

Additionally, I measured the length of the scale bar presented in Adanur's MD image and used that scale to calculate a pixel to millimeter conversion factor.

Q. So Adobe Photoshop can import PDF files. Correct?

A. Adobe Photoshop can import PDF files, yes.

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Q. So why didn't you use Adobe Photoshop on the file that was given to you by counsel?

A. Because when Photoshop opens a PDF file, it will use the PDF file's resolution. PDF Images makes sure it uses the actual image's resolution as opposed to the overall file's resolution. So it's a more accurate representation of the data stored in that file.

Q. So the resolution of the image that you took your new measurements is a different resolution from the file that is downloaded from P-TACTS?

A. When you're using a PDF file and using something like Adobe Acrobat, there is some variation in resolution depending on how large you're viewing it on the screen. Whereas using PDF Images it actually extracts the image file as data, as opposed to how does it appear on the screen.

Q. Did you provide the extracted JPEG image to counsel?

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A. I don't think so, no.

Q. So the image that you performed your new measurements is not in the record in this proceeding. Correct?

MR. KANE: Objection; misstates the record.

A. I don't think that's correct. Because that image is embedded inside the PDF file. I just extracted it from the PDF file. But it is there in that file.

Q. The resolution of the JPEG image that you used -- let me rephrase.

The JPEG image that you used to make your new measurements has a different resolution than the PDF file saved on P-TACTS. Correct?

MR. KANE: Objection; misstates the record.

A. I did not confirm what the resolutions were because I only cared about the resolution of the actual image. So I don't know whether it was the same or different. I didn't do that comparison. I just went in and got the

native resolution of the images that are embedded inside the PDF file.

Q. So you just testified that the JPEG image is a more accurate representation of the data stored in that file. Is that correct?

A. I guess I should be careful about more accurate. It's never less accurate. It could be identical. It could be more accurate. Depending on how the PDF file was constructed.

Q. So the JPEG image that you used could be more accurate than the PDF file that originated the JPEG image. Is that your testimony?

MR. KANE: Objection; misstates the record.

A. Yeah, I think that misstates what I'm trying to say.

Q. Yeah, so I'm just trying to understand what you're saying. I'm not misstating the record. I'm just asking questions so that the record is clear.

You just said, and I read back

to you, the JPEG file is a more accurate representation of the data stored in that file. And then I followed up to confirm whether that's your -- that's what you meant.

So I'm giving you the option again to clear the record.

So you had a source file which was the PDF that was downloaded. Right? And then you're saying from the source you generated another file that could have a better representation of the data stored in the source file. Is that your testimony? I'm just trying to understand.

A. I think -- a PDF file consists of many things. It includes text, it includes font sizes, it includes images, it includes the size of the image, how it should be displayed on the page of the PDF file.

For example, I could have a very large image and my PDF instructions could tell it to display as a very small

image in the corner that when looking at it would appear to have very few pixels.

It's not obvious when just looking at a PDF file what the native resolution of any image is. The PDF Images tool goes into the PDF file, finds the actual data that describes the image, that gives all of the color and pixel count information, and extracts that image as it was natively installed and embedded into the PDF file.

The images that I looked at, using the PDF Images tool, reflected the native resolution of those images. Which could be more, and honestly could be less than what is displayed on the screen. Partly depending on the Zoom level that the user is using, and partly depending on the instructions that the PDF file was given for the purposes of displaying that image.

So using the PDF Images tool, lets me find the native image before it was converted into a page for display

purposes on a PDF file.

Q. And how do you know that the original native resolution of the PDF corresponds to the original image?

A. The PDF Images tool is designed explicitly to find the native image information that's embedded into a PDF file.

Q. And you did not provide the extracted image to counsel. Correct?

A. No. It's embedded in the PDF file, but I did not provide it after extraction.

Q. Now, when you said that you recorded the pixels, how does Adobe Photoshop provide that information to you?

A. As I said, I turned on the pixel grid so that the cursor could only fall on integer number of pixels. I couldn't get a half a pixel as a measurement.

I had Photoshop, using the information window, show me the length of

lines. I'd start, click on a starting point, click on an ending point that corresponded with the width or the height or the diameter I was trying to measure, and it would display for me what is the length of that line in pixels.

Q. And that display would be on the monitor?

A. Yes. In the information window.

Q. That information window you did not record in your declaration. Correct?

A. Correct.

Q. You just copied and pasted what you were watching on your monitor into a file, you said. Is that correct?

A. That is correct.

Q. Now, if someone had opened the PDF file in Adobe Photoshop, could he represent -- reproduce, excuse me, the measurements that you did?

A. I did not confirm that. I don't believe that Adobe Acrobat has a

measurement tool in pixels. And I believe that Acrobat will generally try to smooth things out, so you might get fractional pixels. I'm not certain, but I can't be sure.

Q. Let me give you the question again because I think you misunderstood me.

My question was, if someone had opened the PDF file in Adobe Photoshop, not Acrobat, could he reproduce the measurements that you did?

A. I'm not certain. I think Photoshop would use the resolution that the PDF file specifies as opposed to the resolution of the image that's embedded in the PDF file. I'm not certain, but I believe that's the case. I didn't want to take that chance that it could be off by a little bit or a lot, depending.

Q. So you're saying that using the JPEG image and measuring the JPEG image itself you'd get more accurate results?

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MR. KANE: Objection; misstates the record.

A. It would represent the native image file that was stored in the PDF, and eliminate the possibility of smoothing, estimation, the issues of zoom level. That would be removed from the process. So I felt it was a more reproducible method.

Q. Okay. When you say that it would eliminate the possibility of smoothing, what would be the effect of smoothing?

A. The effect of smoothing could be to change the pixel count. It could allow you to keep zooming and keep getting smoother and smoother images. Obviously that would not affect the ratios that are measured, which are dimensional. So it doesn't change the conclusions in any way. But it could change the pixel count that were extracted.

Q. So you would get, by using the

JPEG image to measure the pixels, a different pixel count than by using the actual PDF file to measure the pixels. Correct?

A. Possibly. It's possible. You could imagine if you kept the image very small on the screen and measured the distance, you might get very few pixels.

Q. And according to your experience using this pixel methodology, which of the two pixel count would be more accurate according to your opinion?

A. Well, again, I was focusing on ratios, so it doesn't matter. But I felt that using the PDF Images tool to extract the native resolution would be more reproducible.

Q. But I think it matters because if you said that it doesn't matter, why did you use the JPEG image to get the pixel count?

MR. KANE: Objection; asked and answered.

A. At my first deposition you

presented something that you claimed had a different pixel count than what I had done. And I thought, let me see if there is other techniques that give reproducible pixel counts instead of us sampling these things at different levels.

Q. Okay. When you say other techniques, other techniques based on your previous measurements?

A. I'm not following the question, I'm sorry.

Q. Your previous answer was, at my first deposition you presented something that you claimed had a different pixel count than what I had done. And I thought, let me see if there is other techniques that give other representative pixels, pixel counts instead of sampling those things at different level. I'm just reading back what you said. I just want to understand what you mean by "other techniques."

A. Clearly you and I or

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Dr. Brookstein had done something different because we got different pixel counts. So I thought it would be valuable to find if there was a method that could not be misinterpreted in this way. And looking at the native file resolution of the embedded PDFs seems to me to be an excellent way to do that because it represents exactly the data that's available in the P-TACTS downloaded file.

I also wasn't sure if because you were using the P-TACTS file and we know that P-TACTS can downgrade resolution, that was the explanation.

Q. So this method is different than the method you used for your measurements in your first declaration. Correct?

A. One step is different. And that is where the source image comes from. All of the rest of the steps are the same.

Q. So the method you used to get

the new measurements for your second declaration is not the same as the method you used to get your measurements for your first declaration. Correct?

A. I see the method as being the use of Photoshop to count the pixels. And it's a question of what material is being analyzed. So in my opinion the method is identical, the source image was different.

Q. You followed different steps for your measurements in your second declaration than the steps you followed for your measurements in your first declaration. Correct?

A. No. The measurements were done in exactly the same way.

Q. I'm not asking about the measurements, I'm asking about the steps that you used from having the file, all the way to recording your measurements. So let me give you the question again.

The method steps that you followed, starting from having the source

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file available to you all the way to recording the measurements for your second declaration, is different -- are different from the method steps that you followed for the measurements of the pixels in your first declaration. Correct?

A. There was one distinction. The way I obtained the source image was different. And all the remainder of the steps were identical.

Q. You used a different source file, and by using a different source file you used a different methodology. Correct?

MR. KANE: Objection; misstates the testimony, asked and answered.

A. I used a different method to extract the source data. And all of the rest of the measurements, the actual measurement steps were identical.

Q. Now, how much time did you spend preparing your second declaration?

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A. Oh, as I sit here I can't give you that answer. It was -- it was quite a while. But I don't know the number.

Q. During your first deposition, I believe you told me that you spent 20 hours preparing your first declaration. Is that ballpark number --

A. That could be. Again, I don't recall. But that could very well be.

Q. Do you think you worked more than 20 hours in preparing your second declaration?

A. Again, I don't remember. But it wouldn't surprise me if it was in that range. But I can't answer that accurately or truthfully.

Q. How many days did you spend working on your second declaration?

A. This was spread out over many weeks. And I don't remember as I'm sitting here, I can't answer that question truthfully.

Q. Did you read in full every exhibit you cite in your second

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declaration?

A. Yes.

Q. For any language in your second declaration you did not write yourself, did you independently verify it before signing?

A. Yes. The entire declaration was read, edited, written or jointly developed by me.

Q. By you and counsel. Correct?

A. Yes.

Q. Okay. But you can confirm that you performed all the numerical calculations yourself?

A. Yes.

Q. Now, in performing the work that you reported in Exhibit 1053, did you create or use any notes, spreadsheets and screenshots that are not cited in Exhibit 1053?

A. Yes.

Q. Can you identify what you used?

A. For the calculations, I have a

workbook that has the numerical values stored in it.

Q. And these are preserved. Right?

A. Yes, yeah.

Q. Did you record any repeated measurements of any feature?

A. Did I record any repeated measurements? I don't recall repeated measurements, so I don't think so.

Q. Okay. Now, let's focus on today's deposition. What did you do to prepare for today's deposition?

A. I reviewed my declaration. Reviewed some of the other documents that are cited in paragraph 4. And I spoke with counsel.

Q. Did you review Exhibit 2012, which is the transcript of your first deposition?

A. I did a bit. I did not do a complete, thorough review because I had some memory of it. But I did look through it.

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Q. Now, you also said you met with counsel. Who did you meet with?

A. I met with Mr. Cane, Ms. Kim and Ms. DeVries.

Q. How many times?

A. Oh, I'm not sure. Maybe four. I don't recall.

Q. When were these meetings, do you remember?

A. In the last couple of weeks.

Q. Was anyone else present?

A. I don't believe so.

Q. And these were remote meetings, I assume?

A. You assume correctly.

Q. Now, did you perform any new calculations, measurements or tests to prepare for today's deposition?

A. New compared to the second declaration?

Q. Correct.

A. No.

Q. So there is nothing that you want to change with regard to your

calculations, your measurements or tests than what's described in your second declaration. Correct?

A. You're making me feel like I have a typo in one of the numbers somewhere. But no, I did not identify any errors.

Q. We'll talk about those typos.

Now, did any person other than an attorney assist you?

A. No.

Q. Okay. Now, in your first declaration, you measured the MD thread diameters in Adanur's CD image. Correct?

A. I measured the MD thread diameters, yeah, of both the CD and MD images.

Q. And if you want to refresh your recollection, Exhibit 10 -- Exhibit 1003 is your first declaration, I can direct you to paragraph 69. I'm going to ask you questions about the measurements you performed in the CD image of Adanur.

A. Which paragraph are you

referencing?

Q. Paragraph 69 of Exhibit 1003.

A. Okay.

Q. Now, you measured seven threads. Correct?

A. Yes.

Q. For each thread, you measured two diameters, one horizontal and one vertical. Correct?

A. That is correct.

Q. These are 14 numbers in total. Correct?

A. That is correct.

Q. And then on paragraph 70, you write, quote, "Averaged these measurements and obtained an average MD thread diameter of 69 pixels."

Did I read that correctly?

A. Yes, you did.

Q. So you added the 14 numbers and divided by 14. Correct?

A. That is correct.

Q. And this is an arithmetic average value. Correct?

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A. That's right.

Q. And then you converted 69 pixels to .32 millimeters. Correct?

A. Correct.

Q. Now, that average value, 69 pixels or .32 millimeters, is the only MD thread diameter value your first declaration derived from Adanur's CD image. Correct?

(Reporter clarification.)

Q. Dr. Pastore, that average value, 69 pixels, or .32 millimeters, is the only MD thread diameter value your first declaration derived from Adanur's CD image. Correct?

A. Yes, I believe that's the only time I referenced thread diameters in millimeters, correct.

Q. And the MD thread diameter value that you used to calculate the loop density in ground 1 is the arithmetic average of the horizontal and vertical diameters of the seven MD threads in Adanur's CD picture. Correct?

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A. Correct.

Q. And this is the only calculation of the loop density that you performed in ground 1. Correct?

A. This is the only calculation -- I believe that might be the only -- you're talking about the ratio here?

Q. No, I'm talking about the loop density. So you used the MD thread diameter --

A. Go ahead.

Q. Let me give you a clean question.

The MD thread diameter value that you used to calculate the loop density in ground 1 is the arithmetic average of the horizontal and vertical diameters of the seven MD threads in Adanur's CD picture. Correct?

MR. KANE: Objection; misstates the record.

A. I'm reviewing to my first declaration. I didn't realize we were

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going to be discussing this, to see where I specify loop density.

Yes, that is correct.

Q. And this is the only calculation of the loop density that you performed in ground 1. Correct?

MR. KANE: Counsel, how is this tied to his second declaration?

MR. KONSTANTAKOPOULOS: Well, he performed new measurements, he said. So I'm just trying to understand what he did with regard to the first declaration that is new.

MR. KANE: Well, you've already had a chance to ask that question, counsel. So why don't you go to the second declaration and you can ask questions.

MR. KONSTANTAKOPOULOS: You can object, counsel. I will proceed with my examination.

MR. KANE: So you're agreeing

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that it has nothing to do with the second declaration?

MR. KONSTANTAKOPOULOS: No. That's exactly -- that's the opposite what I said.

MR. KANE: How does it relate to the second declaration?

MR. KONSTANTAKOPOULOS: The second declaration provided numbers that according to Dr. Pastore are consistent with the first declaration. I'm just trying to explore this consistency and ask questions to confirm whether what he said about the consistency is true or not. That's how it relates.

MR. KANE: He provided an answer in the second declaration, didn't he? He just used the same conclusion, right?

MR. KONSTANTAKOPOULOS: Okay.

MR. KANE: So if you want to compare the two conclusions, that's

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fine.

MR. KONSTANTAKOPOULOS: Well, I'm going to get there. I want to understand the method and how --

(Simultaneous crosstalk.)

MR. KONSTANTAKOPOULOS: I think now you're wasting my time.

MR. KANE: Counsel, I'm not wasting your time. You're outside the scope of this deposition.

MR. KONSTANTAKOPOULOS: You can object to the scope and then we can figure it out. I think that's the proper way.

MR. KANE: If you continue down this road I'm going to call the judge, that's what I'm going to do.

MR. KONSTANTAKOPOULOS: You can go down that route too.

MR. KANE: Please move to -- please focus on the second declaration.

MR. KONSTANTAKOPOULOS: I will

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conduct the examination the way I see fit. If you feel like or see fit to call the judge to raise this question, I'm happy to do that. But I would ask that you state your objection on the record and then you can move to strike.

MR. KANE: Proceed. You have my objection. If you continue to ask questions about the first declaration, I reserve the right to call the court, or the board. This is not a redo of the first deposition.

MR. KONSTANTAKOPOULOS: I'm not going to do a redo.

MR. KANE: You're doing that right now.

BY MR. KONSTANTAKOPOULOS:

Q. Dr. Pastore, the term "equivalent diameter" appears nowhere in your first declaration. Correct?

A. As I said, I didn't expect to be quizzed on this, so I don't recall.

But I believe you are correct.

Q. The first time the words "equivalent diameter" appear in any paper or declaration in this proceeding is your second declaration that is signed July 16, 2026. Correct?

A. That is probably true.

Q. This is true; correct?

A. Probably, yes.

Q. You performed the equivalent diameter calculations after you read the Patent Owner's response. Correct?

A. It may be. I remember after the first deposition I thought that that would be a valuable number to introduce. But it may also have been in response to the Patent Owner's response.

Q. You said that at least after your first deposition you thought that would be a valuable number to introduce. Correct?

A. Just to try to clarify some of the misconceptions you had.

Q. And your first deposition

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happened after you submitted your first declaration. Correct?

A. I'm sorry, could you restate that question?

Q. Your first deposition happened after you submitted your first declaration. Correct?

A. That is correct.

Q. So the first time you thought of introducing the equivalent diameter was after your first declaration. Correct?

A. I believe so.

Q. Now, in paragraph 42 of your second declaration, you define the equivalent diameter by, quote -- let me give you some time to go back to your second declaration.

A. Okay. In 42?

Q. Correct.

A. Yes.

Q. Let me give you the question again.

In paragraph 42 of your second

declaration, you define the equivalent diameter by, quote, "considering the equivalent circle that has the same area as an ellipse with a major and minor axis." Correct?

