IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

FORCE MOS TECHNOLOGY, CO, LTD.,	(	CAUSE NO. 2:22-CV-460-JRG
	)	
Plaintiff,	(	
	)	
vs.	(	
	)	
ASUSTEK COMPUTER, INC.,	(	MARSHALL, TEXAS
	)	FEBRUARY 10, 2025
Defendant.	(	8:30 A.M.

VOLUME 2

TRIAL ON THE MERITS

BEFORE THE HONORABLE RODNEY GILSTRAP
UNITED STATES CHIEF DISTRICT JUDGE
and a jury

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THE COURT: Be seated, please.

08:30 Plaintiff, are you prepared to call your next witness and move forward with your case in chief?

MR. THANE: We are, Your Honor.

THE COURT: Let's bring in the jury then.

MR. THANE: Your Honor, do you want us to read the exhibits into the record?

THE COURT: Thank you. We do need to do that before

08:30 we bring the jury in.

Let me ask counsel to jointly read into the record any items from the list of pre-admitted exhibits used during Friday's portion of the trial.

MR. THANE: Your Honor, during Friday's portion of the trial, the following exhibits were used: JX 2, JX 3, JX

08:30 6, JX 55, JX 57, JX 41, JX 54, JX 65, JX 7, JX 8, DX 7, DX 12, and we move to enter those into the record.

THE COURT: Any objection from Defendant?

MS. LYNCH: No, Your Honor.

THE COURT: Does Defendant have any additional items from the list of pre-admitted exhibits?

MS. LYNCH: No, Your Honor.

THE COURT: All right. Thank you, counsel.

All right. Now let's bring in the jury, Mr. Estes.

08:31 (Whereupon, the jury entered the courtroom.)

THE COURT: Good morning, ladies and gentlemen.

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Welcome back. Please have a seat.

All right. Plaintiff, call your next witness, please.

08:31 MR. THANE: Good morning, Your Honor.

Plaintiff calls Mr. Vinh Diep by video deposition. Mr. Diep is the reverse engineering group manager of Microtech Laboratories.

Plaintiff has called Mr. Diep to testify for 25 minutes and 44 seconds, and Defendant has designated Mr. Diep to testify for 39 minutes. Total run time is 1 hour, 4 minutes, and 44 seconds.

THE COURT: All right. Let's proceed with this witness by deposition.

VINH DIEP,

BY VIDEO DEPOSITION

08:32 Q. Good morning, Mr. Diep.

A. Good morning.

Q. Thank you for being here.

How long have you been at Microtech?

A. 24 years.

Q. What positions have you held during that time?

A. I started as an analyst, and then I quickly moved up to an FA analyst, and then started doing reverse engineering. And now I'm the reverse engineering group manager.

Q. Is that your role now?

A. Yes.

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Q. What were your responsibilities as an analyst?
08:33 A. Services such as X ray, SEM analysis, EDS analysis, cross section analysis, things of that nature.
Q. And you're third title I think was -- you said group manager?
A. Yeah. So reverse engineering group manager. About -- we started doing reverse engineering here at the lab about 14
08:33 years ago. And that's -- so we work on basically attorneys or basically companies will have us do construction analysis, basically how things are constructed.
So we use similar steps as we did in FA and services to get the same results. It's just a different division. So I
08:33 just handle the ins and outs and basically project manage each project. And I also do some of the work as well.
Q. So if I understood correctly, the equipment you used and the technical analytical tools you used were generally the same across all three positions?
A. Yes.
Q. What are -- you listed them before, and I apologize, but can you just give me some of the other techniques you use?
A. We use SEM, we use EDS, we do mechanical cross sections,
08:34 decapsulations, and a lot of photo -- a lot -- we have different cameras to take different types of photos.
Q. What type of SEM equipment do you have?
A. We have a field emission JEOL. I believe it's a JSM-6500

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and FEI nano SEM 450.

Q. You just pronounced this; I want to make sure I'm saying it right. Is it JOEL?

A. JOEL.

Q. J-E-O-L?

A. J-O-E-L, I believe.

Q. Okay. And that is a -- that's a field electron gun?

A. Field emission.

Q. Field emission gun?

A. Yes.

Q. What about the other, the nano SEM? Is it also --

A. It's also field emission, yes.

Q. Do you use one of those machines more than the other?

A. Yes.

Q. Which one?

A. The JOEL.

Q. How old is the FEI system?

A. I think we purchased it in 2016 or '15.

Q. And what about the JOEL, when did you purchase that?

A. I can't remember. It's like early 2000s.

Q. Any other differences in terms of technical capabilities?

A. I think -- I believe the FEI is better at low voltage.

Q. Why is that?

A. I'm not sure. I don't know the complete ins and outs of the systems.

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Q. Can you describe just generally a typical procedure that you would perform using the JOEL machine?
A. Using the JOEL machine? Like analysis-wise or why would I use it?
Q. Yes, an example of how you would use it and what steps do you perform to do that?
A. Oh, okay. Let's say if I had a cross section, once the cross section has been prepped and iridium coated, we would just -- we would put the sample into the JOEL, let it pump down. And once it's in vacuum, we would just use it to image the cross section.
Q. Any other steps involved there?
A. No. Once it's -- I mean, basically we would have to do the focus. Right? Figure out if we have the right working distance to get the correct focus.

Working distance typically only plays when we need to do EDS because the system is set up to do EDS at a certain working distance. So other than that, you can image at any working distance. If you have a large part, want to go lower, working distance changes. If you have a small part, you can raise the stage up, and things like that.
Q. Any other decisions you have to make in the process?
A. Well, whether or not the part is charging. If it's charging, then we'd have to take the part out and try to iridium coat it a little bit longer to keep it from charging.

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Q. You said when there's charging, the image will warp or drift. Are those two separate things?
A. They're similar. The image warping can be -- it looks like it's kind of bubbling, kind of coming in and out like this, drifting, it kind of does that but it also kind of moves. The image doesn't stay still when it's charging.
08:38 Q. When you do an SEM -- I'm much more familiar with optical photography than SEM, I'll warn you. So bear with me on this. When you take a picture, you open the shutter and close it. Right?
A. Yeah.
Q. And that is the exposure. For an SEM, do you have a continuous view, more like video than like a photograph?
A. Yes.
Q. Okay. So when you say the image is drifting, you'll see it in real time?
A. You'll see it in real time, yes.
08:38 Q. How do you create a still image from that process?
A. Once it's properly grounded, the image, like the live image, looks like it's not moving. And so there's different settings where you can -- once you do -- you make it do a slow scan, which is slowly scanning the image to make it sharper.
So the slower the scan, the sharper the image will be,
08:39 but it also depends on whether or not the part is actually properly grounded. But if it's not properly grounded, you'll

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still get some shifting even while it's scanning.

So when it's scanning, once it's done, it basically pauses the image, it freezes it, and then from there we just save the image.

Q. You said fast scan. How fast would a fast scan be?

08:39 A. I believe it's like 10 microseconds.

Q. And what about a slower scan?

A. It can vary because it can go up to 60 microseconds or longer.

Q. Are there any other advantages or disadvantages to using a fast scan?

A. The fast scan is like if we have issues with the grounding and we notice it's drifting, the fast scan basically kind of helps mitigate the drift in the image. That's about

08:40 it. The slower the scan, the sharper the image will be.

Q. So a fast scan will mitigate the drifting. What about warping or bright spots?

A. The warping and the bright spots, the fast scan doesn't help because that's just constantly there. The only thing that helps that is to try to properly ground it a little bit more or coat it with the iridium.

Q. As you zoom in using the JOEL, there's a limit at some

08:40 point to the machine's ability to resolve features of a certain size?

A. Oh, okay. Typically on some SEMs, if you go to a feature

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that -- if like you go to a feature that's almost like 100 nanometers in thickness, it may start to get a little bit blurry and it's unable to get a sharp image.