A. Correct.

Q. And the radius is the square root of the product of the two semi axis. Correct?

A. Yes.

Q. So in terms of the measured width and height, the diameter is the square root of width times height. Correct?

A. Yes.

Q. Now, you have a table on paragraph 50 of your second declaration.

A. Yes.

Q. Now, your width is 44 pixels and the height is 37 pixels. Correct?

A. Yes.

Q. So you took the square root of 44 times 37 and you recorded it as 40.3. Correct?

A. Yes.

Q. That's the equivalent end rate. Correct?

A. Correct.

Q. And the arithmetic average of 44 and 37 is 40.5. Correct?

A. Yes.

Q. So that's your average end rate. Correct?

A. Correct.

Q. These are different numbers, 40.5 and 40.3. Correct?

A. Yes, they are.

Q. The equivalent diameter is the geometric mean of width and height. Correct?

A. Yes.

Q. And as a general matter of mathematics, the geometric mean of two unequal positive numbers is always less than the arithmetic average. Are you aware of this rule?

A. Yes.

Q. Now, for these threads that

you measure on paragraph 50 that are wider than tall, the equivalent diameter is always less than the horizontal width. Correct?

A. Yes.

Q. And the equivalent diameter is a different mathematical construct from the 14-measurement arithmetic average you used in your first declaration. Correct?

A. Yes.

Q. And it is a different construct from a horizontal only average. Correct?

A. Yes.

Q. And it is a different construct from a vertical only average. Correct?

A. Yes.

Q. Now, let's turn to paragraph 51. I'm reading the first sentence. "This shows that by simply averaging the width horizontal and height vertical diameters, I obtain an average diameter of 43 pixels."

Did I read that correctly?

A. You did. And there is a typo clearly.

Q. Okay. So number 43 does not correspond to what the average diameter is. Correct?

A. No. As is blatantly obvious on the page, that should have said 38.42.

Q. Okay. But 43 is the average of the width column alone. Correct?

A. That is correct.

Q. Now, the second sentence. "The error is less than 1 percent." Correct?

A. Correct.

Q. That doesn't correspond to the error between 43 and 38.12. Correct?

A. It's the error between the average diameter and the equivalent circle diameter.

Q. So the less than 1 percent sentence is true only if the comparison is between the width and height average and the equivalent diameter. Correct?

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A. Yes. It matches the words I've presented, although one of the numbers was incorrectly copied.

Q. Now, the third sentence says -- actually, let's look at the last column of your table. The column of your table is titled "different," I think you meant difference. But "different between width and equivalent diameter." Correct?

A. Yes. And again, clearly by looking at the table it's the same error. It should be the difference between average and equivalent diameters.

Q. And the actual difference is between the width and the equivalent diameter, 37, 7.1, 5.9 and so, appear nowhere in your table. Correct?

A. Correct.

Q. Okay. So the one comparison that your declaration never quantifies is the one between the width for the loop density formula uses, and the equivalent diameter. Correct?

A. Yes.

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Q. So 43 versus 38.12. Correct?

A. If you wanted to make that comparison, that's how you would do it.

Q. And that's a difference of roughly 11 to 13 percent, whichever number you use as the nominator. Correct?

A. Sure, yes.

Q. And the two numbers for the diameter you use in your second declaration to calculate the loop density is the horizontal only average, and the equivalent diameters. Correct?

A. Could be. I would have to look at where I have my loop density calculations again.

Q. I can point you to paragraph 39.

A. There we go. Okay.

So that's using the horizontal diameters.

Q. Only horizontal, correct, 43?

A. Mm-hmm.

Q. And then if you go to

paragraph 43.

A. Yes.

Q. So --

A. That's using the largest and the smallest values we get between 80 and 90 percent. And obviously any in between values would be in between.

Q. So the difference between these two numbers, the 43 and the 38.2, is between 11 to 13 percent. Correct?

A. The difference between them? Sure.

Q. It's not less than 1 percent. Correct?

A. There's -- I think we clarified, didn't we, that in paragraph 51 that was a typo. But yes, we're getting a range of between 80 and 90 percent using two different measurements of what constitutes diameter in the context of the patent.

Q. Now, Claim 12 requires a loop density between 72 percent and 86 percent. Correct?

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A. I thought it was between 64 and 90.

Q. I'm talking about Claim 12.

A. Oh. I don't recall what Claim 12 specifies. But I will believe you.

Q. Okay. I will represent to you that Claim 12 has a range for the loop density between 72 and 86 percent.

A. Okay.

Q. Now, in your second declaration, we looked at paragraphs 38 and 39, you measured the horizontal widths averaging 43 pixels, right, and you computed 2 times 6 times 43 and you divided by 573. Correct?

A. Correct.

Q. And then let me find the number. That comes -- that calculation is 90 percent. Correct?

A. Yes.

Q. And that's outside of the range for Claim 12 of 72 to 86 percent. Correct?

A. 90 percent is larger than 86

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percent, yes.

Q. So using the horizontal diameters only, Adanur's loop density on the record is outside Claim 12's range. Correct?

A. If one were to just use a single value and cherry-pick that value, it would be outside the range presented in Claim 12.

Q. I can remind you, and you can check that, that your first declaration you competed Adanur's loop density as approximately 85 percent. That's inside the 72 to 80 window. Correct?

A. Correct.

Q. So now your second calculations -- let me rephrase.

Now your new calculation in your second declaration provides a value for the loop density that doesn't satisfy Claim 12. Correct?

MR. KANE: Objection; misstates the record.

A. Using that measurement of

horizontal diameter, we get a value that is larger than 86 percent, yes.

Q. And therefore doesn't satisfy Claim 12. Correct?

A. Well, that's a single point. We have other ways of measuring loop density. And of course if the prior art range encompasses the claimed range, then the claimed range is included as well.

Q. I'm sorry, I'm confused with this answer.

A. I didn't present a range in that one sentence. But I do constitute a range when I look at using the equivalent diameter. So I get a range of between 80 and 90, which overlaps with the Claim 12 range.

Q. Okay. I'm just focusing now to the measurements you did using the horizontal only diameter. Do you have that in mind?

A. Yes.

Q. By using the horizontal only diameter value that you measured, your

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loop density calculation is outside of Claim 12's range. Correct?

A. Yes, it's on the high side. Yeah.

Q. Outside of the range. Correct?

A. It's above the stated range, yes.

Q. Now, let's look at paragraph 41.

A. Okay.

Q. Paragraph 41 says, "This is consistent with my initial measurement of the loop density as approximately 85 percent." And then you point to Exhibit 1003, paragraph 130. And then you say, "and it still falls within the claimed loop density range of 64 to 90 percent." Correct?

A. Correct.

Q. Do you see where it says "it still falls," do you see that in that paragraph?

A. I do.

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Q. What does "it" refer to?

A. "It" refers to the 90 percent.

Q. So it refers to the calculation you did in paragraph 39. Correct?

A. Correct.

Q. And 64 to 90 percent is the Claim 1's range. Correct?

A. Correct.

Q. A loop density value of less than 64 percent falls outside the claimed loop density range. Correct?

A. It would be below the claimed loop density range, yes.

Q. A loop density value greater than 90 percent falls outside the claimed loop density range. Correct?

A. Right. Those two values would encompass the claimed range. If they were presented.

Q. Okay. Now, turn to paragraph 39 again.

A. Yes.

Q. You write, "This resulted in

the calculation of a loop density of approximately 90 percent."

Did I read that correctly?

A. I believe you did.

Q. So you just mentioned that the calculation you did in paragraph 39 is the basis for your conclusion in paragraph 41 that calculating the loop density based on the new horizontal diameter measurements falls within the claimed loop density range of 64 to 90 percent. Correct?

A. That's right. I'm claiming that 90 percent is within the range of 64 to 90 percent.

Q. You're claiming the calculation that you saw in paragraph 39 satisfies the claimed range. Correct?

A. Yes. 39 identifies a density of 90 percent. And I say that falls within the range of 64 to 90 percent.

Q. If you multiply 26 and 43 and then divide by 563 you get a number that is greater than .9. Correct?

A. 573.

Q. So let me give you a clean. If you multiply 2 with 6 and 43, and then divide by 573, gives you a number that is greater than .9. Correct?

A. I can't do that in my head as I sit here.

Q. But you did do the calculation when you were in front of your calculator and Excel. Correct?

A. Yes.

Q. Now, if you actually do the calculation, you get a number that is 90.05. And if you round it up, it's a number that is 90.1. Correct?

A. You said 90.05?

Q. I say .9005. Correct.

A. That would round off to .90.

Q. It would round off to .901. Correct?

A. If we want to use more and more digits. But the round-off would be .90.

Q. I think we're missing the

point.

The point is that the number, if you perform the calculation, is greater than 90. You don't dispute that; right?

MR. KANE: Objection; misstates the record.

A. I think the sentence clearly says "approximately," indicating that I'm rounding off. And in this case I'm using two significant digits. It is .90.

Q. You did say approximately. But what operation -- operator did you use in the actual equation?

A. What operator? I used multiplication and division. I'm not sure.

Q. You used equal, right, that's the operator.

A. Oh, the comparator. Yeah.

Q. You didn't say there is an approximate equal comparator or operator. Correct?

A. Well, I said approximately

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just before the equation.

Q. You did say that.

Another operator would be "greater than," right? So why do you have -- right?

A. Sure.

Q. Wouldn't that be more accurate?

MR. KANE: Objection.

A. No.

Q. It would not be?

A. No. These numbers are estimates. The calculations are presented with a certain resolution, in this case two significant digits. And within two significant digits, it is equal to 0.90.

Q. So when you performed the actual calculation, you were aware that this number is greater than .9000?

A. I believe I had -- I believe I did this in Excel and had it set to two decimal points.

Q. So then why did you say

"approximately" if Excel had resolution -- had two decimal points, you would say exactly 90, right, if you used Excel with only two decimal points?

MR. KANE: Objection.

A. No.

Q. Why not?

A. A number of reasons. The 573, as I stated before, I could be off by a pixel, especially measuring 573 pixels, it could have been 574, it could have been 572. All of these measurements are going to be approximate within the experimental measurement errors that exist. So we're going to have approximately.

Q. But the claim language doesn't say approximately 90. Correct?

A. I don't think it does, no.

Q. And I asked you before, a number greater than 90 would fall outside of claims. Correct?

MR. KANE: Objection; misstates the record.

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A. A number greater than 90 would in fact be greater than 90, yes.

Q. Now let me go back to my question and I'll give you my answer exactly -- and I'll give you back your answer exactly.

Do you agree that a number greater than .9 is outside the claimed loop density range?

MR. KANE: Objection; calls for a legal conclusion.

A. As I said, a number greater than .9 would in fact be greater than .9.

Q. That's not my answer -- sorry, that's not my question.

My question is, as you sit here in your deposition, would a number for claim density -- let me rephrase.

Would a number for loop density that is greater than 90 fall within or outside the claimed scope?

MR. KANE: Objection; calls for a legal conclusion.

A. If the number was determined

as larger than 90 percent, I imagine it would be above, perhaps encompassing the claimed language.

Q. Can you go back to paragraph 41.

A. Certainly.

Q. Okay. I'm reading the last part of paragraph 41. "It still falls within the claimed loop density range of 94 [sic] to 90 percent."

Is that a legal conclusion you submitted in your declaration?

A. I believe it's a mathematical conclusion. 90 percent falls within the range of 64 to 90 percent.

Q. Let's keep the mathematical aspect of my question and focus on the mathematical aspect of my question.

You understand what the claim says. Correct?

A. I believe so.

Q. A value of a loop density that is greater than .9 falls inside or outside the claimed loop density range?

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A. If I had --

MR. KANE: Objection; calls for a legal conclusion.

A. If I had a number like 95 percent, I would say it does not fall within the claimed loop density range.

Q. If you had a number that's 90.1 percent, what would you say?

A. It would depend on the precision that I'm using for my analysis.

Q. So are you saying --

A. I would not use precision greater than what the patent uses.

Q. What do you mean? The patent says 90 percent. I understand this to mean 90.00 percent, whatever --

(Simultaneous crosstalk.)

A. No, no. 90.0, as you know from your engineering background, 90.0 means something different then 90. It implies a precision to be compared. This is only using integer values, so the only thing that makes sense to compare with it are integer values.

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Q. Go back to paragraph 50 of your declaration.

MR. KANE: Theo, we've been going about an hour, is this a good time for a break?

MR. KONSTANTAKOPOULOS: Yes, it's a good time for a break. You want to meet at 10:20?

MR. KANE: 10:20?

MR. KONSTANTAKOPOULOS: 12 minutes.

MR. KANE: 12 minutes, yeah.

MR. KONSTANTAKOPOULOS: Thank you.

(A recess was taken.)

BY MR. KONSTANTAKOPOULOS:

Q. Welcome back, Dr. Pastore. Did you communicate with anyone during the break?

A. I did not.

Q. Okay. You still understand you're under oath. Correct?

A. I understand that.

Q. All right.

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So can you turn to paragraph 50 of your declaration.

A. Yes.

Q. I will ask you some questions about the table you have there.

Now, the average and standard deviation values have two decimal places.

Do you see that?

A. I do.

Q. Why did you choose to include two decimal places?

A. Arbitrarily. I thought two decimal places -- certainly more than engineering standard where we use three significant digits. But I just felt that it was helpful to see.

Q. Did you use rounding?

A. No. This is a display factor. But the displays are rounded. But the embedded numerical values are not.

Q. I mean, when you calculated those numbers, like 43.00, did you round up or down?

A. I rounded off. Right, it

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depends on what the third digit was.

Q. Okay. Let me just understand your methodology. I'll give you an example. The exact number was 43.05, you would round up to 43.1, if you were to only use one decimal place. Correct?

A. That's correct.

Q. And if the value was 43.4 or less, you'd round it up to 43.0?

A. Round it down to 43.0.

Q. Okay. We have an understanding now.

If you correctly calculate the average of the width diameters, you actually don't get the 43.00 number. Right?

A. No.

Q. Well, if you do the calculation correctly, the number would be 43.14 -- let me give that number again.

If you do the calculation correctly, the number would be 43.1428. I mean, if you look at the number

itself --

A. I'm just looking.

Q. What are you looking at?

A. I'm looking at the numbers. I think you might be correct.

Q. That's visually inspecting these numbers, you have four numbers that are 44, one number that's 43, and the two other numbers are 43 and 31.

A. 1 over 7, so .14. You're right, there is error.

Q. Okay. Now, let's go back to the height number. If you correctly calculate the average of the height diameters, you get a number of 33.71, not 33.83.

A. Yes, I see. I think I averaged the top six instead of the top 7. Yes, there is an error. You are correct. And it would be for all of them.

Q. Okay. So now the table prints the average value -- let me strike that. So the values that you

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recorded on table 50, not a single one of that values for the average values are correct?

A. That's right. They could be off by a quarter of a percent, maybe even a half a percent in some cases.

Q. They're not the right numbers. Correct?

A. They are slightly wrong.

Q. Slightly wrong.

I mean, you're a mathematician. This is a binary question. Is it right or wrong?

A. Well, it's not a pure mathematics question, right. This is an engineering and patent question. But the numbers are slightly off. As I say, somewhere around a quarter of a percent, half a percent. They are slightly wrong.

Q. Are the numbers that you list on paragraph 50 for the average values correct?

A. As I say, they are slightly wrong.

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Q. Okay. If someone did the average calculations of the numbers that you list on paragraph 50, you would end up with different numbers. Correct?

A. Correct. About a quarter percent, half a percent difference. I think the equivalent and the averages probably change very little, but they would change.

Q. Now let's go back to paragraph 39 and the number you used for calculating your loop density.

A. Mm-hmm.

Q. So you calculated 2 times 6 times 43. Correct?

A. Yes.

Q. Over 573.

If you used the right number for the average horizontal diameter, the number you'd get would be 90.35 percent. I represent that to you.

A. Yes, that sounds right. Of course it would still be 90 percent. But yes, I think you are correct.

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Q. 90.35 percent. Correct?

A. Yes.

Q. 90.35 percent is higher than 90 percent. Correct?

MR. KANE: Objection.

A. Not within two significant digits. It still would be 90 percent.

Q. Well, my question is, 90.35 percent is higher than 90 percent. Correct?

MR. KANE: Objection. Object to the form.

A. Again, I'm going to put it in context of the patent, which shows us two significant digits. 90.35 percent would be .90 in two significant digits, which would be 90 percent, which would be the same result.

Q. But mathematically these are two different numbers. Correct?

A. If we had unlimited precision that we were comparing, they would be different. But in the context of the patent, they would be the same.

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Q. When you look at the 90 percent upper range for the loop density, do you understand this to encompass values that are higher than 90 percent?

MR. KANE: Objection; calls for a legal conclusion.

A. Not within two significant digits, no. I would say 91 percent would be above the range.

Q. What about 90.5 percent?

A. It would have to be rounded to two significant digits. So then you'd be asking the same question is 91 percent greater than 90, I would say yes.

Q. So as you sit here right now, and the judge asked you is 90 -- is a value -- let me rephrase.

A value that is higher than 90 percent corresponds to 90 percent if someone would look at the claims?

A. Within the context of the -- sorry.

MR. KANE: I was going to say objection.

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But you can answer it.

A. Within the context of the claims, the first number larger than 90 percent is 91 percent. And 91 percent would be outside of the range.

Q. We can move on. And the people can make their own conclusion.

What physical quantity is the seam loop density -- let me rephrase.

Now, the loop density formula that you used multiplies the number of threads by 2 and then by the diameter of the MD thread. Correct?

A. Yes, and then divides by the distance occupied by those threads.

Q. So it computes the fraction of the seam width that is occupied by the threads. That's what it represents. Correct?

A. Yes. Assuming that there are matching seam threads coming from the other direction.

Q. The dimension a thread occupies across the width of the fabric

is its horizontal width. Correct?

A. The patent tells us to use the diameter of the yarn, but is not helpful in defining the diameter.

Q. I'm trying -- I'm sorry, were you done with your answer?

A. Yes.

Q. Okay. I'm trying to understand, when you look at the fraction of the seam width that is occupied by threads, the relevant diameter of the thread is the horizontal diameter. Right?