Q. You mentioned Josh. Is there anyone else that you communicated with about this project?

08:41 A. Just Josh and Michael, and I believe -- was it -- was it Chris, or another one of his co-workers. But that was on a call just because they told me that I may or may not get deposed for the case. But those are the only three people I know from Dickinson Wright that I've spoken with.

Q. So just to clarify, Michael there is Michael Saunders?

08:41 A. Michael Saunders. I don't remember Josh's last name, and then I don't know Chris' last name.

Q. But Chris also was an -- is an attorney at Dickinson Wright?

A. Yes.

Q. As part of this project, did you communicate with Dean Neikirk?

A. I never heard that name before.

Q. Can you explain more what were the instructions on the tear-down analysis?

A. Removal of the IC from the -- the board. Make

08:42 sure -- take photos of the markings, decapsulation to look at the die, and a cross-section analysis of one of the samples.

Q. Those are all the things Josh told you to do?

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A. I believe that's what was on the request, yes.
Q. Anything else you recall about those instructions?
A. No. I believe those were the instructions. Oh, and EDS
08:42 analysis. Sorry.
Q. Cross section analysis is with SEM?
A. Cross section analysis can be done with SEM or opticals, yeah.
Q. In this case?
A. In this case, we did SEM.
Q. How did you know what to cross section?
A. Once we did the decapsulation, we identified the direction of the gates, and they wanted us to cross section
08:43 across the gates.
Q. What does that mean--against the gates?
A. The gates run a certain direction. Right? So you can either cross section parallel to the gate where if the gates are going this way and you're cross-sectioning up, you see the whole length of the gate. If you're going across the gate, you're going this way, so you're just basically chopping up the thinner part of the gate.
08:43 Q. Did Josh tell you where to look -- so let me just clarify. You're doing a cross section against the gates, but you could choose different locations to do that. Right? To do the cross section?
A. Uh-huh.

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Q. How did you know which location to choose?
A. We just went closest to the bond pad. So we have basically something to look at to stop, to know, like -- that
08:44 this structure is the bond pad. Because initially one of the requests was when we do -- when we did the decapsulation and did a plain view, which is above view image, was to do EDS analysis. And so when we did the analysis, we did EDS of the ball bond, bond pad, and the metal structure.
And so a lot of times we would cross section into, like let's say a bond pad, because that's something we know that's
08:44 there. And then when we do EDS, we know that, okay, that's the bond pad, it's made of certain materials. And that's how we kind of -- what's that word -- a landmark. We used the bond pad as a landmark.
Q. Was that part of Josh's instructions?
A. No. That's just what we typically do when -- because the request was basically cross section in the direction towards the -- across the gates. But we just chose to hit closer to the bond pad so we have a landmark to stop.
08:45 Q. Did Josh tell you anything specific about SEM machine settings?
A. No.
Q. You said the counting request came in separately a few days later. Is that right?
A. Yes.

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Q. What were the instructions on that?
A. He -- I believe Josh just requested, hey, can you -- per board, can you check and see if these products are on each board and how many of each were on the board.
08:46 So I basically said okay. So I did the initial count, and then I had two other analysts do the same count to see if we came up with the same number. And that's how we kind of conclude that these are the correct numbers that we're counting.
Q. So three people counted?
A. Yes.
Q. Like a triple check?
A. Yes.
Q. Who were the other two people that counted?
08:46 A. Analyst named Du Dip and Kyle Cho.
Q. What is Kyle's position?
A. Kyle works in the circuit extraction part, and he is also one of the guys who do the BOMs. And then Du is underneath me. He's one of my analysts that helps me with my projects.
Q. Is Kyle Cho's title analyst?
A. Yes.
08:46 Q. And you guys all got the same counts?
A. Yes.
Q. Those are the counts you reported back to Josh in the spreadsheet?

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A. That's correct.
Q. Separate from any batteries that were contained in a laptop, did you do any counting analysis of other batteries?
A. Not for this. I don't believe -- I don't remember getting just batteries by itself. I think the batteries just came from the laptop, if I remember right.
Q. And the -- did you find any of the components you were looking for in the batteries?
08:47 A. I think we found one. I can't remember.
Q. Did you include that in the count for that laptop?
A. We should have, yes.
Q. Did you do a counting analysis on any desktop computers?
A. No, just whatever motherboards that were supplied to us.
Q. What about servers?
A. No.
Q. Any computer displays?
A. No.
08:47 Q. Any other components beyond laptops and motherboards?
A. No.
Q. It looks like a spreadsheet of component counts. Is that right?
A. Yes.
Q. Is this the spreadsheet that you referenced earlier?
A. Yes.
Q. The green headings on this document look like they

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identify product names. Is that right?
A. That's correct.
08:48 Q. Are those the products that you analyzed for the counting exercise?
A. Yes.
Q. How many samples of the TUF gaming B7600M did you analyze?
A. How many samples as far as the parts on the board?
Q. Good question. The motherboard because you just had one sample or more than one?
A. We just had one, yes.
Q. Is that true for all of the other products listed in the green headings?
A. Yes, sir.
Q. Just one sample.
A. Yes.
08:48 Q. Does this spreadsheet represent the entirety of your counting results?
A. Yes.
Q. At the bottom, there are also three other entries in green. First one is ASUS 150-watt power brick, next one is ASUS 625-watt, and the next one is small brick. Are those all AC adapters?
A. Yes. They were power -- power supplies, yes, power adapters.

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Q. There are no batteries separately listed on this sheet. Right?
A. No.
08:49 Q. You mentioned that you may have found one of the components in a battery that was inside the laptop?
A. Yes.
Q. Do you recall which laptop that was?
A. I do not.
Q. If you found that, you would have included it in the totals on this sheet?
A. Yes.
08:49 Q. On the right there is a yellow heading, total parts found across all boards. Do you see that?
A. Uh-huh.
Q. Among the MOSFETs that you found in these three power bricks, were they all power MOSFETs?
A. I believe so, yes.
Q. But they may have included power MOSFETs other than the accused components?
A. Yes.
Q. So you don't know for sure?
08:50 A. I knew that -- I believe with these, we wanted to see if there was any of the ones that were listed, were on them, and I didn't see any of the listed on these boards. And so the request was just count the total amount of MOSFETs, different

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types of MOSFETs you see.
Q. So just to expand on that, looking at the ASUS 150-watt power brick, you found 13 MOSFETs but zero accused components?
A. That's correct.
Q. And for the ASUS 65-watt brick, you found four MOSFETs
08:51 but zero accused components.
A. That is correct.
Q. And for the small brick, you found three to four MOSFETs, but zero accused components?
A. That's correct.
Q. This is excerpts from an expert report in this case, prepared by Dr. Dean Neikirk. First question is, have you ever seen this before?
A. No.
Q. Mr. Diep, if you could flip near the back of that document, there are paragraph numbers and there's a paragraph No. 173. Tell me if you see that.
A. Yes.
08:51 Q. And paragraph 173 begins on page 73. Do you see that?
A. Sorry. Here. Okay.
Q. And then on the next page, there is a table that's part of paragraph 173. Do you see that?
A. Yes.
Q. Have you seen this table before?
A. No.

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Q. Is it fair to assume then that you had no role in preparing this table?
A. That's correct.
Q. In your counting analysis, did you analyze any handhelds?
08:51 A. No.
Q. Among the laptops that you counted components for, did you find any laptop that included 71 components?
A. That included -- I don't recall. No, I don't recall.
Q. And just to recap, there are three laptops listed in
08:52 Exhibit A to your declaration. Right?
A. Yes.
Q. The first one is the Zenbook Pro 14. That one has -- you counted 58 accused components. Right?
A. That's correct.
Q. And then there's the E410 laptop, and there you counted 28 components. Right?
A. I believe so, yes.
Q. And then there's the Zenbook, the Q526F Zenbook laptop, and there you counted two components. Right?
A. That's correct.
08:52 Q. So none of the laptops you had counted included 71 --
A. Of the accused --
Q. -- accused components?
A. No.
Q. None of them included more than 70. Right?

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A. Yeah. According to what I have here listed, no.
Q. So am I right that you certainly did not count any laptop that included 325 components?
A. That's correct.
Q. Did you count any laptop that included 280 of any one type of accused component?
A. No.
08:53 Q. The motherboards that you counted, there are two. The first is the ASUS ROG Strix Z7920A, and there you counted 70 components. Right?
A. Yes.
Q. 70 accused components.
A. That's correct.
Q. And the other motherboard was the TUF gaming B760M. And in that motherboard, you counted a total of 27 accused components. Right?
A. That's correct.
08:54 Q. None of the motherboards that you counted had 109 accused components. Right?
A. That's correct.
Q. And certainly none had 545 accused components. Right?
A. That's correct.
Q. None of the motherboards you counted included as many as 260 of any one type of accused component. Right?
A. That's correct.

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Q. The one graphics card you counted was the ASUS PH-GTX1660S. And in that graphics card, you counted a total of nine accused components. Right?

A. That's correct.

Q. You did not count any graphics card that included as many as 12 accused components. Right?

A. No.

Q. And certainly not any graphics cards that included as many as 60 accused components. Right?

A. That's correct.

Q. Do you know whether the laptops that you analyzed are low-end or high-end laptops?

A. I didn't look at the specifications. We just took photos of the laptop and did the tear-downs. I didn't look at any of the specifications whether or not it had a higher different type of graphics card or, you know, processor or anything like that.

Q. So you don't know?

A. I don't know.

Q. Is the answer any different for the motherboards?

A. Yeah, same answer.

Q. You're not sure if you had low end or --

A. I'm not sure if they are low end or high end.

Q. Same answer for the graphics card?

A. Yes.

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Q. Mr. Diep, we just handed you Exhibit 4, and I'll represent to you that although it does not -- although this copy does not bear any production numbers at the bottom, this document was produced to us with production numbers FORCE-MOS 46487 through 46558.

Have you seen the content of this document before?

A. Yes.

Q. What is the content?

A. The content is -- it looks to be one of the PowerPoints that I put together for Dickinson Wright.

Q. I'd like to start at the top and just kind of page through it with you.

A. Okay.

08:56 Q. So the very first page of Exhibit 4 says device K72.

A. Yes.

Q. So this is one of the accused components.

A. I believe so, yes. Yes.

Q. And just at a high level, before we begin paging through, what does the content of this document reflect?

A. This document just reflects the steps I took to do the analysis from optical imaging down to the cross sections in EDS.

08:57 Q. To the right of that, there's a heading, dwell, and under that, it says 10 microseconds?

A. Uh-huh.

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Q. Do you see that? What does that mean?
A. The dwell time is -- well, the 10 microseconds is how fast the image scans before we can pause it.
Q. And then the next column says HV, 5.00 KV. What does that mean?
A. That means we had it at 5 kilovolts of power.
08:57 Q. Why do you use 5 KV instead of higher or lower number?
A. For this one, I mean, we were just -- just doing a visual inspection. The higher or lower just depends on whether or not I want to -- we want to penetrate the sample a little bit more or just -- trying to just get whatever is on the surface. The lower K, it doesn't penetrate the sample as much. But for this we -- the 50 KV is just kind of an average day-to-day use 08:57 on the SEM that we use.
If we were wanting to see something a little bit further down, I would have pumped up the KV to see if I can't see anything below certain surfaces.
Q. At higher KV values, the electrons penetrate further into the sample?
A. That's correct.
Q. So you get imaging of features that are below the surface?
A. That's correct.
Q. And for the record, this is the page that's been Bates labeled Force-MOS 46514.

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After that page, the K72 cross section analysis, there is an image. What does that image show?
A. A cross section image of the sample.
Q. And what machine was used to generate this image?
A. The JEOL 6500.
Q. Why not the FEI machine for this?
A. Typically, the JOEL 6500 is what we use for the majority of our work, unless the other system is available. But typically the system -- that system is rarely available. So the majority of our work is always on the JOEL 6500.
Q. So for the record, this is labeled Force-MOS 46551. And the text here reads K72 cross section images after an N and P stain, and then continues. Do you see that?
A. Yes.
Q. Can you read the rest of that text?
A. The stain etched N more aggressively. Please note that the staining was quite aggressive and is currently being repolished and restained for reimaging.
Q. What does that mean?
A. It means that the stain that I used did -- was -- was a little bit too aggressive. So it made the image -- the -- the surface really nasty and ugly, so you'd have to repolish it and then restain it with a different ratio.
Q. What is staining?
A. It's a -- we call it staining. It's basically we use an

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etchant to basically remove some surfaces, some etchants. Basically what it does is it removes certain types of material quicker than others, and basically it will give us kind of a better contrast in the SEM or optically, give us some contrast of different areas in the silicon.

09:00

Q. Why do you use staining?

A. A lot of times it is requested so customers can figure out the locations of a P type or N type of material, some delineation in the cross section so they can kind of get a better idea of how this was processed.

Q. Can here did you write the text on this line?

A. Yes, I did.

09:00

Q. The sentence, the stain etched N more aggressively, what does that mean?

A. I just noted that whatever stain etchant that I used, it just looked like this type of stain that I did. We have different types of stains that we use. Some stains etch N type more than P type. So the way we tell is like when we look at an image of one area looks like it's more aggressively etched, that could be an N type. And the area that doesn't

09:01

look like it's etched as much can be the P type. So it just depends on what stain I used. Some stains etch P faster than N and so forth.

But I can't remember what stain I used here. But I knew whatever I did, it initially was too aggressive.

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Q. How did you know that it was too aggressive?
A. A lot of times it would pit too much and then both -- you wouldn't be able to differentiate between the N and P. You
09:01 don't see any differences. It just looks like it's over-etched.
Q. Is -- in the images that come after this slide, can you show me an example of something that indicated to you that the etching had been too aggressive?
A. Yes. Like this image here, you see a lot of pitting. Typically it doesn't, you know, eat it all the way out. We
09:02 just want like a very small little notch. Like whatever we're etching, we wanted to remove just a little bit of it. It looked like it just removed a lot of material.
Q. So this is -- the page you're looking at was produced as Force-MOS 46555. When you say material was removed, just to get our bearings within the image, across the middle of the image there are some brighter white elements in a row?
A. Uh-huh.
09:02 Q. Am I hearing you correctly that over-etching is bad?
A. Yes.
Q. Why?
A. Because it could take away areas of interest that the customer wants to see. Right? Again, with a lot of these projects, I'm not -- I wasn't told exactly what they wanted to see. I just knew that I was trying to give them a better

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representation of the image, like after the stain I wanted it to look as clean as possible with little damage or little overetching as possible.

Q. What is the polishing that you referred to?

09:03 A. Polishing is basically, it's like a final polish where you just resurface the cross section to remove -- to basically get it back to where it's flat where all the etchants and stuff -- where the stuff that got etched is removed. So we're actually removing more material and getting back to a clean surface to redo the etch.

Q. And then redo the etch less aggressively?

A. Yes.

09:03 Q. Though -- do you consider those steps to be part of the sample preparation?

A. That's a common thing that we do. It's a normal flow that we do. A lot of times when we're working on projects, it can take, you know, five or six or seven different repolishes to get the -- the right -- a good-looking image basically.

Q. So the polishing and the etching, getting those right is important to getting an accurate image at the end?

A. Yes.

Q. So if I understand correctly, the only two images you

09:04 have of the K72 with the corrected staining are those two images at the end of Exhibit 4?