MR. KANE: Object to form.

A. Difficult to say. The patent instructs us to take 2 times the diameter. But does not specify what they mean by diameter for a yarn that is not perfectly circular. You could imagine when yarns come together that are slightly elliptical, they may rotate when the loops are intermeshed with each other, which would change the seam density.

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So it's not clear what is the proper diameter to use from the teachings of the patent.

Q. Then why did you use the horizontal only diameter?

A. I was looking for the ranges. It could be calculated with the horizontal, it could be calculated with the average, it could be calculated with the equivalent circle. So I was looking at several of these.

I did not consider the vertical diameter. But that's also a possibility. The patent is not clear on what diameter means in this sense.

Q. So you're saying that the vertical diameter would be relevant to understand the concept of loop density?

A. I did not use that. I'm saying that the patent is not clear on what diameter means in the case of a noncircular filament.

Q. Well, you used that in your first declaration when you took the

average of the horizontal and vertical diameters. Correct?

A. It's incorporated into the calculation, yes.

Q. Correct. So you did consider the vertical diameter for the calculation of the loop density in your first declaration?

A. Right. To consider both, of horizontal diameter, the major axis, but also to consider the equivalent circle. As we've seen, the arithmetic mean that I've used in the first declaration is virtually identical to the equivalent circle diameter that I use in the second declaration. It gives a range of what the patent might mean.

Q. Respectfully, the numbers are not exactly correct, so I'm not sure whether we can draw that conclusion. So that's a different issue.

A. In what context?

Q. Well, the average values that you report on table 50 are not the

correct values based on your seven measurements. Right?

A. Yeah. During the break I just double-checked those, and the average equivalent is 38.11, I'm off by 1 hundredth. And the average of the geometric mean should be 38.43, again, off by 1 hundredth of a pixel. So I think it's very clear that the ratios are not significantly impacted at all.

Q. Why did you use only the horizontal diameter for the calculation of the loop density in paragraph 39?

A. Because as you suggested, that is sort of the intuitive response.

Q. Okay.

A. Of how they might fit together. But it's not well defined in the patent.

Q. You said about the intuitive response. If you do the same calculation using your numbers, only the horizontal numbers, based on the measurements you did in your first declaration, if you

take the average of the horizontal values, the loop density value you get is 95.9 percent.

A. You mean --

Q. You didn't perform the calculation. You took the average?

A. Using the 43.14?

Q. No. Your first declaration included seven horizontal diameters and seven vertical diameters?

A. Oh, in the first declaration, okay.

Q. The horizontal diameter average is 77.3 pixels, and the span was 967 pixels. I'm saying that if you perform the calculation you did in paragraph 39 of your second declaration on the numbers that you reported in your first declaration, the loop density calculation value would be 95.9 percent.

A. If you say.

Q. And 95.9 percent is clearly over 90 percent. Would you say that?

A. Yes. It would certainly --

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the range would include -- because we have to look at all the possible meanings of diameter to understand what the claim is. So yeah, it would completely enclose the upper end of the patent claim.

Q. And the possible meaning of diameter that you use in your first declaration was the average diameter. Correct?

A. Yes.

Q. And the possible meaning of the diameter that you used in your second declaration, at least one of them, is only the horizontal average diameter. Correct?

A. I don't --

MR. KANE: Objection; misstates the record.

A. I did use the horizontal diameter in paragraph 39.

Q. And if you used the same possible meaning for the diameter in your loop density calculation in your first declaration, you'd get a number that is

above the claimed range. Correct?

A. Yes. So we would get bounds. We get the number performed using the average, the number performed using the horizontal, and it would tell us that we have a range of those two values. Just like I did in the second declaration where we see there is a range of 80 percent to 90 percent.

Q. Yeah, but there is no range in your first declaration, it's a single value based on an average value for the diameter, and a specific value of 95.9 percent, or according to your theory about rounding up, it would be 96 percent.

A. Correct. So if I had incorporated that into the first declaration we would have had a range of 85 to 96 percent.

Q. Now, can you turn to paragraph 25.

A. Paragraph 25. This about the distortion.

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Q. The last three lines of paragraph 25 read, "What can be seen in the Adanur images, which are of finished fabrics (for example, fabrics that have been -- fabrics that have already been subjected to post-processing such as calendaring)."

Did I read that correctly?

A. Yes, after you corrected yourself.

Q. Adanur does not say that the finished fabrics have been calendared. Correct?

A. Adanur does not specify calendaring when he introduces that image.

Q. Now, can you turn to paragraph 49 of your second declaration.

A. Yes.

Q. The last sentence reads, "Because of this relationship, it is appropriate to treat these diameters as non-independent and to collectively average them together."

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Can you explain what you mean?

A. Yes. The major and minor radius or diameter of the elliptical shapes that we saw, most likely came from a circle. Because monofilaments -- there are elliptical monofilaments, of course. It's likely that they started circular and then were deformed during processing. They are not independent values. They depend upon each other. You cannot increase one without decreasing the other. So they are not independent values.

Q. So why is it important then to consider both the vertical and horizontal diameters when you consider the diameter of the MD thread?

A. Because the patent talks about the diameter. It doesn't talk about a major radius and a minor radius. It talks about the diameter. And it's up to the reader to understand what that might mean. One of the things it might mean and probably meant was the diameter of

the yarn prior to processing.

Q. Okay. In ground 1, for the calculation of the LD/MDYD ratio, you only considered the vertical diameter of the MD thread. Correct?

A. Yes. Because that's what's visible in the image.

Q. In ground 3 for the calculation of the LD/MDYD ratio, you only considered the vertical diameter of the MD thread. Correct?

A. Correct. Well, not entirely correct, right. I believe I looked at a couple of different -- that's right. I used a couple of different -- I looked at using only the vertical diameter, I looked at using only the horizontal diameter, and that gives me a range.

Q. What did you use for your calculations? You only used the vertical diameter number; correct?

A. I'm looking at paragraph 52. It tells me using only the vertical diameters, I get 3.17. And then it says,

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using only the horizontal thread diameter, I get 2.79.

Q. For the work you did in your first declaration, though, you only used the vertical diameters. Correct?

A. Oh, gosh, it could be.

Q. Okay. Let me direct you to your first declaration, in paragraph 135.

A. Okay. I didn't realize we were going to talk about the first declaration today. But let me see if I can get there.

155 did you say?

Q. 135.

A. Okay. 135. There it is. Okay.

Q. So you see the .96 millimeter?

A. Yes.

Q. And you see the .32?

A. Yes.

Q. That .32 corresponds to a vertical diameter. Correct?

A. I believe so, yes.

Q. So let's go back to your --

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actually to Claim 1. Can you open Claim 1 of the '566 patent.

A. Claim 1, yes.

Q. Now, the second limitation of column 9 at line 64 reads, "Said laminate structure having MD threads being monofilaments," and the claim gives those threads a diameter MDYD. Right?

A. Associated MD threads having a diameter MDYD.

Q. Okay. So the MD threads here, a diameter MDYD. Right? That's what Claim 1 says?

A. Yes.

Q. Can you go to Claim 1 of column 10, at line 12. And I'm going to read that to you.

A. Okay.

Q. "Said diameter MDYD of said associated MD threads."

Do you understand "said" refers back to the diameter MDYD introduced in the second limitation of Claim 1?

A. Yes, I do.

Q. So it's the same MDYD diameter. Correct?

A. Yes.

Q. And also Claims 10 and 11, likewise recite "side diameter of said MD threads."

And again, it's the same diameter, just now bounded by different numbers. Correct?

A. Correct.

Q. If you go to the loop density limitation of Claim 1. The loop density is between 94 percent and 90 percent. Correct?

A. 64 percent and 90 percent.

Q. Thank you. 64 percent and 90 percent.

And Claim 12 narrows that as we've seen before as 72 percent to 86 percent. Correct?

A. Correct.

Q. Now, in your declarations you calculate the loop density as 2 times the

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thread density times the MD thread diameter. Correct?

MR. KANE: Object to the form.

A. In the patent it teaches to take 2 times the machine direction yarn diameter times the number of pairs divided by the distance that they occupy.

Q. So in your calculations, the MD thread diameter was one component. Right?

A. Yes.

Q. And that loop density value is therefore determined by the number you plug in as the MD thread diameter. Correct?

A. Correct.

Q. So if you change that number, the loop density changes, assuming everything else stays the same. Correct?

A. Correct.

MR. KANE: Object to the form on that last one.

Q. And for the physical fabric, the claimed MDYD is one value. Correct?

A. The claim gives us a range that that value should fall within.

Q. I'm talking about the MDYD variable. The physical fabric has threads that have a single MDYD diameter value. Correct?

MR. KANE: Object to the form.

A. It appears that way, yes.

Q. Now, if you turn to your second declaration, on paragraph 38.

A. Okay.

Q. In your second declaration you measured the horizontal length of the MD threads in Adanur CD image and you averaged to 43 pixels.

A. Yes. Which we now know should be 43.14. Or 43.1.

Q. That number you calculated a loop density as you reported it as 90 percent. Correct?

A. Yes.

Q. And you said that on paragraph 48, at the P-TACTS file scale of 7.94 microns per pixel, 43 pixels corresponds

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to an MD thread diameter of .34 millimeters. That's what you said in paragraph 48. Correct?

A. Yes.

Q. And the claimed loop density came out as 90 percent, not 85 percent, which was what you reported in your first declaration. Correct?

A. Using the horizontal diameter, yes.

Q. And using new measurements. Correct?

A. Yes, yeah.

Q. You also calculated in your second declaration a circle equivalent diameter of 38.12 pixels.

A. Yes. Which we now know should be 38.11.

Q. And with that number, the loop density is 80 percent. Correct?

A. Correct.

Q. So that calculation assigns a different -- a third number to MDYD. Correct?

A. Yes.

Q. And produces a third loop density, 80 percent. Correct?

A. Correct.

Q. Now, for the ratio calculations, the LD/MDYD ratio, you went to different image in Adanur. You went to the MD image. Correct?

A. Correct.

Q. And you measured the machine direction yarn at 37.9 pixels. I point you to paragraphs 45 and 46 of your declaration.

A. Okay.

Q. So the number that you state for the MDYD diameter is .30 millimeters. Correct?

A. Yes.

Q. And that's a fourth number that you use for the MDYD variable. Correct?

A. Correct.

Q. If you go to paragraph 48, paragraph 48 assigns the horizontal

diameter .34 millimeters for the horizontal diameter to Claims 10 and 11, and the vertical diameter .27 to Claim 10. And that's a fifth number, right?

A. I suppose, yes.

Q. So between your first and your second declaration, you present a value of 85 percent, 90 percent, and 80 percent for the same loop density variable of the same seam. Correct?

A. Yes. It depends on the definition of diameter. Which is not presented in the patent.

Q. But you understand that the actual seam of the actual fabric has one loop density, not three. Right?

A. Once we can define what diameter means, we can generate a single value. Otherwise we have a range of values that it may fall within.

Q. Now, you're not using the same MDYD values to calculate the loop density in the LD/MDYD ratios in your calculations. Correct?

A. For Adanur, no.

Q. Similar for Rydin. Correct?

A. Of course those are different numbers, yes.

Q. No. I mean between -- so the MDYD value that you used to calculate the loop density number of Claim 1 is different from the MDYD value you used to calculate the LD/MDYD ratio in grounds 1 and 3. Correct?

A. Yes.

Q. Okay. So, and you haven't done any calculation -- let me rephrase.

You haven't presented any calculation of the loop density value using the MDYD diameter that you use for the ratio calculation. Correct?

A. I don't think -- is that correct? I tried to make sure that I had measurements that existed in the figures.

Q. For example, let me hopefully help with you this question.

So you used the horizontal, the equivalent diameter, and the average

of the horizontal and vertical diameters for calculating the loop density values between your first and your second declarations. Correct?

A. Yes.

Q. And then you used the vertical only diameter value that you calculated for the ratio calculation. Correct?

A. But I also used the average diameter for calculating LD/MDYD.

Q. In your second declaration. Correct?

A. Yeah, paragraph 47.

Q. You didn't do that for your first declaration. Correct?

A. Perhaps not. I didn't prepare to respond to the first declaration.

Q. Now, if you multiply the loop density and the LD over YD ratio, what you will get is 2 times the thread density times the loop diameter. Correct?

A. 2 times -- I mean, I suppose. Not something that the patent teaches us

to consider. But let's see, if we take that, multiply that by loop diameter of machine direction yarn diameter, we'll have 2 times the number of yarns divided by the distance those yarns occupy times the loop diameter.

Q. So the MDYD cancels out. Correct?

A. Yes.

Q. So if you do that -- if you take that product of the loop density with the LD/MDYD ratio, what you will have is 2 times the thread density times the loop diameter. Correct?

A. Yes.

Q. And if you calculate this value, 2 times thread density times loop diameter, right, these are values that you calculated, or are provided in the prior art, you should get the same value by calculating the value you present for your loop density times the value you present for the ratio. Correct?

A. Depending on the diameter that

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was -- you're saying if we just --

(Simultaneous crosstalk.)

Q. The diameter cancels out.

A. If this same diameter is used in both calculations, yes. If different diameters are used in different calculations, no.

Q. If you used the same diameter in both calculations of the loop density and the LD/MDYD ratio, then you'd get the same number. Correct?

A. Yes.

Q. Okay. And if there is a gap between these two calculations, it would be because you had assigned two different numbers to the same claimed variable, MD over MDYD. Correct?

A. It would be because, as I explained in my declaration, there is different ways to consider the machine direction yarn diameter. And depending on which one was chosen, different results vary. And that's why there is a range of numbers that come out of it

instead of a single number, because the patent doesn't specify to us what MDYD means in the case of a noncircular filament.

Q. And your ground 3 analysis, using Rydin, satisfies the loop density limitations only by assigning the claimed MDYD for the loop density using one number, and then satisfies the ratio limitation only by assigning to the same claimed variable MDYD a different number. Correct?

A. I don't think that's correct. With all these things there is going to be a range because the machine direction yarn diameters can be interpreted differently. So yeah, it depends on which value you use. But if you use all the values you're going to get a range. Or do you mean the fact that I used different images so therefore it will be different pixel counts?

Q. Well, you used different numbers that you plugged into the ratios

for the loop density calculation and the LD/MDYD ratio.

A. Oh, those were two different figures.

Q. And if it's two different figures, is it okay to use different MDYD values for calculating the loop density and a different MDYD value to calculate the LD/MDYD ratio?

A. In Rydin, for each figure I calculated a diameter for each figure. Used that for determining the ratios. Then in the next figure I calculated or measured the diameters in that image and found the ratio.

Q. And by using the LD -- let me rephrase.

By using the MDYD value that you calculated from one image to calculate the loop density value, you got one value for the loop density. Correct?

A. Yes.

Q. And then you used a different MDYD value to calculate the LD/MDYD

ratio. Correct?

A. Yes. Because it was a different figure.

Q. Okay.

A. And at different magnifications.

Q. If you multiply these two numbers. Do you have that in mind?

A. If I multiply the numbers I'll get a nonsense result because the -- I measured things in pixels. Your proposed product of these two values only works if the distance measurement has the same meaning in both calculations. The distance doesn't have the same meaning in these calculations.

Q. Respectfully, you said these are dimensional numbers, absolute numbers have no importance if you're doing pixels. Let me say something. The LD over MD calculation, if you use pixels, they cancel out. If you use distances, they cancel out.

A. You're talking about

multiplying these two ratios together?

Q. Correct.

A. I'm not sure why one would be inspired to do that. Since they are already ratios, the units have cancelled out.

Q. One, one would be inspired to do that to confirm whether using different MDYD values would respond -- would correspond to the same number. And you said that if you multiply loop density with LD/MD, what you get is 2 times the thread density times the loop diameter. These are things that you measured.

A. Yes.

MR. KANE: Object to the form.

Q. And that product should be equal to the product of LD/MDYD times the loop density. It's pure math.

A. Yes. You would get a number that this product represents. And of course it would be a range depending on the particular fabrics you're looking at.

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Q. And the Claim 1 requires a single fabric. Correct?

A. Yes.

MR. KANE: Object to the form.

Q. So for a single fabric, these numbers should be the same. Correct?

A. It should fall within the range if we look at the range of loop densities and LD/MDYD densities that are presented. We could take the small number times the small number, the big number times the big number, and we would expect the product to fall somewhere in that range.

Q. I'll direct you to paragraph 10 of your declaration. So let me know -- of your second declaration. Let me know when you're there.

A. Yes.

Q. It is your opinion that it is not necessary for your analysis that the fabric in the MD picture and the fabric in the CD picture be the same fabric. Correct?

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A. That is correct.

Q. And actually now in your first and your second declaration, you offer an opinion that the fabric in the MD picture and the fabric in the CD picture are the same fabric in Adanur. Correct?

MR. KANE: Objection to form.

A. Nowhere in my first declaration -- can you repeat that?

Q. Yes. Nowhere in your first declaration you offer an opinion that the fabric in the MD picture and the fabric in the CD picture are the same fabric. Correct?

A. I'm not certain.

Q. And also -- okay. Nowhere in your second declaration do you actually offer such an opinion, right, that the two fabrics are the same?

A. In my second declaration I make it clear that whether they depict the same fabric or different fabrics does not change any conclusion that the claims are obvious in view of the Adanur images.

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Q. And you offer no evidence that the fabric in the MD picture and the fabric in the CD picture are the same fabric. Correct?

A. I offer no evidence other than they show as a single figure in Adanur's book. And that's what a POSITA would assume. But it's not important to my conclusions.