A. Yes. These should be the only two that I saved. But,

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again, when you say corrected staining, I didn't know the full -- the full -- what the client was looking for, so I just kind of stopped there because this looked like it was less
09:04 etched in the silicon. So I stopped there and let them decide what they're trying to look for.

Q. What did they decide?

A. I didn't ask them.

Q. You didn't get any further communication?

A. No.

Q. Did you do any other imaging after -- sorry.

Are all of the images you did of the K72 component contained in this Exhibit 4?

A. I don't know. I'm not sure.

Q. And the first step there is encapsulate a second sample
09:05 using a two-part epoxy mixture. What does that mean and why do you do it?

A. Well, so the first sample we used, we decapsulated and we also deprocessed so we removed some metals. So a second sample was required to do the analysis.

The two-part epoxy mixture basically holds the device in,
09:05 you know, a cylinder, or whatever we use to hold the epoxy so it cures and hardens up. So the device has a place where it can be protected. The entire device is protected during a cross section. Because when we're doing a cross section, we're actually physically removing material. Right? And

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these devices are quite small. So we need something to hang on to or hold to or protect the sample.

So the encapsulate basically protects the sample involved during cross section.

09:06 Q. Step 3 is -- reads, coat the sample with iridium, open paren, iridium helps with reducing the charging from the SEM, close paren, and do an initial SEM inspection of the cross section using the JOEL field emission SEM. Do you see that?

A. Yes.

Q. Did you do an initial SEM inspection of each of the accused components?

A. Yes.

Q. Without staining?

A. Yes.

09:06 Q. And then step 4 reads, repolish the sample to remove the iridium coating. And step 5 reads, stain the cross section sample with a chemical etchant.

Do you see that?

A. Yes.

Q. And then step 6 is recoat the sample with iridium and SEM inspection of the cross section after staining. Do you see that?

A. Yes.

Q. So you did two separate cross-sectional analysis, one prestaining and then one post staining?

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A. Yes. So we -- it's the same sample. We -- the initial cross section, we coated it to help with the charging. We imaged it and took first set of images of what we see.

And then we polish, we would remove the iridium so the iridium doesn't, you know, affect the etchant. And so once we did the chemical etch, we would recoat it to keep it from charging and then reimage after to kind of compare what it looked like before and after. Otherwise, we wouldn't be able to tell if the etchant worked.

Q. So if I understood correctly, that's two separate imaging steps--one before staining and one after staining. Right?

A. Yes.

Q. And this morning we talked about how some of the staining was too aggressive so you repolished and restained and did what would be a third imaging. Is that right?

A. Yes. Yes.

Q. Okay. And for the record, Exhibit 8 was produced to us bearing Bates numbers Force-MOS 45851 through 45920.

Mr. Diep, so you have the slide that says 8K retained stained?

A. Uh-huh.

Q. If you could go back in the document about eight pages, there's another textual slide.

A. Yes.

Q. What's the text on that slide read?

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A. 8K cross section images after an N and P stain. The stain etched N more aggressively. Please note that the staining was quite aggressive and is currently being repolished and stained for reimaging.

Q. Can you explain that a little bit more?

A. The majority of stains require three chemicals, and it's the ratios of those three chemicals will basically etch certain things a little differently.

In this case I used -- and all stains typically etches N and P. But the -- depending on which -- the ratio of the chemicals, one type of stain will etch P faster, or N faster, N type faster. So in this case I believe the chemical that we used probably etched N a little bit more rapidly than the P type.

Q. How did you make that decision?

A. It's just a standard etch that we use on pretty much all stains. It's like the first type of etch that we always use. It's kind of a common etch that the industry uses.

Q. So the etchant removes some P material, removes some N material, but the etchant you used in particular tends to remove more N than P.

A. Yes, it etches a little bit quicker. The N etches a little bit quicker, yeah. So from there, we kind of see like the areas that pit more could be where the N was and the one that was -- has less pitting or less material removed could be

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P.

Q. So that allows you to distinguish visually between N areas and P areas?

A. Yeah, it helps, yes.

Q. Does it matter what the doping concentration is?

A. I believe so. That's why there's a process where we use the same etch, but one could, you know, set down a little bit longer, like set it on the product more for it to start working.

But, again, you know, like with all etchants, we won't know until we actually try the etchant on the sample because some etchants work really well on a sample and some do not because a lot of times the process or the wafer process is completely different, they use different material that -- you know, the ratio of material, whatever they use it in the wafer, it could be different. That could affect how it etches.

09:10 09:11

Q. If I have an area of semiconductor that is doped P --

A. Uh-huh.

Q. -- but to varying degrees, will that etchant reveal the different degrees of doping within the P?

A. It would just show you where P possibly could be.

Q. As opposed to with N is.

A. Yes.

Q. But not necessarily the degree of concentration within

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the P area.
A. No.
09:11 Q. Within Exhibit 8, can you skip ahead again to that slide that has the text 8K restained?
A. Uh-huh.
Q. And I imagine this is similar to what we discussed this morning with the K72 component that when you looked at the original images here, it looked to you like it had been stained too aggressively so you repolished, restained, and reimaged.
A. Yes.
Q. If you go back one page in the presentation from that 8K
09:12 restained slide --
A. Uh-huh.
Q. -- there's an image here. Is there something -- you see the image here?
A. The image right here? Yes.
Q. And this is on the page that was produced to us as Force-MOS 45914. This was with the original staining. Right?
A. Yes.
Q. Is there something in this image that tells you that the staining is too aggressive?
A. Yes. You can see almost a cavity in one of the layers
09:12 here. That shows me that it went a little bit too far down. When I'm staining, when we stain, we try to get just a very

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minimal surface, you know, surface contrast differences. But when we start seeing like these big pits, that means that it was -- stayed on there too long so it etched a lot more than it should have.

Q. And when you say those big pits, you're referring in the middle of the page there are three --

09:13 A. Holes, yeah. Like these holes here, see the holes? Cavities.

Q. So those are three pairs of sort of black squares?

A. Yes.

Q. So am I understanding correctly that you interpret that to mean there was N material there that was etched too much?

A. Yeah, possibly N material there, because the etchant also doesn't just etch N and P; it also reacts to, like as you see

09:13 here, this is metal. It started etching some metal as well. But area of concentration is here, but there could be like some oxide because HF attacks oxide as well.

And so, you know, again, I'm not sure what all of these materials are on this image, but I can't 100 percent say what -- if that was N or P, or if that was that silicon, just

09:14 from this image. But I just knew that when we did this, it over-etched and we wanted to repolish to kind of show minimal etching.

Q. In between each of those pairs of black squares, there is a white column. You see that?

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A. Yes.
Q. Keep that in mind, and I'd like you to go back to the previous page. This one was produced to us as Force-MOS 45913. Similar image here, similar white columns, but they
09:14 seem to be whiter. Am I right about that?
A. Yes.
Q. Why is that?
A. Because for this part, I guess when it was cross sectioned, it wasn't planed. It was slightly off a little bit so that we're getting kind of two sections. So when you're doing a cross section, you want to go as parallel 90 degrees as possible to get it straight. But with all the mechanical cross sections, no one's hands are perfect, so you get kind of -- and the die is not sitting in the package perfectly. So
09:15 sometimes you might get a cross section that you're wanting to go like this and maybe tilt it just a little bit so we're getting an area that's a little bit further back or forward.
So in this image it was most likely that I scanned the surface and just captured some photos of what I saw.
Q. So the -- what is it about the comparison of those two pages that tells you that the cross section was not exactly straight?
09:15 A. All right. One, on this image, you see the -- this is the VIA contact. I'm actually cross-sectioning through the contact. On this one here, I'm actually before the contact,

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the contact hasn't been reached yet. But the SEM, since it was 10-KV, it kind of punctures a little bit through so you see those ghosts of a contact right behind that layer. And that's why you're seeing that contact but we haven't hit the contact yet.

09:16 Q. So if you go to the third image after the 8K restained slide --

A. Yes.

Q. -- this is the page that was produced to us as Force-MOS 45918. Here we have those sort of white columns in the image again. Right?

A. Yes.

Q. But no black squares around them.

A. Yes, that's correct.

Q. And is the absence of those black squares what tells you that this one was stained the way you wanted it to be?

A. It showed me that it was less aggressive, but, again, I

09:16 wasn't exactly sure what the client was wanting to see. So I just presented what I found and, you know, they can look at the data and -- that I provided and use it as they -- as they wish.

Q. What are we seeing in those black squares?

A. Just a cavity. I mean, there's like nothing. Yeah, like the material is gone.

09:17 Q. Okay. Are we seeing what's behind whatever was etched

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away, or are we seeing --
A. Yeah. We're seeing the contact behind it a little bit clearer. And then the -- because it's focused on more of the surface so what's behind it, we're not seeing anything yet. I mean, if I cranked up the power -- not power but the brightness and -- and kind of zoom into that, we may see something behind it. It could be whatever that hadn't been
09:17 etched out yet. But in here, you know, we're not really seeing anything but the contact.
Q. Okay. So for purposes of this image, we're basically seeing a hole or a cave.
A. Yes. Yes.
Q. This is one image, bears the production number Force-MOS 34039. Do you recognize this image?
A. Yes.
Q. There's nothing on this -- the image itself that tells you this is the 8K component. Right?
A. No.
Q. Can you tell from looking at the image if this is before
09:18 or after staining?
A. This is after.
Q. How do you know?
A. Because of all the etching. It was etched out, like all these holes and everything.
Q. The black squares again?

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A. The black squares and the metal, and then the substrate here that's been etched out.
Q. So this is under the aggressive staining.
A. Yes.
Q. Am I correct to understand that this image is post staining --
A. Yes.
Q. -- because we see those black squares again.
A. Yes.
09:18 Q. Okay. Looking at the four white columns in this image --
A. Yes, sir.
Q. -- roughly how wide are those?
A. From here, it looks like it could be about 200 nanometers wide, 200 to 300 nanometers, depending on the column. But that's just a guess with the scale marker.
Q. And I'll represent to you that this was produced to us
09:19 with an indication that the original file name was K72-stained-5.BMP. Do you recognize the image?
A. Yes.
Q. Is there something about the image that also tells you it's post staining?
A. Yeah. So similar to like the other ones, it's very pitted, see a lot of etching going on, basically creating cavities.
Q. So that we have -- they're not quite squares, but we have

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those pairs of something kind of like black squares again. Right?

A. Yeah.

09:19 Q. We also have, right below each of the white columns, another dark spot. Is that also over-etching?

A. Yes, a little bit. So one etches more than the other because of possibly different material types.

Q. What about the area -- bear with me here. I'm going to

09:20 try and describe this with words. We have a white column. On either side of the white column, we have a black spot kind of like a square. Below each white column, there's another black kind of horizontal strip. Below that, there's sort of a general gray area.

A. This right here?

Q. Yeah. What about -- what does this image tell you about that area?

A. It really doesn't tell me much. It just means

09:20 that -- it's -- a lot of times it's just the beam, just how it reflects the electrons. So the texture looks the same. The contrast differences, that doesn't really tell me much as far as what -- if there's a different material or anything like that.

Q. The three dark spots around the column, one on either

09:21 side and one below it, those indicate the material that was there was etched away. Right?

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A. That's correct.
Q. Does that tell you whether that was N or P type material?
A. I can't tell conclusively because it was just over-etched.
Q. Mr. Diep, we've handed you Exhibit 13. This is a single-page image bearing production number Force-MOS 38860.
09:21 And I'll represent to you that the data we got with this file indicates that the original file name was 8K-1_003.TIFF. Do you recognize the image?
A. Yes.
Q. Is this one pre or post stain?
A. This is post stain.
Q. How do you know that?
A. Again, similar like the other ones, you see these darker regions here. And you can see that a lot of this has been roughed and etched away. Same thing with this area, these
09:22 areas here. And a lot of times the staining will create a lot of debris, and so it's not as clean. So a lot of that debris is coming from this -- the cleaning of the stain. Because once we stain it, you're -- it's removing material. And when we're cleaning it, we use like a DI water or another, like a methanol, to spray it off, and sometimes it clings to some particles.
And it's so small, we can't optically see if it's 100
09:22 percent clean or not. And then once we go back in the SEM

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after coating it, we'll see some debris on this sample.
Q. So when you were saying that, just for reference, again we see three white columns in this image. They look like they have, you know, little bumps on them.
A. That's correct.
Q. That's the debris that you're referring to?
A. Yes, that's correct.
Q. And is -- lower in the image, kind of -- so, for example, there's a column at the bottom that says mag 50,000X. Right above that, there are a couple of kind of whitish-gray dots.
09:23 Those are also debris?
A. Yes.
Q. Is this image -- would you consider this image to be too aggressively stained?
A. I would consider it a little bit aggressive, yes.
Q. Because of the -- they're not squares, but the very dark boxes on either side of the white columns?
A. Yeah. They're very pitted.
Q. Does this image tell you anything about the doping concentration below the white columns?
A. No. I mean, like the stain just tells me whether or
09:23 not -- it just etches things a little bit faster. It doesn't tell me any concentration or anything like that.
Q. And this is a single page image bearing production number Force-MOS 38885. Am I right in looking at this image I see a

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lot of little bumps again? Is that more debris?
A. Yes.
Q. What is the -- is there -- what is the margin of error on these images?
A. What do mean about margin of error?
09:24 Q. Like the accuracy. How much can you rely on the details in the image to be accurate, and is there any margin of error around that?
A. Well, there's really -- I mean, it's like taking a photograph. I mean, it's either going to be blurry or it's going to be sharp. Or if you have too much current or power, it may push through a little bit so you see ghosting of like whatever is behind it.
09:24 But typically with cross sections, it's -- we haven't really seen any margins of error as far as like the imaging goes. We're not seeing anything that shouldn't be along there or it's adding anything.
You may get a little bit more blurriness. But typically when it's a small feature, we would tell the client, you know, if you're looking for things that are sub-100 nanometers, there's a possibility that it would be a lot blurrier than normal.
09:25 Q. And were you personally involved in running any of the tests for the Force MOS engagement?
A. Yes.

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Q. Okay. What were those tests you were personally involved in?
A. The management of the project, the counting of the ICs, the SEM imaging, and EDS data collecting.
09:25 Q. When you say the SEM imaging, do you mean you were personally running the SEM machine?
A. Yes.
Q. And, similarly, when you say the EDS, were you personally running the EDS machine?
A. Yes.
Q. And for the work on the Force MOS engagement that you were not personally doing yourself, were you supervising others?
A. Yes.
Q. And how many years' experience do you have running SEM results?
A. Twenty-four years.
09:26 Q. And how many years' experience do you have running EDS results?
A. Twenty four years.
Q. And what about -- how many years do you have experience preparing samples for SEM or EDS?
A. 24 years.
Q. And how many years' experience do you have with identifying and removing components from circuit boards?

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A. 24 years.
Q. And over those 24 years, can you tell me about how many different clients you've worked for?
A. Oh, it would be in the hundreds.
09:26 Q. And are some of those clients semiconductor companies?
A. Yes.
Q. Are they semiconductor companies that are household names, some of them?
A. Yes.
Q. Okay. And does Microtech regularly provide SEM services to companies?
A. Yes.
Q. Does that include for purposes other than litigation?
A. Yes.
09:27 Q. And does Microtech regularly provide EDS services to companies?
A. Yes.
Q. Does Microtech provide EDS services for companies other than for the purposes of litigation?
A. Yes.
Q. And I believe earlier today I heard about a plan view. Do you remember that?
A. Yes.
Q. What is a plan view?
A. A plan view is an overhead view of a product.