Q. And Rydin shows the two fabrics that you use for calculations in different figures, figure 2 and figure 3. Correct?

A. Correct.

Q. And these two fabrics are different fabrics. Correct? In Rydin?

A. They may be. Again, it's not important to the analysis.

Q. The basis that made you conclude or at least offer an opinion that the fabrics in Adanur may be the same fabric are because they are included in the same figure. Correct?

A. Correct.

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Q. There is no basis in Rydin to make the same conclusion. Correct?

A. Correct.

Q. Now, can you turn to the '566 patent. At Claim 1.

A. Yes.

Q. Please focus at column 10, lines 9 and 10.

A. Okay.

Q. The claimed loop densities is a dimensionless number. Correct?

A. Correct.

Q. How is that so?

A. The definition of loop density is a distance divided by a distance.

Q. So the MD thread diameter, that's what you're referring, right, is a component of the claimed loop density. Correct?

A. I'm sorry, I didn't follow that whole question.

Q. Right.

You say that the definition of loop density is a distance divided by a

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distance. I'm just going to break out the two distances.

So the thread diameter is one of the distances you're referring to. Correct?

A. Oh, yes.

Q. So the MD thread diameter is a component of the claimed loop density. Correct?

A. Correct.

Q. The MD thread density is the other component of the claimed loop density. Correct?

MR. KANE: Object to the form.

A. The other component is the distance occupied by the number of MD threads under consideration.

Q. It is also the thread density?

A. You could -- yeah, a density is not a great word for that. But yeah, the thread count is maybe a way to think about it. But it's the distance occupied by the threads that are under consideration.

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Q. But go to column 6, line 14.

A. Okay. There we go.

Q. So in a fabric having an MD thread density, right, the seam area has twice the number as a result the MD threads of the two ends interengaging. Right?

A. Yes.

Q. So the thread density as used in column 6 is part of the loop density calculation. Correct?

A. Yes. What he calls the MD thread density, yes.

Q. All right.

So the loop density term, as used in Claim 1, has a component that is the MD thread diameter and has a different component that is the MD thread density. Correct?

A. Yes.

Q. Okay.

MR. KANE: I'll object to the form of that question there. Sorry.

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Q. My point is, to calculate the claimed loop density, you need to know both the thread density and the thread diameter. Correct?

A. Yes.

Q. Okay. So assuming everything else the same, what will happen to the loop density if the MD thread density doubles?

A. If everything else stays the same, if it was physically possible, it would go in half.

Q. Assuming everything else the same, what will happen to the loop density if the MD thread diameter doubles?

A. If the MD thread diameter doubles, we would double the ratio.

Q. It will double the loop density value. Correct?

A. Yes.

Q. Just to be clear, I'm not talking about the MD/MDYD density, I'm talking about the loop density.

A. Okay.

Q. And the MD thread diameter is under the numerator.

A. Okay. So we have to -- right.

Q. Okay. Now, let me give that again for the record.

Assuming everything else the same, what will happen to the loop density if the MD thread diameter doubles?

A. If the MD thread diameter doubles, the calculated value would double, up to the physical limitations.

Q. Of course.

So, I mean, to generalize this, assuming everything else the same, if the MD thread diameter increases, the loop density will increase. Correct?

A. Correct.

Q. So the loop density is proportional to the MD thread diameter. Correct?

A. In that sense, yes.

Q. So to maintain the same loop

density, if the MD thread diameter decreases, one way to maintain the same loop density, the thread density needs to increase. Correct?

A. Correct. If you want to get the same density.

Q. Now, a loop density value of 91 percent does not satisfy Claim 1. Correct?

MR. KANE: Objection; calls for a legal conclusion.

A. As I've mentioned several times, 91 is larger than 90.

Q. If I wanted a loop density value of 90, then I could use threads with a smaller MD thread diameter to go to 90. Correct?

A. If you wanted to use the same thread density and get a specific ratio of .9, then you would have to reduce the thread density if you were above it.

Q. Now, let's focus on the next limitation of Claim 1. I'm talking about the LD/MDYD ratio limitation. Do you see

that? That's on column 10, lines 11 to 13.

A. Yes.

Q. The LD/MDYD ratio is also a dimensionless number. Correct?

A. Correct.

Q. How is that so?

A. We're taking a diameter divided by a diameter, so units cancel.

Q. And the MD thread diameter is a component of the LD/MDYD ratio. Correct?

A. Correct.

Q. Assuming everything else the same, what will happen to the LD/MDYD ratio if the MD thread diameter doubles?

A. If we increase the MDYD, we would reduce the ratio. So if we double MDYD, we would half the ratio.

Q. So assuming everything else the same, if the MD thread diameter increases, the LD/MDYD ratio will decrease. Correct?

A. Correct.

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Q. The LD/MDYD ratio is inversely proportional to the MD thread diameter. Correct?

A. Correct.

Q. If a fabric had a loop density of 91 percent and LD/MDYD ratio 3.6, it would not satisfy Claim 1. Correct?

MR. KANE: Objection; calls for a legal conclusion.

A. 91 percent is greater than 90 percent, yes.

Q. The LD/MDYD ratio of 3.6 falls within the range. Correct?

MR. KANE: Objection; calls for a legal conclusion.

A. Correct.

Q. Now, if I use the smaller MD thread diameter, assuming everything else the same, to bring the loop density to 90 percent, 90 percent, then the LD/MDYD ratio would have a value greater than 3.6. Correct?

A. Assuming that the loop diameter didn't change as a result of the

finer thread being used, yes.

Q. I think you mean the density, right?

A. No. I meant the loop diameter. A finer yarn would be able to bend more easily and would create a smaller loop.

Q. Well, a finer thread means -- oh, the loop diameter. I'm sorry. Yes. Let me give you a clean question. Because I said assuming everything else the same.

Now, if I used -- let's start my hypothetical again. If a fabric had a loop density of 91 percent and LD/MDYD ratio of 3.6, it would not satisfy Claim 1. Correct?

MR. KANE: Objection; calls for a legal conclusion.

A. 91 percent is greater than 90 percent.

Q. Assuming everything else the same, including the loop diameter, if I used a smaller MD thread diameter to

bring the loop density to 90 percent, then the LD/MDYD ratio would increase its value of 3.6 percent. Correct?

A. Assuming the loop diameter did not change, yes.

Q. So changing the value of the loop density to satisfy the claimed ratio resulted in a value for the LD/MDYD ratio that is outside of the claimed range of 2.7 and 3.6 in my hypothetical. Correct?

MR. KANE: Object to the form.

A. In your theoretical fabric where the loop diameter is independent of the yarn size, yes.

Q. And if I have a pintle that is of a set diameter, the loop density will not change even if the loop diameter changes. Correct?

MR. KANE: Object to the form.

A. No. Because there is a limit to how much a thread can be bent regardless of pintle. A strain builds up in the filament as it's bent, and the yarn stitches could not be bent as small

as the pintle, in some cases.

Q. Okay. If I have a large pintle that allows the yarn to bend for small variations of the loop -- of the LD thread diameter, then the loop diameter would stay the same. Correct?

MR. KANE: Object; incomplete hypothetical.

A. It's tricky. Because the pintle is introduced after the loops are formed and the two halves of the fabric are joined together. So we don't actually bend around the pintle.

Q. So the loop diameter is a constant that is not related to the pintle?

A. It's certainly connected because, in just routine optimization, one would find pintles and loop diameters that perform well with the yarns that are being used.

Q. But it's not defined by the pintle diameter. Correct?

A. It does not need to be. One

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could use a pintle for making the loops. But it's not essential.

Q. So by understanding what the pintle looks like, you do not necessarily understand what the loop diameter would be. Right?

A. That's right. Because the filaments are going to take the shape that they want to take. They're not going to be exactly the same as the pintle.

Q. Okay.

MR. KONSTANTAKOPOULOS: I think we're almost at an hour, let's take a break.

THE WITNESS: Okay.

MR. KONSTANTAKOPOULOS: So 11:25.

THE WITNESS: Sure.

MR. KONSTANTAKOPOULOS: Off the record.

(A recess was taken.)

BY MR. KONSTANTAKOPOULOS:

Q. Welcome back, Dr. Pastore.

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Did you discuss with anyone during the break?

A. I did not.

Q. Now, for the calculations that you did in your first declaration, for Adanur and Rydin, you used different images to calculate the MD threads for the loop density and the LD/MDYD ratios. Correct?

A. Correct.

Q. If you go to paragraph 20 of your declaration, the second declaration.

A. Yes.

Q. The last sentence reads, "This consistency is the dimensions of a common feature, the MD threads, is an indication that the scale is the same between the two images."

Did I read that correctly.

A. Almost. You said "is" instead of "in." This consistency in the dimensions of a common feature, the MD threads, is an indication is that the scale is the same between the two images.

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Q. Okay. I want you to focus on the term "a common feature." So in paragraph 20 of your second declaration, you call the MD threads a common feature of the two images. Correct?

A. The height of the MD threads, yes.

Q. If the images show two different fabrics, the threads are not a common feature. Correct?

A. Probably not. I mean, of course you could have two different fabrics made with the same thread. But in general, no.

Q. Now, can you turn to paragraph 29 of your declaration. You describe what you did in your first declaration. Correct?

A. Yes.

Q. And you point to paragraph 67 and 73 of your first declaration. Correct?

A. Correct.

Q. You write, "To measure

dimensions of elements showing Adanur's images, I took a screenshot of the relevant image from the PDF file of Adanur and opened the screenshot in Illustrator."

That describes your first declaration work. Correct?

A. Yes.

Q. Now, before taking the screenshot, you magnified the PDF on screen. Correct?

A. Correct.

Q. And the screenshot captures the images rendered on your monitor. Correct?

A. Correct.

Q. At your zoom level, not the image file embedded in the PDF. Correct?

A. Correct. Although it's -- in some ways it's limited, yes. I'm taking from the screen, not from the file.

Q. The pixels you counted for in your first declaration were pixels of that screenshot. Correct?

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A. Correct.

Q. So at your first declaration you testified that you imported the image into Photoshop. But paragraph 99 says Illustrator. Did you use a different Adobe tool for the measurements in the first declaration and the second declaration?

A. I believe I used Illustrator in the first one. I may have said Photoshop during the deposition. I definitely used Photoshop in the second. The tools are virtually identical, so I might have made an error there. But I think I used Illustrator for the first one and Photoshop for the second one.

Q. And you said that for your second measurements, you used the PDF Images tool to extract the embedded image itself. Correct?

A. Correct.

Q. And you turned on the pixel grid to prevent pixel interpolation. Correct?

A. Correct.

Q. And interpolation would corrupt a pixel count. Correct?

A. Well, I don't know if "corrupt" is the right word. I'm looking for ratios. But it would smooth the image, yes.

Q. Who provided the PDF file to do your measurements for your first declaration?

A. On the first declaration, that was a digital copy of Adanur's book. And honestly, I don't recall if I found it or counsel found it online. I just don't remember.

Q. Now, if you go to footnote 1 on page 15 of your declaration. Are you there?

A. Footnote 1, yes.

Q. You write actually on page 16 that "The operating system may have added some smoothing to the image and the screenshot that I subsequently analyzed may have captured the smoothed image."

That's your words; right?

A. Yes.

Q. So as you sit here today, you cannot rule out that the image you measured for your first declaration had been altered by the operating system. Correct?

A. Correct, it may have been smoothed.

Q. Do you still got the screenshot file that you measured?

A. Most likely, yes.

Q. But it was never filed as an exhibit in this proceeding. Correct?

A. I don't believe so, no.

Q. The measured file you used for the first declaration is outside the record. Correct?

MR. KANE: Object to the form of the question.

A. In the sense that I have not submitted it as evidence, yes.

Q. So the first declaration that you filed is dated June 6, 2025. And it

is the same day the petition was filed. I will represent that to you.

A. Okay.

Q. If you go to footnote 2 of your declaration, that is on page 19.

A. Yes.

Q. You write that, "The digital Adanur file that I analyzed for my first declaration, that file is not Exhibit 1021 as it existed on P-TACTS." Correct?

A. My understanding is that P-TACTS did some processing of the file. So I looked at two different files. The original one I had and then the one that was downloaded from P-TACTS for the second deposition -- second declaration.

Q. What is the basis for that understanding that the P-TACTS did the processing of the file?

A. I had been informed by counsel and read something that indicated that P-TACTS does modify resolution as part of their storage process.

Q. What did you read that said

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something along those lines?

A. Where did I read it? I don't recall precisely.

Q. Okay. Maybe I can help you. Let me make something available.

MR. KONSTANTAKOPOULOS: So I made available Exhibit 1055.

Q. Can you see it?

A. I don't know if I have to refresh. There we go. Yes, there is something from the U.S. PTO. Right.

Q. Did you read that exhibit?

A. I believe I have seen something like this. I can't recall if it's precisely this.

Q. You mentioned that you read the text that says that P-TACTS modifies the resolution. Does this remind you of the file that you read?

A. I think so. Honestly, I did look at something. And I just accepted the fact -- here we go. They also identified a specific conversion process that was mainly responsible for the

degraded quality of the images.

I'm not certain that this was what I saw. But something along those lines.

Q. So Exhibit 1055 that you're looking at is a May 2020 Patent Office slide deck. Right?

A. It appears to be.

Q. This is about a design patent image quality. Correct?

A. Yes.

Q. Can you go to slide 6.

A. Yes. Yes, I'm there.

Q. One second.

So slide 6 says, "Improvements implemented in 2016." Correct?

A. Yes.

Q. Are you aware that the P-TACTS system was introduced in October 2022?

A. I don't think I was, no.

Q. So these are improvements that happened in 2016. Correct?

A. Yes.

Q. And it describes a system that

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is not the P-TACTS. Correct?

MR. KANE: Object to the form; lack of foundation.

A. Yes, it does not specify P-TACTS, correct.

Q. Well, I represent to you that P-TACTS --

A. The score.

Q. P-TACTS was introduced in October 2022.

A. Okay.

Q. So an improvement that happened in 2016 cannot refer to the P-TACTS system. Correct?

MR. KANE: Object to the form.

A. Right, this particular improvement where they talk about preserving vector-based drawings, seems to have been implemented in 2016.

Q. So slide 6 says, "the office identified the specific conversion process that was mainly responsible," right, for the degraded quality and then it fixed it. Correct?

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A. They don't say that. But I guess it's implied.

Q. If you go to slide 7. Do you see the last bullet point?

A. Mm-hmm.

Q. It says, "to allow external stakeholders to download an exact, clear copy of the patent ground images." Correct?

A. You said slide 7. I don't see that on slide 7.

Q. It's the last bullet point.

A. Oh, inside the last bullet point. Got you. Okay.

Q. You see where it says "an exact, clear copy"?

A. Yes. But they're also clearly referencing vector-based drawings. And this was a Raster-based image.

Q. If you go to slide 2.

A. Yes.

Q. This is about the design patent image quality issue. Correct?

A. That's what it says, yes.

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Q. This proceeding has nothing to do with design patents. Correct?

A. Correct.

Q. Okay. As you sit here, you have no basis to conclude that the P-TACTS system down-sampled the file that was uploaded. Correct?

MR. KANE: Object to the form, it misstates the record.

A. As I mention in my declaration, it's possible the first time I had some smoothing that the operating system applied, which is why in the second method I applied a technique that would eliminate the potential for any smoothing or interpolation or extrapolation.

Q. I'm talking about the file that was uploaded to the P-TACTS system and subsequently downloaded and given to you. You have no basis to believe that the file that was uploaded to the P-TACTS system is different than the file that was downloaded subsequently from it.

Correct?

A. I was informed that this was a known challenge with the P-TACTS system. So I adopted a methodology that would get around that by having no operating system involvement, just extract the native Raster-based file from the PDF.

Q. And that information is based on the Exhibit 1055 that we looked at and counsel representation. Correct?

A. Correct.

Q. You have no firsthand knowledge whether this happens or not?

A. Correct. It wasn't necessary for my conclusions.

Q. And you have -- let me rephrase.

You have not done any measurements for your first declaration based on any exhibits as they exist on the P-TACTS system. Correct?

MR. KANE: Object to the form.

A. In the first declaration, I did not use exhibits downloaded from

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P-TACTS. I used them before they were uploaded.

Q. And we've established that what you measured, the files that you measured, were not the ones that the P-TACTS has in the system. Correct?

MR. KANE: Object to the form.

A. That's precisely what I did here in this new declaration, I used downloaded from P-TACTS to make sure there was no miscommunication.

Q. For the second one. I'm referring to your first declaration.

So the measurements that you performed for your first declaration, as you admit in your second declaration, were not on the P-TACTS files. Correct?

A. Correct. "Admit" sounds like I did something wrong. But no, I acknowledge that the first ones were prior to uploading to P-TACTS, the second declaration was after downloading from P-TACTS. And there could be a number of reasons why they were different.

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Q. And you acknowledge that the numbers that you present in your second declaration with regard to your pixel counts, are different from the numbers that you presented in your first declaration. Correct?

A. Yes, I get different pixel counts, but very, very similar ratios. Which is, of course, the important element.

Q. What do you mean very similar ratios?

A. Less than 10 percent difference.

Q. 10 percent is not important?

A. I think that's very small considering the potential for measurement error and sampling error.

Q. So the sampling error and the measurement error can induce an error of 10 percent to your measurements?

A. I saw much less than that. But I think 10 percent is a reasonable upper bound for measurement error. That

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would be quite large.

Q. So 10 percent could be quite large. Correct?

A. It could be, yes.

Q. Okay.

A. Depending on exactly what's going on.

Q. Can you go to footnote 3 on page 31.

Are you there?

A. Yes.

Q. You write, "I acknowledge that the pixel counts for the digital Rydin file that I analyzed for my first declaration are different than the pixel counts from the Rydin file that was obtained for me from the P-TACTS system."

Did I read that correctly?

A. You did.

Q. And the Rydin file that you analyzed is shown on page 198 of your first declaration. Correct?

MR. KANE: Object to the form.