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09:28 Q. And was there a particular machine you used in connection with plan views for the work on the Force MOS matter?
A. It could have been either of the SEMs.
Q. And is there other views than the plan view?
A. Cross-sectional views.
Q. And is tracking of samples part of your job at Microtech?
09:28 A. Yes.
Q. Does Microtech have procedures for keeping track of samples that they're analyzing?
A. Yes.
Q. Is it important to Microtech's clients that Microtech accurately keep track of the samples?
A. Yes.
Q. To your knowledge, did Microtech follow its sample tracking procedures in its work from Force MOS?
A. Yes.
Q. When you did the cross-section analysis, what were the
09:29 steps after the sample is cut but before you put the sample into an SEM?
A. Before or after any staining.
Q. Okay. Let's starts before any staining?
A. Okay. Before the staining, the sample would have been polished and cleaned. And once we dry it off from any
09:29 solvents, such as methanol or the deionized water, we would dry it with nitrogen. And then we would coat it with iridium

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and then place it in the sample holder for the SEM and then imaged it.

Q. Did you use your normal process for cleaning of cross section samples in connection with your work on the Force MOS matter?

A. Yes.

Q. Do you believe that you correctly cleaned the products that you analyzed in the Force MOS matter?

A. Yes.

Q. Are you aware of whether any of the cleaning procedures you used in connection with preparing samples for the Force MOS matter affected any of the results that Microtech generated?

A. I don't think the cleaning had any -- affected the results at all, no.

Q. And then can you just summarize at a high level what was the work that Microtech did for Force MOS?

A. Basically we were contracted to do cross-section analysis and decapsulations of some MOSFETs and also EDS analysis of the MOSFETs. The customer wanted us to basically remove specific MOSFETs from certain boards, record the markings. So we recorded them with optical cameras. We did X rays on it just to show the orientation of the chips.

From there, we took one sample, we decapsulated it to show the chip that is inside the MOSFET. I believe -- I

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believe we did some optical images of it before we did plan view SEM images of it.

After that, we removed -- we deprocessed the metallization, removed all the metal layers from the top of the IC, and then did another plan view SEM imaging over it to record what it looked like after the metal was removed.

On a second sample, we encapsulated it in the cross section through an area of the IC. We then cleaned it up and took images in the SEM. And then also did EDS analysis of various locations of the cross section before removing it and doing a stain, an etchant, on the sample. And then cleaned it up as best we could, coated it, placed it back in the SEM, and reimaged it again.

And then also -- then after that, we collected all the data and shared it with the client.

Q. What did they look like when you got them in?

A. Most of them were in its manufacturer's packaging.

Q. Did they look like genuine ASUS products?

A. Yes.

Q. And did Microtech provide the photos that -- directly as generated by the camera?

A. Yes.

Q. And do you believe that the photographs that Microtech took accurately reflect the ASUS products that Microtech tore down?

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A. Yes.
Q. And regarding generating plan view SEMs, did Microtech use its standard process to generate the plan view SEMs for its work for Force MOS?
A. Yes.
Q. And what was the output of the plan view SEMs that
09:33 Microtech did for Force MOS?
A. The output file names or the file types?
Q. Sure.
A. Bitmaps and TIFFs.
Q. And did you use the standard settings for the SEM machines in connection with generating the plan view SEMs for the Force MOS matter?
A. Yes.
Q. And were the plan view SEM results provided by Microtech
09:34 for the Force MOS matters those -- were they directly output by the SEM machine?
A. Yes.
Q. Do you believe that the plan view SEM results that Microtech generated in the Force MOS matter are accurate?
A. Yes.
Q. Regarding the preparation of cross section samples, did Microtech use its standard process to generate the cross section samples for its work for Force MOS?
A. Yes.

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09:35 Q. And what was the output of the SEM machines for the cross section analysis?
A. Bitmaps and TIFFs.
Q. And were those results that Microtech got, those directly output from the SEM machine?
A. Yes.
Q. And did you use the standard process for generating the
09:35 cross section SEM results in the work on the Force MOS matter?
A. Yes.
Q. And can you remind me, what is EDS?
A. It's electron dispersive spectroscopy.
Q. And what is the point of EDS?
A. Basically it is to identify certain elements on a sample.
Q. And what process did you use to get EDS results for Force MOS?
09:36 A. We used an EDS made by Oxford Engineering. That was the EDS tool that we used. It has its own built-in software. So we did a dot map, and we also did what's called point and ID in certain regions, to identify the materials on cross
09:36 sections and on the plan views.
Q. What format were the EDS results provided in in the Force MOS engagement?
A. We exported them into a Word document.
Q. Are those Word document results provided by the EDS machines directly from the output of the EDS machine?

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A. Yes.
Q. And do you believe that the file names that you assigned
09:36 to the results in your work on the Force MOS matter were
accurate?
A. I believe so.
Q. Do you stand by the work you did for the Force MOS
matter?
A. Yes.
Q. Okay. Was the work you did on the Force MOS matter
consistent with the work that you do for other clients?
A. Yes.
Q. Mr. Diep, you -- when your counsel was questioning you,
you referred to the customer. Who is the customer in this
matter?
A. That would have been Dickinson Wright.
Q. Not Force MOS?
A. I didn't know who Force MOS was.
09:37 Q. You never had any contact with anybody at Force MOS?
A. No.
Q. You mentioned the counting exercise, you had two other
people do the counting to triple check that the counts were
accurate. Right?
A. Yes.
Q. Did you triple check the SEM imaging?
A. No.

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THE COURT: Does that complete this witness by deposition?

MR. THANE: It does, Your Honor.

THE COURT: All right. Ladies and gentlemen of the jury, the next witness is a live witness for the Plaintiff, and the parties have disclosed to me that they expect this witness to be on the witness stand over three hours.

So we're going to take a recess before we start the next witness. Use this opportunity to get a drink of water, visit the restroom, stretch your legs, and we'll be back shortly to continue. You may leave your notebooks simply in your chairs if you'll close them. Follow all the instructions I've given you, including not to discuss the case among yourselves, and we'll be back shortly.

The jury's excused for recess.

(Whereupon, the jury left the courtroom.)

THE COURT: All right, counsel. Be seated, please.

The Court has reviewed what the parties have previously submitted with regard to a proposed final jury instruction and verdict form, and in light of the narrowing of the case and the development of the evidence so far, the Court is persuaded that it would benefit from a new iteration of a jointly proposed final jury instruction and verdict form.

Therefore, I'm directing that the parties jointly prepare and submit by 4:00 p.m. tomorrow in Word format an updated and

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revised proposed final jury instruction and verdict form. That should be delivered electronically to my staff, my law clerks. And I'll look for that, again, by 4:00 tomorrow.

All right. We will take a short recess, and then we'll proceed with Dr. Neikirk.

The Court stands in recess.

09:40 (Brief recess.)

THE COURT: Be seated, please.

09:55 Plaintiff, are you prepared to call your next witness?

MR. HANBA: Yes, Your Honor.

THE COURT: Are there witness binders with this witness?

MR. HANBA: There are, Your Honor.

THE COURT: All right. Then you may go to the podium and prepare. Let's get the binders passed out while the jury is coming in.

MR. HANBA: Your Honor, we also have a couple of boards.

THE COURT: You want to position those over here where you can use them?

09:55 MR. HANBA: Yes, please.

THE COURT: Let's get all those logistics out of the way.

MR. HANBA: Yes, sir.

THE COURT: All right. Let's bring the jury in,

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please.

(Whereupon, the jury entered the courtroom.)

09:56 THE COURT: Please be seated, ladies and gentlemen. Apparently the water went off just as we recessed, but then it came back on.

All right. Plaintiff, call your next witness.

09:56 MR. HANBA: Plaintiff Force MOS calls Dr. Dean Neikirk.

THE COURT: All right. If you'll come forward, Dr. Neikirk, and be sworn by our courtroom deputy, please.

(Whereupon, the witness was duly sworn by the courtroom deputy clerk.)

THE COURT: Please come around, sir, have a seat on the witness stand.

09:57 All right. Mr. Hanba, you may proceed with direct examination.

MR. HANBA: Thank you, Your Honor.

DEAN NEIKIRK, Ph.D.,

having been first duly sworn, testified under oath as follows:

DIRECT EXAMINATION

BY MR. HANBA:

Q. Good morning, sir. Would you please introduce yourself to the jury?

A. My name is Dean Neikirk.

Q. And where do you live, Dr. Neikirk?

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A. [redacted]

Q. And what do you do for work?

A. Well, I used to work in the University of Texas. I'm retired from there now. Mostly I do consulting now related to patents on technical topics.

09:57 Q. And so, sir, why are you here today to testify?

A. I am here to testify -- to render my opinions about certain patents and whether certain accused products infringe those patents.

Q. Sir, have you completed your analysis on this matter?

A. I have.

Q. And so why don't we start talking a little bit about your background. Would you please tell the jury a little bit about

09:57 your education?

A. I received my Bachelor's degree in -- from Oklahoma State University in physics and mathematics. I went from there to graduate school at the California Institute of Technology. I got a master's and a Ph.D. there working for a double EE professor, and I got my degrees in applied physics from Cal Tech.

Q. And would you please tell us a little bit about -- excuse me. Would you please tell us about your work experience?

A. Yes. After graduate school, I came directly to the

09:58 University of Texas at Austin. I started there in 1984 as an assistant professor in electrical engineering and remained

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there for 37 more years.

Q. And, sir, as a professor, did you do any research?

A. While I was a professor, I did a great deal of research, yes.

Q. What was your research in, sir?

A. Most of my research was in areas related to semiconductor devices, how those semiconductor devices are designed, how they're built, and then how they're analyzed.

Q. And did you also teach classes as a professor?

A. Yes, I certainly did.

Q. And what were some of those classes?

A. I taught classes in what's called electromagnetics in the design of integrated circuits and how semiconductor devices work, what the physics is that makes them work, and how to build those devices and, again, taught students how to analyze what they built.

Q. And did you do any lab work, as they call it?

A. I certainly did.

Q. And what type of lab work did you do?

A. Well, in my own research, both myself and my students built silicon and compound semiconductor devices. We then took them apart to make sure we knew whether what we intended to build was what we did build.

In teaching, I taught a laboratory course for many, many years that educated undergraduates in how to build silicon

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devices and analyze them.
Q. Did you write any papers?
A. I did. As a professor, we're expected to publish. I published around 250 papers, journal articles, and conference publications.
Q. So did you have any other responsibilities beyond
10:00 teaching and research during your time at UT?
A. I did a lot of service for UT. In my last five or six years there, I was an Associate Dean of Graduate Studies, and my group was in charge of what's called student services. Our job to try to help graduate students get the degrees that they came to UT to get.
Q. So let's talk a little bit about what you worked on. Have you personally worked on semiconductor fabrication and packaging?
A. I have.
10:00 Q. And what have you done for that?
A. Well, I've designed, built, fabricated the semiconductor devices, and packaged them so that we can test them electrically in a variety of different kinds of circuits.
Q. What experience do you have in analyzing semiconductor devices?
A. Both in my own graduate work and my research at the university along with my graduate students, we were trying to
10:01 come up with new things, both new designs of the semiconductor

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devices as well as new ways to make them.

So once we were done, we would have to tear them down and use a variety of analytical tools to try to examine what we had, SEMs and assorted other tools.

Q. Did you say SEM?

A. Yes, I did.

Q. Is that a scanning electron microscope?

10:01 A. Yes. It's an acronym for scanning electron microscopy.

Q. Are you a member of any engineering organizations?

A. I am. I'm a member of the IEEE. It stands for the Institute of Electrical and Electronics Engineers. It's a professional society that most double EEs become a member of. I'm currently a lifetime senior member.

We go to conferences to exchange ideas, to report on our own research, and to find out what other people have been doing.

Q. Have you been a named as an inventor on any patents?

A. I have.

10:02 Q. How many?

A. 17 U.S. patents.

Q. What general areas, if you will, do those patents cover?

A. Several of them are very specifically to semiconductor devices; others relate to how to build things using the same tools that we use to make semiconductor devices, but for other applications. We worked on blood testing apparatus, for

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instance.

10:02 Q. Dr. Neikirk, are you being compensated for your work in this case?

A. I am.

Q. How much?

A. My customary rate--$750 per hour.

Q. About how many hours have you worked on this case?

A. I've worked about 200 hours on this case.

Q. So about $150,000. Is that right?

A. I think that's roughly right, yes.

Q. And would you please tell the jury what you did during those 200 hours?

A. I studied the patents and their histories. I looked at a

10:03 variety of ASUS documents, for instance, things from depositions, specification sheets, and then ultimately examined the devices at issue or had them examined. I examined the results from those tests.

Q. Were you also deposed in this case?

A. I was.

Q. How many times?

A. I believe I was deposed over the course of two days, I think.

Q. And were you under oath during those depositions?

A. Yes, I was.

10:03 Q. And is your compensation dependent upon the content of

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your analysis or the outcome of this case?

A. No, it is not.

MR. HANBA: Your Honor, at this time we move to qualify Dr. Neikirk as an expert in semiconductors, electronic devices, and integrated circuit fabrication.

THE COURT: Is there objection?

MR. McMAHON: No, Your Honor.

THE COURT: Without objection, the Court will recognize this witness as an expert in those designated fields.

Please continue, counsel.

Q. (BY MR. HANBA) And, Dr. Neikirk, when were you retained in this case?

10:04 A. I believe it was early in 2023.

Q. And have you been in the courtroom for the entire trial so far?

A. I have.

Q. Would you please tell the jury what the scope of your work was for this case?

A. I was asked to consider certain patents, to ensure that I understood what those patents meant, and then to examine certain products to -- or have them examined to determine

10:04 whether they had components that may or may not infringe the patents, and then examine results from analyses of those components to compare them against the patents.

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Q. So we've heard a lot about MOSFETs and the jury heard me mention them in opening, but what does the word 'MOSFET' mean?
A. MOSFET is an acronym. It stands for metal oxide semiconductor field effect transistor.
Q. And we can just use MOSFET from here on out. Is that fine?
A. Yes, please.
Q. Thank you.
MR. HANBA: Mr. Doyle, if you could, would you please bring up JX 16, page 1?
Q. (BY MR. HANBA) Dr. Neikirk, what does a MOSFET look like?
A. This is a specification sheet for a specific MOSFET, the 2N7002K. And if you look in the right-hand corner, you see that little black square. That's what a packaged MOSFET looks like, the kind of the thing that you install on a printed circuit board. The lower figure is a schematic circuit diagram that would tell someone who works with circuits what's -- the type of device is.
Q. And what does a MOSFET do?
A. A MOSFET is essentially a switch. It can be used just to turn things on and off or it can be used to control how much current can flow through it in a more continuous fashion.
Q. And I think we've heard kind of a water valve analogy. Is that -- could you please explain that a little bit?

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A. Sure. The water valve is actually the analogy I prefer. There -- as you can see in this package, there's three little tabs sticking out of the side. That's where you make the electrical connection.

If you look at the bottom picture, those three tabs are -- and I'll see if I can get this to work -- labeled source, drain, and gate. And the source is where current would flow in, the drain is where current flows out, and the gate, the G, is like the knob on a faucet. The further you turn it up, the more current that can flow through. The further you turn it down, the less current that can flow through.