A. Yes.

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MR. KONSTANTAKOPOULOS: Let me make another exhibit available to you. So I'm going to make Exhibit 1028 available, which is the Rydin file. Let me know when you are able to access Exhibit 1028.

THE WITNESS: I shall.

I've got 1028 open.

BY MR. KONSTANTAKOPOULOS:

Q. Can you zoom in figure 3 of the exhibit that I just asked you to look at.

A. Sure.

Q. Do you see the resolution of that file?

A. I see the image, yes.

Q. Do you see it's highly pixilated. Right?

A. If I zoom in enough, yes.

Q. Okay. Now, for your new Rydin ratio on your second declaration, if you go to paragraph 71 of Exhibit 1053.

A. Mm-hmm.

Q. You write, that you used the

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figure 3 image from the POR. Correct?

A. Yes.

Q. And this is an image embedded in Patent Owner's response brief. Correct?

A. Correct.

Q. This is not the actual Rydin exhibit. Correct?

A. Correct.

Q. And your loop diameter shows the inscribed circle drawn in the POR, and that's 355 pixels. Correct?

A. Correct.

Q. But figure 3 of the POR assumed the POR does not correspond to the file in the Rydin exhibit. Correct?

A. The image in the POR is different than the image in the Rydin exhibit, yes.

Q. And you used the image in the POR that is not the image of the Rydin exhibit for the measurements in your second declaration. Correct?

A. Yes.

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Q. And if you look at page 29 of your declaration. This is not pixilated as shown in the Rydin image. Correct?

A. This is the image that was extracted from the POR, yes.

Q. The image from the POR is what you used in your first declaration. Correct?

MR. KANE: Object to the form; misstates the record.

A. No. In my first declaration I used from the Rydin exhibit.

Q. Well, let's test it then. Can you open your first declaration. And go to page 198.

A. 198, yes.

Q. Do you see that Rydin picture?

A. Yes.

Q. That Rydin picture doesn't look like the picture in the Rydin exhibit. Correct?

MR. KANE: Object to the form.

A. Obviously it's much clearer and has more resolution, but it does look

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like the same image.

Q. It is not the same image as in the Rydin Exhibit 1031. Correct?

A. It does not have the same resolution, correct.

Q. Someone using the Rydin Exhibit 1031 cannot get the same resolution. Correct?

MR. KANE: Object to the form; lack of foundation.

A. Yes, this figure in my first declaration was taken from the original Rydin exhibit, zoomed in and screen captured, as I explained.

Q. There is no version of this screenshot that hasn't been annotated by you, correct, in the record?

A. I believe not.

Q. Now, Dr. Brookstein used the image in your declaration, page 198, to annotate further and present his findings on the POR. Are you aware of that?

A. I believe that's correct.

Q. And what you see on page 29 of

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your declaration, the second declaration, is Dr. Brookstein's annotations of your screenshot image, right, after you've added the red circle. Correct?

A. I believe so.

Q. So even for your second declaration, you performed measurements for the LD/MDYD ratio on a screenshot that is not the same image in terms of resolution with the actual Rydin exhibit. Correct?

MR. KANE: Object to the form.

A. Yeah, as I specify here, this is taken from the POR.

Q. Right.

The POR was based on your -- let me rephrase.

The POR image that you reproduced here was based on the screenshot that you took as part of your measurements in connection with your first declaration. Correct?

A. It seems to be.

Q. You haven't used the version

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of the Rydin file from P-TACTS to perform measurements in connection with the LD/MDYD ratio in ground 2 of your second declaration. Correct?

MR. KANE: Object to the form.

A. I used the image we're discussing.

Q. Which is not the image that corresponds to the Rydin exhibit in the P-TACTS system. Correct?

A. This is the image that was offered by the Patent Owner, yes.

Q. Respectfully, that is not. That's the image that you've used, we've established that. Patent Owner and Dr. Brookstein used the screenshot that you reproduced on page 198 of your first declaration. Right? We established that. Do you agree?

A. It appears to be. And Patent Owner used that in their response. So I stuck with the image that Patent Owner preferred.

Q. Okay. Okay. So then you

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agree that for the measurements that you performed in connection with ground 3 in the LD/MDYD ratio, you did not use the file of the Rydin exhibit as it exists in the P-TACTS system. Correct?

MR. KANE: Objection to the form.

A. Correct.

Q. Okay. We can move on.

Now, you said you used this figure from the POR. The POR actually included actual counts of the source image pixels. Right? Do you remember that?

A. I think so. I don't recall the numbers on the top of my head.

MR. KONSTANTAKOPOULOS: Let's make the POR available to you, so let's see what those numbers were.

Let me know when you can access the Patent Owner's response.

THE WITNESS: P20. Yes.

Q. Can you go to page 24?

A. You mean it has the number 24

on it. Right?

Q. Yes.

A. Which is page 34 of the document?

Q. And the last line on page 24 records 50 pixels for the horizontal and 41 pixels for the vertical dimension. And you can confirm on page 25.

Do you see that?

A. Yes.

Q. So when you prepared your second declaration, the POR already contained pixel counts taken from the exhibit of -- the Adanur exhibit as it was filed with the P-TACTS. Correct?

A. I'm sorry, can you say that again?

Q. Yeah. So you understand that these measurements presented in the POR were pixel count measurements of the Adanur exhibit that was filed by Petitioner. Correct?

MR. KANE: Object to the form.

A. It states that it came from

the file, which undoubtedly would be a P-TACTS download.

Q. And you were aware of those measurements when you were preparing your second declaration. Correct?

A. Yes.

Q. Did you make any calculations for the loop density and LD/MDYD ratio using those numbers?

A. I did not.

Q. Why not?

A. All this shows is an estimate of the width and height of one yarn. We don't have any thread density, we don't have any loop diameters. There is not enough information.

Q. So you didn't calculate, make any calculations using the numbers 50 and 41 for vertical and horizontal diameter?

A. There would be nothing to compare it to. Without a thread density and a loop diameter, there is nothing to do with those numbers.

Q. And on paragraph 13 of your

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declaration. Are you there?

A. Yes.

Q. You also write, "it also does not matter whether the MD and CD images depict the same fabric or different fabrics." Correct?

A. Correct.

Q. If the two images show different fabrics, those are two different physical samples. Correct?

A. Images of physical samples, yes.

Q. Two different samples would have been photographed separately. Correct?

MR. KANE: Objection; lack of foundation.

A. Yes.

Q. You do not know when, where or with what equipment either photograph was taken. Correct?

A. Correct.

Q. Adanur does not state the magnification of either image. Correct?

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A. Incorrect.

Q. Now, let's see what you say on paragraph 12. In paragraph 12 you took assurance from the match between the 62.1 pixel diameter in the MD image and the 61.6 pixel in the CD image. Correct?

A. Yes.

Q. Now, threads of two different fabrics can have different diameters. Correct?

A. I'm sorry, threads of?

Q. Two different fabrics can have different diameters. Correct?

A. Of course they can, yes.

Q. So if the two images show different fabrics, matching pixel counts across them could be just a coincidence. Correct?

MR. KANE: Object to the form.

A. Yes, it could.

Q. So if the fabrics are different, you have no way of knowing whether the MD and CD images are of the same magnification. Correct?

A. Correct.

Q. So the two images can correspond to fabrics with thread diameters that are different but because of the magnification being different between the two images, the pixel counts can be the same. Correct?

A. It's unlikely given the context, but it is a possibility that could exist.

Q. Why do you say it's unlikely given the context? You don't know how the picture was taken and what the magnification was.

A. This is a textbook that Dr. Adanur prepared to talk about paper-making fabrics. And he combined the two images into a single figure. And only showed one scale bar. And the only reason someone would only include one scale bar is if one scale bar was sufficient to understand both images.

Q. That doesn't answer the question conclusively about whether the

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two images show the same magnification. Correct?

A. As I say, it is conceivable that they're not at the same magnification, it's just highly unlikely.

Q. And you say it's highly unlikely because they're just placed by Adanur in the same figure?

A. Yes. And Dr. Adanur knows how to write scientific works and knows proper procedures.

Q. How is it -- how would it have been not proper to include these two figures into different -- let me rephrase.

How would it not be proper to include these two images into different figures?

A. If there were two different figures, there would be no assumption that they have the same scale. And Dr. Adanur would have included a scale bar in each of the figures.

(Simultaneous crosstalk.)

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A. -- combined to a single figure, that scale bar most likely, I can't say absolute certainty, but more likely than not, that scale bar represents both images.

Q. So you don't know for sure. Correct?

A. I only know more likely than not.

Q. Okay. But also, if you go to page 10 of your declaration, right. You have a section there, section B, that is titled "whether Adanur's MD and CD images are of the same scale has no bearing on my conclusion." Correct?

A. Correct.

Q. The absolute pixel counts do not matter. A ratio between two measured dimensions will remain the same regardless of the absolute numbers of pixels. Correct?

A. Correct.

Q. So in your own example, if you have two images, one at 10 times the

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resolution of the other, the ratio comes out the same. Correct?

MR. KANE: Object to the form; misstates the record.

A. Yeah, I think you're misstating what I'm presenting here. In my analysis, for thread density, I used exclusively the CD image. For loop density, I used the loop diameter from MD and I used a combination of the thread measurements from the CD image and the thread measurements from the MD image, which were giving me very close to the same value. So I felt comfortable using that.

It was not just arbitrarily taking numbers from one image and applying them to the second. I confirmed that they were giving me within measurement error the same result.

So in effect, and I demonstrate, just using the numbers entirely from the MD fabric, give me the same result as using numbers from CD and

loop diameter from MD.

So the magnification is not irrelevant. I needed that confirmation that I'm getting the same dimensions.

Q. And you got the confirmation because the pixel count in the MD image was 62.1 pixels and the pixel count from the CD image was 61.6 pixels?

A. Correct.

MR. KANE: Objection; misstates the record.

Q. .6 pixels difference? .5, excuse me. .5 pixels difference?

MR. KANE: Objection to form.

A. That was one of the bases for confirmation. That in addition to the fact that both images are part of the same figure. And to a reasonable degree of scientific certainty they were the same magnification.

Q. But under your opinion, two images do not need to be at the same magnification for your ratio analysis to hold. Correct?

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MR. KANE: Object; misstates the record.

A. I'm taking the ratio of yarn diameters to loop diameters. And as long as I'm using the correct machine direction yarn diameter and the correct loop direction diameter, it doesn't matter what magnification the two different images were taken at.

Q. So it doesn't matter what kind of magnification the two images were taken at. That's your testimony. Correct?

MR. KANE: Object; misstates the testimony.

A. I don't need the magnification scale to calculate these ratios. The only interaction amongst the two figures was a confirmation that the yarns had the same pixel count in the height direction.

Q. Okay. Let me read back -- are you done?

A. Yes, sir.

Q. All right. Let me read back

what you said. You said, it doesn't matter what magnification the two different images were taken at. Is that a true statement?

MR. KANE: Object to form.

A. When you say that completely out of context it's not clear what is meant.

Q. Okay. Let me put it into context. You have the CD image and the MD image of Adanur figure 15. Correct?

A. Correct.

Q. If the two images have the same magnification and you complete -- and you conducted your pixel analysis, you would get some numbers for the loop density and the ratio. Correct?

A. Correct.

Q. And you would be confident that these numbers would correspond to the actual loop density and ratio of the fabrics. Correct?

A. Correct.

Q. Now, if the two images had

different magnification, and you conducted your pixel analysis and would get numbers for the loop density and the ratio, would you be confident that these numbers would correspond to the actual loop density and ratio of the fabrics?

A. In my particular application, yes. The loop density was taken entirely from one image. The magnification level is irrelevant. The loop diameter to machine direction yarn direction ratio used a combination of yarn heights measured in the two images and the loop diameter from the machine direction image.

If those numbers of yarn heights had been different, I would never have combined those two measurements. And if they were taken at different magnifications, it would likely be that those numbers would have been different.

So in this case, considering that Adanur presents it as though these are both taken at the same magnification

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and the fact that my measurements of height came out to be the same for both images, in that sense I don't care about the magnification, I'm getting numbers that are consistent with purely using the machine direction image and getting confirmation from the cross-direction image.

Q. So going back to my original question. Under your opinion, two images do not need to be at the same magnification for your ratio analysis to hold. Correct?

MR. KANE: Object to the form; asked and answered.

A. For the work that I did, it was not necessary for the two to be at the same magnification.

MR. KONSTANTAKOPOULOS: Okay. Let me make something for the record. Michael, I'm being very lenient with your speaking objections. Now I'm putting on the record that a series of your

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objections are speaking objections instructing the witness. I'm just putting it out. Let's go back to the examination.

Q. Now, Rydin's figure 3 shows a seam loop that you measured at 167 pixels. Correct? Let me -- I'll test this theory. Let me direct you -- I'm sorry, I'll give you the question again.

Can you turn to your first declaration at paragraph 381.

A. First declaration. 381?

Q. Yes.

A. Yes.

Q. Now, you measured a seam loop at 167 pixels. Correct?

A. Correct.

Q. That's the loop diameter. Correct?

A. Correct.

Q. And Rydin's figure 2 shows the MD threads that you measured at 42.6 pixels. That's on paragraph 368. Correct?

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A. That sounds right, yes.

Q. And under your opinion, what we've been discussing, ratios hold regardless of absolute pixel counts. Correct?

A. Yes. When they're taken in context of the same image.

Q. So pixel counts need to be taken from the same image. Right?

A. Yeah.

MR. KANE: Object to the form.

Q. You cannot combine a pixel count from one image and use in another image without knowing whether the magnification between the two images are the same. Correct?

A. Correct.

Q. Okay.

MR. KONSTANTAKOPOULOS: I know we're over noon, I'm not sure what time you'd like to break for lunch. So just let me know. I don't want to push this beyond your lunchtime, Dr. Pastore.

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THE WITNESS: We're okay for a bit.

Q. Okay. Now, can you go back to your second declaration and paragraph 12.

A. Yes.

Q. We're discussing the assurances you were getting because the pixel counts between the MD image and the CD image for the thread diameters were very close. Correct?

A. Correct.

Q. The MD image gave you an average vertical diameter of 62.1 pixels. Correct?

A. Correct.

Q. You also measured the average vertical diameter from Adanur's CD image to be 61.6. Correct?

A. Correct.

Q. Then the last sentence of paragraph 12 you write, "This consistency between measurements gave me assurance that my reliance on the average of seven MD thread measurements from Adanur's CD

image would give me an LD/MDYD ratio consistent with the LD/MDYD ratio that would be obtained by using the MD thread diameter of the single MD thread from Adanur's MD image." Correct?

A. Yes, the numbers were less than 1 percent different.

Q. So when you say "this consistency," you refer to this number, less than 1 percent. Correct?

A. Correct.

Q. So -- okay. So this difference between 62.1 and 61.6 pixels, which is half a pixel, is less than 1 percent. What if the difference was 1 percent?

MR. KANE: Object to form; incomplete hypothetical.

A. If there was a 1 percent difference and Adanur portrays these as being the same fabric with the same magnification, I still would have trusted it, as I should. The calculations don't matter.

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Q. The calculations don't matter.

A. The calculations don't care is what I mean.

Q. I understand that. I didn't want to cut you off.

A. I'm good.

Q. Okay. So can you go to paragraph 46.

A. Paragraph 46. Okay.

Q. Now, according to your new measurements, the MD image thread has a mean of 37.9 pixels. Correct?

A. Correct.

Q. If you go back to paragraph 42, according to your new measurements, the CD image vertical mean is 33.8 pixels. Correct?

A. The vertical mean was 33.8 pixels.

Q. So 37.9 minus 33.8 is 4.1 pixels. Correct?

A. Yes.

Q. 34.1 divided by 33.8 is about 12 percent. I'll represent that to you.

Correct?

A. Okay.

Q. So if ratios do not matter -- if absolute pixel counts do not matter and you're taking the ratios, how come a consistency of less than -- of less than 1 percent by performing the new measurements went all the way up to 12 percent?

A. Because the images extracted from the P-TACTS downloaded system had a lower resolution than what I used in declaration 1. And lower resolution is going to result in a coarser measurement, more measurement error.

Q. So it's because of the measurement error that your consistency of less than 1 percent now has gone all the way up to 12 percent?

A. In one case, I'm looking just at the vertical height. And in the other case -- what was I looking at here? It also is --

Q. Same measurements --

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A. Yeah, right. Because realize when we're in the 30 range, one pixel would already be 3 percent error. And on taking just a single yarn, grabbing measurements. Whereas in the cross-direction image I get to look at multiple different yarns so I can average together different phenomenon.

Q. I don't think that's responsive to my question.

So it's because of your -- it's because of the measurement error that your consistency from less than 1 percent is going all the way to 12 percent?

MR. KANE: Object to the form.

A. Apparently.

Q. Apparently.

A. Yes.

Q. So the measurements that you performed in connection with your second declaration induced an error of at least 12 percent. Correct?

MR. KANE: Object to the form;

misstates the record.

A. There does seem to be a difference of up to 12 percent there, yes.

Q. And the assurance you got -- let me strike that.

Did you compute the number that we just were -- let me rephrase.

So when you did your first declaration, you compared the two vertical diameters to conclude that you felt assured you can use these two images and cross numbers together. Correct?

A. Yes.

Q. Did you perform a similar calculation for the new numbers?

A. With the new numbers I presented the loop diameter machine direction yarn diameter with numbers taken exclusively from the MD image so that there would be no question about magnification or different fabrics that you brought up in my first deposition.

Q. So is that the -- is this the

reason that you changed your methodology, because you weren't feeling assured with the numbers across the CD and the MD image as you were for your first declaration measurements?

A. I introduced this method so that you wouldn't harass me about the difference between the potential magnifications. We could say well, here we go, we don't need to have any interaction between the two images. So we can completely ignore the question of magnification, or are they the same fabric.

Q. Why do you feel that you're being harassed? We're discussing the numbers.

A. You were at the deposition.

Q. I mean, this is the work that you did and we're here to make sure that the board understands whether this methodology is reliant or not, is consistent or not, so that the board also can feel assured that the numbers you

present are consistent.

A. Yes. And this methodology eliminates the nitpicking that was presented that perhaps there is a possibility that the images weren't at the same magnification. This removes that question entirely. It doesn't matter if they were at the same magnification or not. This is all taken from one image.

Q. Can you go to paragraph 33.

A. Certainly.

Q. Now, you write that thread density is the ratio of two linear dimensions and a ratio between two measured dimensions will remain the same regardless of the absolute number of pixels. Correct?

A. Correct. It's unitless.

Q. Okay. So go to paragraph 66, please.

A. Yes.

Q. You say the same, right, the absolute pixel counts do not matter.

Correct?

A. Correct.

Q. And I'll remind you that at your first deposition you also say the same thing, the ratios will come out the same.

A. Yes.

Q. Now, what do you mean when you say a ratio between two measured dimensions will remain the same regardless of the absolute number of pixels?

A. I mean that they're unitless.

Q. Then that would mean that a difference in resolution or in absolute pixel counts cannot cause the same fabric measurements to produce different ratios, correct? That's what you're testifying?

A. Yes. Other than of course measurement error.

Q. So if two sets of measurements of the same image produce different ratios, the difference did not come from the resolution. Correct?

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MR. KANE: Object to the form.

A. Well, I think I -- if I understood you correctly, I think I stated the opposite. The more pixels we have in the image, the less measurement error we'll have. The fewer pixels we have, the more measurement error we will have.

Q. And you can't quantify what the measurement error is so that you feel assured that your measurements correspond to the actual fabrics. Correct?

A. No, because of course there's human error that can be introduced.

Q. Human error meaning the way someone would perform these measurements. Correct?

A. Yes. I think you made that clear in your image in the Patent Owner's response, where when the width is 50 pixels, I think many people would have changed that distance and maybe gotten 49 pixels.

Q. But there would still be

evidence of the actual measurements and someone would confirm or not whether 50 is 50 or 50 is 49. Correct?

A. There's going to be a subjective call in all of these kinds of measurements because we're relying on our visual system to identify the boundaries of these objects. And different individuals may choose a different gray scale to represent the edge. There's going to be human error associated with the measurements. And the fewer pixels there are, the more percent error there is being off by a pixel.

Q. And nowhere in your first or your second declaration you provide evidence of the actual measurements so that someone can decide whether the pixel count is, for example, 49 or 50. Correct?

A. I wasn't aware of the P-TACTS degradation issue. But as far as I was concerned, everyone had access to the same exhibits so would able to do their

own measurements like the Patent Owner did.

Q. Regardless of the system, when you represent, for example, a distance is a pixel number, there is no way for anyone to confirm whether you copied and pasted the right number into your work, right? We don't know -- there is no visual evidence for either Patent Owner or the PTAB panel to confirm that when you say a pixel count is what it is, it actually corresponds to what you measured or not. Correct?

MR. KANE: Object to the form.

A. The documents themselves contain the images. And measurements can be made. In my second declaration I provided very explicit method for getting exactly the same resolution that I got.

Q. We'll come back to that.

So let's test your own measurements of the same Adanur measurements. In your first declaration you measured the horizontal diameter of

the MD threads. Correct?

A. Correct.

Q. You also measured the distance spanned by seven MD threads. Correct?

A. I believe I looked at the distance of six of them because I needed to get the spacing.

Q. Can you go to page 72 of your declaration.

A. You're talking about the first declaration?

Q. Yeah. This is where you have the image of the Adanur CD picture.

A. Page 72. Yes.

Q. So these are seven MD threads. Right?

A. There are seven MD threads in the image. You can see that the distance bar covers the spacing for six of them.

Q. Okay. All right.

I understand what you mean.

So my point is that you, the horizontal diameter that you measured has a mean value of 77.3 pixels. And the

distance that you represent on page 72 has a span of 967 pixels. Okay?

A. Okay.

Q. So you would expect, if you perform the same measurement on the Adanur CD image of figure 315, the ratio of the two would be the same or about the same. Correct?

A. Yes. Again, accounting for measurement error.

Q. Now, if you go to page 38 of your declaration. Of your second declaration, I'm sorry.

A. I only have 34 pages.

Q. Apologize. Paragraph 38.

A. Okay.

Q. If you take the horizontal line that you report of 43 -- let's go with 43 pixels, and the span is 573. Correct?

A. Yes.

Q. So 73 divided by 573 should be approximately equal to what you'd get from 77.3 divided by 967. Correct?

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A. Yes. And there is what, about a 5 percent difference.

Q. Would a 5 percent difference be significant?

A. Not when we're looking at ranges of things. And again, the human error associated with measurements.

Q. If it's higher than 5 percent, would it still matter?

MR. KANE: Object to the form.

A. Everything would have to be looked at in context. If it was 100 percent, yes, that would be a big deal. 6 percent, I don't think so. I would have to see the exact error and put it in context.

MR. KONSTANTAKOPOULOS: I think we've been going for an hour, and if it's a natural lunch break time, maybe we can break for lunch.

MR. KANE: Sounds good.

(Luncheon recess: 12:26 p.m.)

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AFTERNOON SESSION

1:19 p.m.

CHRISTOPHER M. PASTORE,

resumed, having been previously duly sworn, was examined and testified further as follows:

CONTINUED EXAMINATION

BY MR. KONSTANTAKOPOULOS:

Q. Welcome back, Dr. Pastore. Did you discuss with anyone during the last break?

A. I actually attended part of a faculty meeting. But nothing relevant to this conversation.

Q. Can you please turn to paragraph 22 of your second declaration. Let me know when you're there.

A. I am there.

Q. The third sentence reads, "In reality, cutting a fabric to reveal a cross-section is a destructive process." Why is cutting a fabric a destructive process?

A. Well, the cutting part is a

clue there. We've got a piece of fabric and we cut it. So we have destroyed that fabric. And we may affect the internal structure as well.

Q. So when you say the internal structure is being destroyed, what do you mean?

A. I mean that the act of cutting, we are necessarily, by definition, we are severing elements of the internal structure of the fabric.

Q. So then on the fourth sentence you write, "The act of cutting a fabric can easily damage or misalign a yarn that was previously aligned into a pair."

You wrote "easily damaged." So what makes it so easy?

A. Part of a fabric's coherency is the tension interplay amongst the various elements of the fabric itself. When we cut that, we remove the tension on several of the yarns. And that can allow things to come loose, to slide around, to be misaligned.

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Q. So the process of cutting applies pressure to the fabric?

A. Well, there is pressure involved in the cutting operation.

Q. Okay.

A. But you're also removing the tension from the yarns that you have severed.

Q. And can the process of cutting stretch the yarns?

A. Locally there can be some stretching directly underneath the knife. But generally a cutting operation is a compressive through thickness function.

Q. So you also mentioned that a yarn can be misaligned. So it will lose its relative position between every yarn?

A. It's possible. Because once the new surface is revealed from the cutting operation, something could fall out. A yarn might have been -- even if I'm cutting parallel to the machine direction, it's possible. I could actually cut through a machine direction

yarn, especially in a 3D fabric like we're looking at here. It's possible that those yarns were not aligned in a perfect plane, so we cut part of that yarn.

Q. So after a fabric is cut, two yarns that were previously aligned into a pair can be easily misaligned. Correct?

A. Yes.

Q. And the last sentence of paragraph 22 reads, "That a pair of MD yarns forming the seam loop is not visible in this photograph, does not necessarily imply that the pair of yarns did not exist prior to the cut."

Did I read that correctly?

A. Yes, you did.

Q. And paragraph 22 refers to the MD image of Adanur's figure 315. Correct?

A. Correct.

Q. And you agree that a pair of MD yarns forming the seam loop is not visible. Correct?

A. Not in its entirety, no. We see parts of two different MD yarns that intersect at the seam loop.

Q. So after cutting, the MD photograph in Adanur does not show the structure as it existed before the cut. Correct?

A. It shows us the structure as it exists on a plane that was generated by the cut through the fabric.

Q. And after the cut has destroyed or misaligned the yarns. Correct?

A. Potentially. I give an example later that maybe they were not perfectly on top of each other to begin with. If it was a spiral woven fabric, for example. There could be any number of reasons. And you wouldn't expect to actually see both looped yarns, because they can't occupy the same plane. You can't have two objects in the same place.

Q. But if the cut was vertical and wouldn't destroy -- it didn't destroy

the structure other than the cut itself, you would still be able to see both yarns and both ends of the loop of one yarn and the ends of the loop of the other yarn. Correct?

A. No, not necessarily. Because for both ends to be in the image they would have to be occupying the same cut plane. Which would mean that the yarns would be intersecting each other, which is physically impossible.

Q. You were not present when the fabric in Adanur figure -- the MD image in figure 315 was cut. Right?

A. I was not.

Q. And you do not know who cut it. Correct?

A. That is correct.

Q. You don't know what tool they used. Correct?

A. That is also correct.

Q. And you also don't know at what angle the fabric was cut. Correct?

A. It was cut to create a plane

perpendicular to the cross direction yarn.

Q. That was the intention. Correct?

A. Yeah. That's what the image purports and represents.

Q. So it is your testimony that the cut is vertical?

A. The cut is described as a machine direction cut. Which means that the plane we're viewing is perpendicular to the cross direction of the fabric.

Q. But the cut can be made at an angle. Correct?

A. If it was, that would normally be described in the image. It wasn't, so there is no reason to assume that there was an angle associated with it.

Q. Okay. In your March deposition when we're discussing the MD yarn in this picture, you testified that we don't know if it went through a diameter or just an edge or what happens in that cutting. Correct?

CHRISTOPHER M. PASTORE

A. Correct.

Q. Now, can you open Exhibit 1021. I believe it -- let me check if it's available.

A. I don't know what that is.

Q. It is not. I'm sorry. Let me make it available first.

A. 1021, yes.

Q. Can you go to page 13.

A. Yes.

Q. So I want you to focus on the MD picture in figure 315. By looking at the picture, can you tell me or not whether the fabric was cut precisely vertically?

A. Can I tell you if it was precisely vertically?

Q. Yes.

A. No. But I can tell you it should be close to precisely vertically. Because the cross direction yarns that we see are more or less circular.

Q. Well, even if they are cut at the angle, if the picture was directly

perpendicular to the MD direction, then you'd still see an ellipsis as a circle. Correct?

A. Maybe I'm not understanding what you mean by "angle." Because there is three different angles we could be talking about.

Q. Let me walk you through it. You see one yarn at the top left side of the MD picture?

A. Yes.

Q. And a second yarn at the bottom right side of the MD picture. Correct?

A. Yes.

Q. These do not belong to the same yarn. Correct?

A. Correct. We have a seam loop coming from the left, a seam loop coming from the right. But of course we don't see all of that because they would be obscuring each other. We couldn't.

Q. Well, doesn't this suggest that the image -- let me rephrase.

CHRISTOPHER M. PASTORE

Doesn't this suggest that the cut was done at an angle?

A. Not necessarily. It suggests that we cut through that left-most seam loop. But why did we cut through that left-most seam loop? It could be the internal structure, it could be -- I mean it's possible that there is an angle to the cut. It's not described as having one.

But we don't know from this image why that yarn was cut.

Q. If the yarn was cut vertically, wouldn't you see both top and bottom parts of the yarn on the left side?

A. If that machine direction yarn on the left was in its natural state, in the fabric itself, which we know is a finished press fabric that's already been processed. If it lied precisely in the cross direction normal plane, then we would expect to see the entirety of it in that cross direction normal plane.

CHRISTOPHER M. PASTORE

So what this suggests is that that machine direction yarn did not lie entirely within the plane that was cut.

Q. So what you see then as the loop is an angled reflection of the loop. Correct?

A. We see the bottom half of the right loop, we see the beginning of the top half of the left loop.

Q. And also you don't know where the cut was made with regard to the location of the either bottom or top yarn. Correct?

MR. KANE: Object to the form.

A. We can tell that the cut was made just next to the right-hand loop. And intersected with the left-hand loop.

Q. If you remain focused on the right side of the image, do you see the bottom yarn doesn't look like a cylindrical structure; correct? Do you see that?

A. Which bottom yarn?

Q. The bottom yarn on the right

side of the image.

A. The cross direction yarn coming out of the image?

Q. No, the MD direction.

A. The MD yarn. I'm not sure why you say it doesn't --

Q. Let's look at the CD image. Do you see the large yarn that angulates up and down across the image?

A. At the top half?

Q. Yes.

A. Yes.

Q. Do you see that that yarn is cut on the right side. Correct?

A. We can see a little cut right in the center. And we can see on the -- it depends on which one we're talking about. If we're talking about the largest yarn that's in the bottom half.

Q. Correct.

A. It seems to be cut on the right-hand side, yes.

Q. That yarn runs in the cross machine direction. Correct?

CHRISTOPHER M. PASTORE

A. Runs in the cross direction, yes.

Q. And it's one continuous yarn. Correct?

A. Yes.

Q. And a continuous yarn has essentially the same diameter along its length. Correct?

A. Typically, yeah. I mean, we know that these things have been processed. But typically, yes.

Q. So on the left side of the picture, that yarn appears essentially whole.

Do you see that?

A. Yes.

Q. On the right side that cut has removed reasonably more of that yarn. Correct?

A. Correct.

Q. So the cut went deeper into the fabric on the right side than on the left side. Correct?

MR. KANE: Object to the form.

CHRISTOPHER M. PASTORE

A. It cuts into that cross direction yarn we're looking at. Yes. We don't know if it's the cross direction yarn has some undulation or the cut had some orientation. We don't know.

Q. So the cut can have an orientation -- let me rephrase.

When you say "orientation," do you mean different angle than vertical?

A. I mean, it's conceivable that the cut plane had some orientation around the thickness direction. Of course as you can tell by the dimensions of this picture, if there was some of that orientation, so it's not perfectly parallel to the cross direction, obviously it's very close to parallel to the cross direction, or we would have seen much more dramatic changes.

But we don't know if the cut is at an angle or more likely the cross direction yarn has some undulation down its length.

Q. So let's look at the MD yarns.

And the MD yarns started with a circular cross-section, correct, before processing?

A. I believe so, yes.

Q. And you see the MD yarns run into the page in this picture. Correct?

A. We're looking at the CD image again?

Q. Correct, we've moved to the CD image.

A. Yes.

Q. And now the cut crosses them and we see the cut faces. Correct?

A. Correct.

Q. And if a circular yarn is cut straight across, the exposed face is a circle. Correct?

A. Yes.

Q. And I think you referred to it before, if it is a cut that happened at the slant or the nonvertical orientation, the exposed face would be an oval. Right?

A. Yes.

CHRISTOPHER M. PASTORE

Q. So as a result of a slanted cut, a circular yarn can show up in the picture as an oval. Correct?

A. Yes. If we were cutting at a slant, we would expect those guys to be taller than they are wide. It depends on which angle of rotation.

Q. Depending on the rotation, these yarns can be -- if we assuming here that the orientation is at an angle where the cut is more on the right side of the image as the large undulated yarn shows, then the slant goes down at the orientation that is -- can be vertical, but it's not perpendicular to the MD direction. Correct?

MR. KANE: Object to the form.

A. I think what you're trying to describe is a cut that has been rotated around the thickness axis?

Q. Yup.

A. Yes, it's possible. Because if that cross direction yarn was perfectly parallel to the cross

direction, then it would suggest that there is a small rotation around the thickness direction. But there is other explanations as well.

Q. Okay. And your measurements are measurements or whatever of whatever the picture shows, correct? The measurements, I'm sorry, let me give you a better question.

So the measurements of the horizontal and vertical diameters are measurements of whatever the picture shows. Correct?

A. Correct.

MR. KONSTANTAKOPOULOS: I will make available Lee, which is Exhibit 1005.

Q. Let me know once you have Lee.

A. Okay, here it is.

Q. Can you turn to figure 11 of Lee.

A. Yes.

Q. The MD yarns in this fabric are at an angle compared to the MD

direction. Correct?

A. Yes, they are.

Q. If you assume that the MD yarns have a circular cross-section and there is a vertical cut to the fabric perpendicular to the MD direction. Do you have that in mind?

A. Yes.

Q. And if I take a picture of that cut at the direction of the MD direction, the image would show the MD yarn cross-section as an oval. Correct?

A. Yes.

Q. Okay. And this picture would correspond to the CD picture of Adanur, correct? It would show the MD yarns. Correct?

A. It would have the same orientation.

Q. And you do not know if the MD yarns are placed at an angle compared to the MD direction in Adanur's fabric. Correct?

A. Correct.

CHRISTOPHER M. PASTORE

Q. Can you turn to page 13 of your second declaration.

A. Yes.

Q. I think you referenced this picture before. Can you explain what figure 411 of Adanur shows?

A. It shows a spiral wound fabric.

Q. Which are the MD yarns in the picture?

A. The MD yarns in the top illustration are going up and down. And in the bottom illustration are going left and right.

Q. And the CD yarns are?

A. Are going horizontal in the top illustration and coming out of the image in the lower illustration.

Q. Okay. Let's turn to paragraph 23, which references this figure.

Now, the first sentence reads, "I also note that there are types of press fabrics in which seam loops are not formed of paired, aligned MD threads."

CHRISTOPHER M. PASTORE

Did I read that correctly?

A. Yes.

Q. In Adanur's press fabric, seam loops are formed of paired, aligned MD threads. Correct?

A. They're definitely paired. "Aligned" is a tricky word here.

Q. Is there anything in the CD image pictures of Adanur that leads you to believe that these are not aligned?

A. Well, in those images as we see, we don't have one entire loop either the left or right loop being shown. There is a number of explanations for that. As I said, there may be some undulations along the path of the line. It could be a fabric that doesn't have pure machine direction orientation to those yarns. It could be any number of features.

What we do note is that the fact that the machine direction yarn is not wholly extant in the image, is not a significant distortion of anything.

CHRISTOPHER M. PASTORE

Because we see most of the right-hand loop.

Q. What about in Sudre. Are the Sudre press fabric -- let me rephrase.

Are the seam loops in Sudre press fabrics formed as paired, aligned MD threads?

A. In principal, yes. Of course in a patent we get to describe an ideal fabric as opposed to a real world fabric. But yes.

Q. But the intention of Sudre is to show seam loops that are formed of paired, aligned MD threads. Correct?

A. Yes.

Q. So the image that you saw from Adanur 411 does not relate to Sudre with regard to how seam loops are formed -- seam loops are formed. Correct?

A. I have to reflect back on Sudre to see if -- I forget if Sudre reflects spiral wound or any of those types of things.

Q. I can make Sudre available.

CHRISTOPHER M. PASTORE

When Sudre is available, take a look to review and let me know.

A. Okay.

So Sudre references a fabric that's woven flat and the free ends are joined. But also references a woven endless. But he's focusing on an invention that works with flat woven fabrics, where the warp yarns in the weaving loom extend in the machine direction of the paper maker's fabric.

Q. So in Sudre's press fabric, seam loops are formed of paired, aligned MD threads. Correct?

A. I guess I'm just a little bit thrown on "aligned." They're certainly paired. And they have to match up. I don't know that he ever specifies they need to be aligned. In the sense that they're parallel to each other.

Q. Okay. Let's move on to the second sentence of paragraph 23. Let me read that in the record. "For instance, spiral woven fabrics (an example of which

I show below) have loops, but because of the orientation of the threads forming the loops, there are not aligned pairs of lines in this type of fabric."

Did I read that correctly?

A. Yes.

Q. You can look at figure 411. Because I want to ask how are the MD yarns interweaved with the CD yarns in figure 411.

A. The CD yarns, as you can see in the bottom image, go through the interlocking loops that are formed by the spiral round MD yarns.

Q. So what kind of weaving do you see?

A. It's called spiral weaving.

Q. It's your testimony that Adanur's figure 411 shows a spiral woven fabric?

A. Yes.

Q. Can you turn to paragraph 8 of your second declaration.

A. Yes.

CHRISTOPHER M. PASTORE

Q. Do you see the last sentence of page 5.

A. Last sentence of page 5. "Different weave patterns"?

Q. The last sentence, yeah. That starts with "for instance."

A. For instance, okay.

Q. So you write, "A tightly woven fabric generally has a higher thread density than a more loosely woven fabric."

Can you explain what you mean by this?

A. By tightly and loosely I mean how close together the warp yarns are relative to their diameters in the fabric.

Q. And by warp yarns, you mean the MD yarns. Correct?

A. Yes.

Q. So assuming the same thread diameter and the same weave pattern, a fabric that is woven tightly has a tighter thread density than a fabric that

CHRISTOPHER M. PASTORE

is woven loosely. Correct?

A. Yes.

Q. And thread density, accordingly, depends on how tightly the fabric is woven. Correct?

A. Thread density -- tightly woven is sort of the output parameter that's associated with the yarn diameter and the thread density. And of course the filling yarn as well.

Q. Right.

So thread density, though, is a parameter that a designer of a woven fabric can select. Correct?

A. Yes.

Q. And a designer would understand the selection in the weaving, for example, how tightly or how loosely the fabric is, has an effect on the thread density. Correct?

A. Yes. And of course it would also understand there are limits.

Q. So a designer following Sudre seeking a thread density that meets the

intended end use in Sudre, has to decide how tightly or loose to weave the fabric. Correct?

A. Yes, one of the parameters that needs to be considered.

Q. Is the weave pattern and how loosely or tightly the weave pattern is. Correct?

A. I didn't understand that question.

Q. Let me rephrase.

So the designer of a Sudre's fabric would care not only that the fabric is woven, but how tightly or loosely it's woven. Correct?

A. Yes. Amongst many other features.

Q. Another feature would be the weave pattern. Correct?

A. Absolutely.

Q. So the designer of a Sudre fabric would care not only about the weave pattern, but also how tightly or loosely the fabric is woven. Correct?

CHRISTOPHER M. PASTORE

A. Amongst other things, yes.

Q. All right.

Let's turn to paragraph 57 of your declaration.

A. Okay.

Q. So reading from the third sentence. "A seam channel is formed by aligned seam loops." Correct, do you see that?

A. Yes.

Q. And then the next sentence continues, "the continuous void diameter visible along the length of a channel is necessarily dictated by the smallest individual loop."

Did I read that correctly?

A. Yes.

Q. And the words "necessarily dictated by the smallest individual loops" are your words. Right?

A. Yes.

Q. They are not quoted from Penven. Correct?

A. This is just from an

understanding of geometry.

Q. This is based on your understanding of Penven. Correct?

A. It's determined from my understanding of geometry. An opening can't be larger than the smallest opening in a sequence.

Q. And the fact that the continuous void diameter being necessarily dictated by the smallest individual loop is an opinion you offer in your second declaration. Correct?

A. Yes.

Q. This opinion was not offered in your first declaration. Correct?

A. Correct.

Q. When did you formulate this opinion?

A. This was in response to Patent Owner's response.

Q. Now, I will make Penven available. Let me know once you have it open.

A. Okay.

CHRISTOPHER M. PASTORE

Q. Now, can you go to column 3. Around line 8.

A. Okay.

Q. So Penven describes an alternating intermeshed -- let me rephrase.

Penven describes alternating intermeshed loops forming, quote, a substantially cumulative passageway. Correct?

A. Column 3, line 8?

Q. Starting on line 8.

A. Formed in a conventional manner. Spaced apart loops are formed at end 12. Alternately interlooped with loop 15. Oh, you're looking at 16. Okay. Intermeshing arrangement forms a substantially tubular passageway.

Q. Correct, yes.

Now, the pintle is inserted through passageway 20. Correct?

A. Correct.

Q. And the pintle is inserted to close the seam. Correct?

A. Correct.

Q. And if you go to column 3, line 64, Penven reads, "For a typical seam in a papermaker's fabric having an internal void diameter of about 20 mils, a pintle unit having a taper of about .075 mils per inch is effective for felts up to about 300 inches in width."

Did I read that correctly?

A. No. You said 20 mils, it should be 50 mils.

Q. I apologize, 50 mils. Thanks for correcting me.

Now, that sentence tells the reader what pintle taper is effective. Correct?

A. It tells us two things. It tells us a typical seam in a paper maker's fabric is about 50 mils. And it gives instruction on the taper rate for a pintle that would work for that internal void diameter.

Q. For a pintle taper that would be effective for that diameter. Correct?

CHRISTOPHER M. PASTORE

A. For that diameter and that width.

Q. And the internal void in that sentence is the void of passageway 20. Correct?

A. Yes.

Q. And the words "loop size" do not appear in that sentence. Correct?

A. Correct.

Q. And the words "loop size" appear nowhere in Penven. Correct?

A. Of course we have loops mentioned multiple times. I don't know if "loop size" paired together shows up.

Q. And Penven does not say that the 50 mils is a vertical, horizontal, average or equivalent diameter. Correct?

A. Right. Much like the patent, it's just presented as a diameter.

Q. Well, the 50 mils is not presented as a diameter of the loop, it's presented as a diameter of the void. Correct?

A. Yes, yeah.

CHRISTOPHER M. PASTORE

Q. Okay. The claim term is "loop diameter," that's why I just want to confirm that our understanding is correct.

The term "loop diameter" is not discussed in Penven. Correct?

MR. KANE: Object to form.

A. That phrase is not used in Penven.

Q. I just want to clarify. Penven uses the term "internal void diameter." Correct?

A. Correct, he uses different language to convey the same meaning.

Q. The same meaning in the sense that you can describe the largest circle within that void -- within the internal -- within that internal void?

A. Yes. This is the void, which is the same as a loop diameter, through which the seaming pintle will be inserted.

Q. And in March during your first deposition you agreed that when Penven

refers to a passageway, it refers to the entire width of the seam felt. Do you remember that testimony?

A. Yeah. Because he talks about the tubular void.

Q. So it refers to all the loops formed at the seam. Correct?

A. Penven describes it as a tubular structure. So is considering -- it's described as, in effect, a constant diameter across the entire width.

Q. Penven only talks about the passageway. Correct?

A. Yes. The opening. The non-fibrous portion.

Q. And that passageway refers to all the loops formed, not an individual loop. Correct?

A. Both. He describes a tubular passageway. So that tubular passageway has to correspond with the loops.

Q. So is it your testimony that the same diameter that would correspond to the tubular passageway would

necessarily correspond to an individual loop?

A. In Penven's discussion, he's imagining a tubular passageway, which suggests a constant diameter.

Q. But a constant diameter for the entire passageway?

A. It wouldn't be tubular otherwise.

Q. So a tubular constant -- let me rephrase.

So a tubular passageway with a constant diameter would necessarily include loops that have the same diameter?

A. Well, it would have to correspond with the smallest loop diameter or we couldn't have that tube extended through.

Q. So which one is it then? Is it the smallest individual loop presupposes that the loops differ in size. Correct?

A. I think this is where we run

into the distinction between the abstract patent idea, where every loop is identical, and the real fabric where it's possible for one loop to be slightly different than another.

Q. So the loop that Penven refers to as -- strike that.

Penven doesn't talk about -- okay. Let me rephrase.

So the tubular passageway that Penven describes may have loops that have different diameters?

A. Penven never talks about loops of different diameters. He just says that we intermesh the loops and that creates a substantially tubular passageway.

Q. Well, it's your word in paragraph 57 when you speak about the smallest individual loop; right? So if there is a smallest individual loop, wouldn't that suggest that there are loops that do not have the smallest diameter?

CHRISTOPHER M. PASTORE

A. It's certainly possible in a real fabric, yes.

Q. So you're saying that Penven describes a real fabric with a passageway that has loops of different diameters. Correct?

MR. KANE: Object; misstates the testimony.

A. I believe that Penven is describing an ideal fabric where all the loops are probably the same. He never tells us that all the loops are the same. But he never tells us that they're different. Just that the intermeshing of the loops creates a substantially tubular passageway.

Q. So it's the intermeshing of the loops that creates the passageway, not an individual loop. Correct?

A. The passageway is formed of multiple loops, yes.

Q. And according to paragraph 57 of your testimony, at least one loop has -- is the smallest individual loop.

Correct?

MR. KANE: Object to the form.

A. Yes. They might all be the smallest. But at least one is the smallest.

Q. And how would the passageway diameter be defined for the entire tubular void?

A. By identifying that substantially tubular passageway. So finding the cylinder that corresponds with the void that is formed when the loops are intermeshed.

Q. And by "cylinder," you mean the pintle that would be inserted?

A. The pintle gets inserted into the void. But the void is formed by the intermeshing of the loops. And then the pintle gets inserted into the void.

Q. Now, can the insertion of the pintle into the void change the structure of the individual loops?

MR. KANE: Object to the form.

A. It's possible that one could

create a pintle whose purpose was to distort the loops. It's conceivable.

Q. So the void referred to in column 3 of Penven that has a diameter of about 50 mils, corresponds to the void available for a pintle to be inserted?

MR. KANE: Objection to form.

A. Yes.

Q. And the pintle needs to be inserted throughout the entire passageway. Correct?

A. Correct.

Q. So the 50 mils number corresponds to a void that is available for pintle -- for pintle insertion. Correct?

A. Right. That is, as Penven tells us, that is a typical internal void diameter.

Q. Can the loop -- can an individual loop in Penven be larger than the void typical loop?

MR. KANE: Object to the form.

A. In a realistic practical

fabric, it is possible. Monofilaments, even though the goal is consistency to all have exactly the same diameter, there are some natural variations that occur during processing. I mean, usually these distinctions are very small, but they can exist.

Q. Can you turn to paragraph 31 of your declaration.

A. Yes.

Q. Now, you cite Exhibit 1056. Correct?

A. Yes.

Q. Let me make Exhibit 1056 available.

Now, in paragraph 31 you write, "The process of assigning the number of pixels per unit length to an image is known as calibration." Correct?

A. Yes.

Q. And the last sentence of paragraph 31 reads, "This standard technique is precisely what I did to perform my measurements of Adanur

images." Correct?

A. Correct.

Q. So you followed the standard precisely. Correct?

A. Yes, I found a number of pixels per unit length, the ratio between a known length and the pixel count.

Q. Now, let me go back to what you say in paragraph 31. "The process of assigning the number of pixels per unit length to an image is known as calibration."

Did I read that correctly in your declaration?

A. Yes, you did.

Q. So can you go to Exhibit 1056 and turn to page 2.

A. Certainly.

Q. Now, if you read page 2, under the heading "2, Obtaining the Calibration Measure," let me read what it actually says. Page 2 of Exhibit 1056 reads, "we use the term calibration measure to refer to the number that indicates the number

of pixels per unit length of the image."

So Exhibit 1056 uses the term "calibration measure." Correct?

A. Yes.

Q. So calibration measure is not just calibration. Correct?

A. Well, the calibration measure is the calibration.

Q. Calibration measure is the number of pixels per unit length. Correct?

A. Correct.

Q. And what is the unit of measurement for a calibration measure quantity?

A. It will be pixels per unit length. Or unit length per pixels. They are functionally the same.

Q. None of the measured values for the distances you measured in your first or second declaration are calibration measure measurements. Correct?

MR. KANE: Object to the form.

CHRISTOPHER M. PASTORE

A. Yeah, could you please restate that?

Q. Yeah. So you said that the unit of measurements for the calibration measured quantity is unit length per pixels. Correct?

A. Right, or pixels per unit length. The reciprocal also applies.

Q. Let's go with pixels per length.

None of the value measures for the distances that you measured are calibration measure measurements. Correct?

MR. KANE: Object to the form.

A. I did measure Adanur's scale bar. And got the calibration.

Q. I think we're speaking -- I mean, again, we're talking about calibration. But I'm talking about -- let me rephrase that.

In your first and second declarations, you either report pixels or length. Correct?

A. Yes.

Q. You never report, for the diameters that you present in your first or second declaration, any value that has a unit of measurement that corresponds to the calibration measure quantity described in Exhibit 1056. Correct?

A. When I look at paragraph 30 of my second declaration, the last sentence on page 16, it says, each pixel corresponds to a length of 4.6 microns, micrometers, or .046 millimeters.

Q. That's not the same. That's exactly my point. You either report a pixel, right, number, or a length number. Correct?

A. In that sentence I'm giving the correlation between the length and the pixel.

Q. And you never report a number that is a pixel over the unit length. Correct?

MR. KANE: Objection -- objection to form.

CHRISTOPHER M. PASTORE

A. I presented the reciprocal here, the length per pixel. You could take the reciprocal and get the pixels per length.

Q. What number would correspond to a calibration measure in your -- let's use second declaration?

A. In paragraph 30, 4.6 micrometers per pixel.

Q. But 4.6 -- the calibration measure would be the inversion though; correct?

A. You could go distance per pixel or pixel per distance. Obviously the reciprocals are easily converted.

Q. On page 2 of Exhibit 1056, you can read that the calibration measure depends upon the image and setup need be obtained only once for each objective lens-camera combination.

Do you see that?

A. Yes.

Q. You did not operate the microscope that captured Adanur's images.

Correct?

A. Correct.

Q. You do not know what happened to those images between the microscope and the book. Correct?

A. Correct.

Q. And Exhibit 1056 nowhere describes calibrating a photograph reproduced in a printed book. Correct?

MR. KANE: Object to the form.

A. The principles here apply. Honestly, I was shocked that Voith claimed they never heard of counting pixels to get lengths. That this is a technique that I certainly started using in the 1980s when I would spend my summers at NASA. So I found a resource that talks about how pixels and lengths in a digital image can be compared to each other.

Q. To clarify for the record, that's not what Voith claims. Voith claims that there is no documentation of the way you perform reciprocal

calculations, but that's a discussion we had during your first deposition. I just want to clarify for the record what happened there.

So the standard technique that Exhibit 1056 describes is available to the microscopist at capture. Correct?

A. Yes. It talks about calibrating an image. They're talking specifically about if the image was captured by a microscope. But of course any POSITA would understand that no matter how the image is captured, the same methodology would apply.

Q. Can you go to page 42 of Exhibit 1056.

A. Okay.

Q. What is the results window?

A. The results window is showing the length of something that was captured using image analysis software.

Q. So someone looking at the results window can confirm that the analysis software measured the length as

.217. Correct?

A. Correct.

Q. And that would be undisputed evidence that what the tool measured was indeed .217. Correct?

MR. KANE: Object to the form.

A. I don't know what you mean by "undisputed." But it is one way for the user to see what length they have measured.

Q. And you said that the tools that you used, either Illustrator or Photoshop, provided you with these types of windows. Correct?

A. Yes. But in pixels, not in length units.

Q. Correct.

And you did not provide any screenshots of your measurements. Correct?

A. I did not provide any screenshots of the measurements. I just provided the measurements.

Q. And there is no way to confirm

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that what you provided in your declaration actually corresponds to the number that you'd see on your screen. Correct?

MR. KANE: Object to the form.

A. I believe I included images with the lines I drew indicated on them.

Q. Yeah, but no pixel numbers indicated as the result of a tool. Right? We're talking about Exhibit 1056, supposedly that's the methodology you used. The methodology in 1056 reproduces the results, like the example on page 42.

My point is that you never reproduced the results of the software tool that you used. Correct?

A. I did not capture screenshots of each length that I measured, no.

Q. So there is no way to confirm that what you used as numbers in your declaration was actually what the tool reproduced. Correct?

MR. KANE: Object to the form.

A. Certainly could duplicate what

I've done.

Q. There is no way to confirm that what you actually measured using your tools corresponds to what the tool reproduced. Correct?

A. Yes.

MR. KANE: Objection to form.

A. Someone else could do the exact same work that I did.

Q. We discussed about measurement errors, doctor. Correct?

A. Yes, there is some human subjectivity, yes.

Q. And the question here is whether what you reproduced in your declaration, without any errors, either mistyping or not properly copy and pasting, would correspond to what actually the tool provided. Correct?

A. I think it is confirmed by the multiple measurements using different techniques. And even the results that the BR showed with the 50, 42, we're seeing similar ratios every time it's

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measured in different techniques. I think it confirms the correctness of the ratios.

Q. Except the 12 percent discrepancy, right? Same measurement, same figures, same tool, same person taking the measurements, .1 difference in one case, 12 percent difference in a second place, right?

MR. KANE: Objection.

Q. You admitted there is errors in measurements. Correct?

MR. KANE: Object to the form.

A. There are fundamental errors in any human measurement, yes. But everything still leads to the same conclusion that these ratios were well-established in the prior art.

Q. Well, the ratio of your -- the loop density measurement using the horizontal diameters both in the first declaration and the second declaration, is a number that's greater than 90 percent. Correct?

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A. No. I've got 85 percent and 90 percent.

Q. Well, 85 percent using the average of the horizontal and vertical diameters. Correct?

A. I thought that was with the horizontal measurements.

Q. That's fine. I withdraw the question. The record says what it says.

So a few more questions. In paragraph 54 of your second declaration, you cite Xu and Goetemann. Right?

A. Yes.

Q. Let me make these two references available.

Those should be available now. Let me get to Goetemann.

MR. KONSTANTAKOPOULOS: For some reason my access to Exhibit Share doesn't work. Let me log in again.

Q. Hopefully you have Goetemann now.

A. Yeah, Goetemann is there. And

Xu is there.

Q. Okay, perfect.

So in paragraph 54, you write that "Goetemann describes a thread diameter of .15 to .81 millimeters, also in the context of woven paper-making belts." Correct?

A. Yes.

Q. And in paragraph 55 you state, "Xu describes a warp yarn density of 8 yarns per centimeter." Right?

A. Correct.

Q. And you cite Xu at column 9, lines 4 through 9. Correct?

A. Yes.

Q. And you intended warp yarn density to mean a count of warp yarns per unit length. Correct?

A. Correct.

Q. A warp yarn count and I weft yarn count are different quantities. Correct?

A. Yes.

Q. And in Xu's base fabric, the

warp yarns run in the machine direction. Correct?

A. Yes.

Q. These are the MD yarns that we are discussing. Correct?

A. Correct.

Q. Now, can you turn to Goetemann.

A. You want me to open Goetemann?

Q. Yes, please.

A. Okay.

Q. The title is "hollow monofilaments in paper-making belts." Correct?

A. Yes.

Q. And if you look at the summary of the invention. The invention says that the improvements is that filaments, "in at least one of the machine and transverse directions are hollow monofilaments."

And then continues saying, "having a diameter from about 6 to 32 mils," which is what you reference,

right, .15 to .81 millimeters. Correct?

A. Yes.

Q. And in column 2, the passage you cited, "the monofilaments generally have a diameter of about from 6 to 32 mils."

And the very next sentence reads, "the hollow monofilaments should have a void content of about from 3 to 16 percent of their cross-sectional area?"

Did I read that correctly?

A. Yes.

Q. So the diameter range you cited in paragraph 54 is the outer diameter of the hollow monofilament. Correct?

A. Correct. The size of the monofilament itself.

Q. It's the size -- it's the diameter that encloses the stated void. Correct?

A. Yes, but that would be considered the monofilament diameter in any traditional context.

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Q. So it doesn't matter to you with regard to the diameter whether the monofilament is hollow or not?

A. Not for measuring diameter, no.

Q. So if you would calculate a thread density, right, you'd use -- loop density, I'm sorry. Let me give that again.

So when you have an intention as a designer to reach a specific loop density, would one of the considerations you have is whether the thread is hollow or not?

A. If there was consideration that the thread would collapse under the pressure, then it would be taken into consideration. But something with 3 percent of its cross-sectional area being void, no, you would use the actual diameter of the monofilament.

Q. And if you read that Goetemann of around column 2, starting on line 26, you see that Goetemann says that for each

polycarbonamide materials a greater degree of interlocking and rigidity than with solid monofilaments with the same material. Correct?

A. Yes.

Q. So this is the comparison that Goetemann itself draws between hollow and solid monofilaments of the same material. Correct?

A. Yes, that's Goetemann's claim.

Q. And nothing in Lee describes the yarns of it's .3 to .6 millimeter range as hollow. Correct?

A. Correct.

Q. And does paragraph 54 convey any analysis of transferring Goetemann's hollow yarn disclosure to the yarns that are solid monofilaments?

A. There's no discussion of hollow or solid.

Q. Okay. Let's turn to column -- to Xu. Do you have any reference how you call this author?

A. I always thought when we get

the English transliteration that X was like a sh sound. I always thought it was Xu.

Q. I'll try that. Thanks.

Let's go to column 6, lines 4 to 7.

A. Okay.

Q. So Xu describes satisfactory results are obtained when the weft yarn knocking is about 9.4 yarns per centimeter. And then it continues and says, "as used herein, the term knocking refers to the numbers of weft yarns per unit length of woven fabric."

Did I read that correctly?

A. Yes.

Q. So in Xu, a knocking counts weft yarns. Correct?

A. Correct.

Q. Weft yarns are the cross-meshing direction yarns. Correct?

A. Yes, that is correct.

Q. These are the CD direction yarns. Correct?

A. Yes.

Q. So Xu's embodiment, at least of the same column, the warp yarns are optionally exposed at lateral ends to form seaming loops. Correct?

A. Yes.

Q. So in Xu the yarns that form the seaming loops are the warp yarns, that's the MD yarns. Correct?

A. Yes.

Q. And in the petition's loop density formula, the MD thread density is used to calculate the loop density. Correct?

A. Correct.

Q. So your paragraph 55, cites Xu at column 9, lines 4 to 9. Right?

A. Correct.

Q. And that sentence talks about a plane with pattern at a knocking of about 8 yarns per centimeter. Correct?

A. Yes.

Q. The 8 yarns per centimeter number is what you cite as corroborating

evidence for Lee's thread density. Correct?

A. That is correct.

Q. In the sentence in Xu that talks about a knocking of about 8 yarns per centimeter, does that correspond to the warp or the weft monofilaments?

A. I may have made an error here.

Q. So there is no corroboration by Xu --

A. Of 8.

Q. So Xu does not corroborate whether Lee's thread density value are conventional. Correct?

A. It does not give us the 8 yarns per centimeter that I thought it did. That's actually 8 warp yarns -- weft yarns per centimeter, not warp yarns per centimeter. But the thread diameter of course is correct for the warp yarn.

Q. So Xu does not corroborate whether Lee's thread density value is conventional. Correct?

A. Xu does not confirm that there

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is a warp yarn density of 8 yarns per centimeter in the invention.

Q. You used Xu as corroboration for Lee's thread density values. Correct?

A. One of several. But yes.

Q. What else did you use in paragraph 55?

A. Walkenhaus. As presented there. And then there is of course the measurements I took from the images.

Q. And you only specify the thread density in Walkenhaus. Correct?

A. Yes.

Q. You don't specify the thread diameter. Correct?

A. Correct.

Q. And the loop density calculation that you perform requires thread density and a thread diameter of the same thread. Correct?

A. Yes. So applying Walkenhaus to known yarn diameters gives us a very broad range of loop density. Certainly

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much bigger than what the patent claims.

Q. Okay.

MR. KONSTANTAKOPOULOS: No further questions.

MR. KANE: We've been going an hour, do you want to take a quick break?

MR. KONSTANTAKOPOULOS: Sure.

MR. KANE: Come back at 2:45.

MR. KONSTANTAKOPOULOS: Sounds good.

(A recess was taken.)

EXAMINATION BY

MR. KANE:

Q. Dr. Pastore, do you remember earlier you were questioned regarding the .32 millimeters MD thread diameter that you calculated in your first declaration?

A. Yes.

Q. And I believe -- can you turn to your first declaration for me.

A. Okay.

Q. And could you read -- so you can see there, in paragraph 72.

A. Yes.

Q. Do you see there at the end of that paragraph it says, "I obtained an average MD thread diameter of 0.32 millimeters with a standard deviation of 0.04 millimeters"?

A. Yes.

Q. Okay. So could you read to yourself to refresh your recollection starting at paragraph 69.

A. Yes.

Q. And read down to paragraph 72.

A. Yes.

Q. So I believe earlier when counsel was questioning you, he asked you whether the three -- the .32 millimeters was derived from vertical measurements only. Do you recall that?

A. I do.

Q. And is that correct?

A. No. The .32 is for the average diameter.

Q. The average of what?

A. The average of the horizontal

and the vertical measurements.

Q. Okay. And could you turn then to the patent. Exhibit 1001.

A. Yes. Yes, I'm there.

Q. Okay. And I'd ask you to go to column 2.

A. Yes.

Q. And there is a paragraph that starts at line 31 says, "For monofilaments."

Do you see that?

A. Yes.

Q. And could you read from line 31 down to line 45 to refresh your recollection.

A. Yes.

Q. Okay. So earlier there was some testimony about what the patent taught about how to measure or determine the diameter of a thread. Do you recall that?

A. I do.

Q. And I think at that time you previously, before reading this section,

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you stated that the patent did not give any teaching on how to determine the diameter of the thread. Do you recall that?

MR. KONSTANTAKOPOULOS: Objection; leading.

A. I do recall that.

Q. Okay. And does having refreshed -- has reading this chunk of the patent refreshed your recollection?

A. It does. The patent clearly states the diameter of the thread should be understood to be the diameter of the circle that has the same area as the cross-section of the thread, or the sum of the cross-sections of individual monofilaments.

Q. And how does that teaching relate to the averaging technique that you used in your first declaration?

A. As I've demonstrated, the averaging technique gave almost exactly the same result as the equivalent diameter. And that is the value that

should be used whenever the patent references diameter, it should be the average or the equivalent diameter is the number that the patent describes.

Q. And would you say -- did you ever make the calculation for equivalent diameter?

A. I did in my second declaration.

Q. And is the calculation that you made in your second declaration for equivalent diameter consistent with what the patent teaches?

A. Yes, it is.

Q. And if we look starting at line 38, there is a discussion about a monofilament having a square cross-section with 1 millimeter edge length.

Do you see that?

A. Yes.

Q. And do I -- do you understand that to mean that in the horizontal direction, the monofilament would be

having the length of 1 millimeter?

A. Most likely. It's a square monofilament, it would tend to lay flat.

Q. Okay. And does the patent teach you to use for calculating the diameter of that monofilament 1 millimeter?

A. No, it tells us to use the equivalent diameter, the 1.12 millimeters.

Q. So it's not using just the horizontal dimension?

A. Correct, it's using the equivalent diameter.

Q. And then the final question I guess I had, Dr. Pastore, there's been some questioning about the relationship between, the terminology I think you used is measurement error, and the resolution of the image that you're working with. Do you recall that?

A. Yes.

Q. Could you explain that relationship?

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A. When a human is taking a measurement on a digital image, it's certainly possible to be off by easily 1 pixel on either side. And the amount of error then would correlate with the total number of pixels that were being measured. And plus or minus 1 on either end. So the fewer pixels there are, the more error is expected. More pixels, less error.

Q. And that -- so just to make sure I understand. Let's assume that you're measuring something and it's 10 pixels. Okay?

A. Yes.

Q. And so if we have a measurement error -- the human actually looking at the image counts 11 pixels in my hypothetical. Okay? So what would the error be? What percentage of error would it be?

A. Depending on what you want to use for a denominator, either 9 or 10 percent.

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Q. Okay. Now let's assume we have the same structure, but rather than 10 pixels there were 100 pixels and the human counted 101 pixels. What would the error or the measurement error be?

A. That same error of 1 pixel would lead to a 1 percent error.

MR. KANE: No further questions at this time.

MR. KONSTANTAKOPOULOS: Let me have a follow-up.

CONTINUED EXAMINATION

BY MR. KONSTANTAKOPOULOS:

Q. So if I understand correctly, is it your testimony that the diameter, according to your understanding of the patent, that corresponds to the MDYD diameter in the Claim 1 corresponds to the equivalent diameter?

A. That's what the patent appears to say in column 2.

Q. And that's your understanding. Correct?

A. Yes.

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Q. And you didn't perform any equivalent diameter measurements in your first declaration. Correct?

A. I did. I performed the average of the major and minor radius, which for -- as we saw in the second declaration for a near circular ellipse, is virtually identical to the equivalent diameter.

Q. Please answer my question.

You did not perform any equivalent diameter measurements in your first declaration. Correct?

A. In effect I did. By averaging the major and minor radius I got a number that is basically the equivalent diameter.

Q. Well, we can go back to the record and discuss that the equivalent diameter is the geometrical mean, correct? Do you remember that testimony earlier?

A. Yes, I do.

Q. And you had admitted on the

record that geometric mean is different than the arithmetic mean. Correct?

A. Correct.

Q. And you admitted they are different concepts. Correct?

A. It's different mathematics, yes.

Q. Different mathematical concepts that correspond to different structural concepts. Correct?

A. I'm not sure what you mean by "different structural."

Q. I gave you an exact example when I asked you when you have flat monofilaments, the equivalent diameter would always be smaller than the horizontal diameter, correct? Do you remember that?

A. Oh, yes. That's true for both, of course, the geometric and the arithmetic means.

Q. Okay. So that mathematical concept results in different structural results. Correct?

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MR. KANE: Object to form.

A. By "structural" I'm not sure what you mean.

Q. Well, the structural being the horizontal diameter being larger than whatever the equivalent diameter corresponds to. Correct?

A. The horizontal diameter in our images will always be larger than any average or equivalent diameter we measured.

Q. In your second declaration you provided the formula for calculating the equivalent diameter. Correct?

A. Correct.

Q. You do not provide that formula in your first declaration. Correct?

A. Correct.

Q. You do not perform any calculation that multiplied the horizontal and the vertical diameter. Correct?

A. Correct.

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Q. You did not take the square root of the product of the horizontal and vertical diameters. Correct?

A. Correct.

Q. You did not present any equivalent diameter measurements and calculations in your first declaration. Correct?

A. Not in so many words, no.

Q. Not in any words. Correct?

A. Numerically as we saw in my second declaration, the numbers are virtually identical.

Q. Again, please answer my question.

A. May you ask it again?

Q. Yes. You did not present any equivalent diameter measurements and calculations in your first declaration. Correct?

MR. KANE: Object to the form.

A. I did not present any equivalent diameter calculations. Average diameter results i showed are

effectively identical to the equivalent diameter value.

Q. To calculate the average diameter, you have to perform a different calculation than to calculate the equivalent diameter. Correct?

A. Correct.

Q. Now, can you go back to your first declaration. Counsel pointed you to paragraph 72.

Do you see that?

A. Yes.

Q. If you go back to paragraph 71, you see the last sentence?

A. Yes.

Q. "Specifically, my measurements for the MD thread in the right image had an average of 62.1 with a standard deviation of 3.0 pixels compared with the vertical diameter measurements of 61.6 with a standard deviation of 2.8 pixels."

Do you see that?

A. Yes, I do.

Q. And these numbers correspond

solely to the vertical diameter measurements you performed. Correct?

A. Correct. A way of confirming that the data on both images were similar.

Q. These 62.1 and 61.6 numbers do not correspond to the horizontal diameters. Correct?

A. Correct.

Q. These 62.1 and 61.6 numbers do not correspond to the equivalent diameter measurements. Correct?

A. Correct.

Q. And during the break did you discuss with counsel any questions?

A. No, I did not.

Q. You didn't communicate with counsel during the break?

A. Not at all.

MR. KONSTANTAKOPOULOS: No further questions. Thank you, Mr. Pastore.

MR. KANE: I have no further questions. Thank you.

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MR. KONSTANTAKOPOULOS: We can go off the record.

(Time noted: 2:56 p.m.)

C E R T I F I C A T E

STATE OF NEW YORK)
: ss.
COUNTY OF NEW YORK)

I, ERIC J. FINZ, a Shorthand Reporter and Notary Public within and for the State of New York, do hereby certify:

That CHRISTOPHER M. PASTORE, the witness whose deposition is hereinbefore set forth, was duly sworn by me and that such deposition is a true record of the testimony given by the witness.

I further certify that I am not related to any of the parties to this action by blood or marriage, and that I am in no way interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand this 12th day of August, 2026.



_____

ERIC J. FINZ

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Please read your deposition over carefully and make any necessary corrections. You should state the reason in the appropriate space on the errata sheet for any corrections that are made.

After doing so, please sign the errata and date it.

You are signing same subject to the changes you have noted on the errata sheet, which will be attached to your deposition.

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CHRISTOPHER M. PASTORE Date

ALBANY INTERNATIONAL CORP.
vs. VOITH PATENT GMBH
8/6/2026 - CHRISTOPHER M. PASTORE

ACKNOWLEDGEMENT OF DEPONENT

I, CHRISTOPHER M. PASTORE, do hereby declare that I have read the foregoing transcript, I have made any corrections, additions, or changes I deemed necessary as noted on the Errata to be appended hereto, and that the same is a true, correct and complete transcript of the testimony given by me.

_____ _____

CHRISTOPHER M. PASTORE Date

*If notary is required

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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