10:06 10:07 10:07

Q. And, Dr. Neikirk, are there different ways to build a MOSFET?

A. There are.

Q. And what are those different ways?

A. Well, a lot of it has to do with how the gates are laid out. In this case we're looking at gates that burrow down into a substrate, they're placed into a trench, and hence they're called trenched MOSFETs or trench gate MOSFETs.

Q. And so what kind of devices are trenched MOSFETs used in?

A. Trenched MOSFETs are really useful when you have to handle fairly large amounts of current, relatively speaking large. They're much better at that than some of the other kinds of MOSFETs.

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Q. Could you give some examples of the type of everyday uses?
A. There's many products that require management of moderate-to-large currents. They're used in automobiles. They're used in these display panels that we're all looking at. You have to do power management. They are used in most -- well, I think every cell phone I've ever looked at, they're used in cell phones. They're used in computers and laptops.
Q. And so how many trench MOSFETs can be in these products?
A. Well, there can certainly be quite a few in an automobile. I'm sure that there are typically hundreds to many more than that. Some computers might well have more than hundreds of power MOSFETs or fewer. Cell phones, at least the ones I've looked into, typically have more than a few but probably less than few hundred.
Q. I guess within a computer, for example, what are the typical components that use trenched MOSFETs?
A. So within a computer there is -- there will be a motherboard where basically the computational power resides. They'll almost certainly be power MOSFETs on the motherboard.
There's typically a graphics card that will also require some power management. The display itself, if it's a computer where you either attach an external or self-contained monitor. Batteries and chargers typically use MOSFETs to help control

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them.
Q. Sir, would you please explain to the jury just how products can contain more than one trenched MOSFET?
A. Well, typically there are many parts of the circuitry,
10:10 and it may very well be that there are many of those parts require this high current management. The circuitry inside a laptop or computer or phone is quite complex, and there's a lot of different functions that you have to manage.
Q. And at a high level, what are some of the benefits of a trenched MOSFET compared to I think it's other MOSFETs?
10:10 A. A trenched MOSFET allows you to get a lot of that -- the connection between source and drain, if you will, where a current has to flow. You can pack a lot of that into a small space. By going down into the substrate, you get to have a lot of what we call gate width in a small amount of area, and you can put many, many of those together. And by operating them in parallel, you can control a lot of current.
Q. I guess the sixth bullet point down, it says,
10:10 specifically designed for battery-operated systems, solid state relays, drivers, relays displays, memories, et cetera. What does that mean?
A. So those are examples of systems that frequently require the management of a fair amount of power. I'll mention the solid state relays. I had the unfortunate pleasure when I was a graduate student of trying to do this without a trenched

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MOSFET, and I would blow up my old component about once a month. I'd put it in a board that I could just take out and swab. And I had to do it about every month.

Q. Dr. Neikirk, so let's turn to Force MOS patents now. What are the patents that you analyzed?

A. I analyzed the '409 Patent and the '634 Patent.

Q. And so let's turn to what's been marked as JX 3.

MR. HANBA: Mr. Doyle, will you -- yes, 3.1.

Q. (BY MR. HANBA) I believe this is the '409 Patent. Are you familiar with the '409 Patent, sir?

A. I am.

Q. First of all, what is the title of this patent?

A. The title of the '409 Patent is "Trench MOSFET with cell layout ruggedness truncated corners."

Q. When was it issued?

A. It issued on October 12th, 2010.

Q. And when was the application for the '409 Patent filed?

A. The '409 was filed on December 4th, 2006.

Q. Did you say 2006?

A. Yes, I did.

Q. And could you please generally explain what the '409 Patent focused on?

A. So the '409 Patent focused on how the structures that you use to build this trenched MOSFET, how they're shaped relative to one another. It's most easily seen just looking at it from

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the top. A top view will show the features that they were discussing here.

10:12 Q. And, Dr. Neikirk, are there figures in the patents that show the -- I guess the state of the art, if you will, at the time the '409 Patent was filed?

A. Yes. There are figures and text.

Q. And I think it's blown up there. Will you please explain what the state of the art was when -- at the time the '409 Patent was filed?

A. Well, this --

THE COURT: If you'd like to pause and pour yourself some water --

THE WITNESS: Thank you.

THE COURT: -- go ahead and do that.

THE WITNESS: Thank you, Your Honor.

10:13 THE COURT: Hard to talk and pour water at the same time.

THE WITNESS: Thank you.

THE COURT: Go ahead.

THE WITNESS: At the time -- before the '409 Patent in terms of how some of these components were shaped, this is a top view, and it was pretty common to use the source contact--remember I talked about a MOSFET has a part where

10:13 current flows in.; that's the source--and shape it as a square. This goes into the page. So you can think of it like

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a pillar, but it's square shaped. And then surrounding that has to be the gate, and the gate was typically also arranged in a trench going in, but square shaped when you look at it from above.

So I tend to call it a square within a square. That was pretty common at the time.

Q. (BY MR. HANBA) And so I believe you said it's also described in the text.

MR. HANBA: Mr. Doyle, would you please go to column 1, lines 45 through 57.

10:14

Q. (BY MR. HANBA) So, Dr. Neikirk, for those square cells, what is the problem described in the patent with those?

A. So the patent there, starting at line 45, is talking about considering the distance from that inner source contact, that inner square, to the gate, the outer square. And they use the labels A and B to measure some distances.

10:14

The problem is that the more variation there is in that distance, the greater chance for a problem. And, in particular, you worry about -- a lot about how the current spreads out and causes different voltages in different locations.

The example given down there around -- I think it's line 53, is that if you get a 7/10ths of a volt change, that can

10:15

trigger part of the device to turn on, not a part you want on. That can lead to temporary failure or it can lead to a

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permanent failure.

MR. HANBA: Mr. Doyle, would you please bring up figure 3 and column 2, lines 3 through 9?

Q. (BY MR. HANBA) What did the patent do about this problem, Dr. Neikirk?

A. So the patent and -- on the left, you can see a top view again, and in the text you see a description of this, they were trying to get the distance between the source in the middle and the gate trench around it to be more constant, not exactly constant necessarily but closer.

And they proposed that you should shape the outer trench, the gate trench, as something that looks substantially like a square but rounding the corners, and also make that inner source circular so that these distances would be more constant.

Q. So just so we're clear, before the patent, we had the square and now we have kind of a square with rounded corners?

A. On the outside, yes.

Q. Okay. And so let's turn to JX 2, the '634 Patent. Dr. Neikirk, are you familiar with the '634 Patent?

A. I am.

Q. So, first of all, what is the title?

A. The title is, "Trenched MOSFET with trenched source contact."

Q. And when was this patent issued?

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A. It issued December 8th, 2009.
Q. And when was the patent application filed?
A. It was filed February 23rd, 2008.
Q. You said 2008?
A. Yes, I did--2008.
Q. Can you please generally explain -- explain generally what the '634 Patent is directed to?
A. So the '634 Patent is, again, talking about how to build
10:17 parts of this -- or how to structure parts of this device, but now it concentrates more on the cross section -- really on the cross section as opposed to the top view.
Q. And so, Mr. Doyle -- and let me ask this question. Excuse me. Excuse me.
Does the '634 Patent also talk about the state of the art at the time that it was filed?
A. It does.
MR. HANBA: And so, Mr. Doyle, would you please bring up column 1, lines 35 through 42.
10:17 Q. (BY MR. HANBA) And, Dr. Neikirk, what was the state of the art at the time this patent was filed in 2008?
A. So it describes here that this source -- it's also placed in a trench in this device, and many devices at the time, but if there is no -- if -- if the connection electrically between that source and what's called the body region, which any MOSFET of this type has to have, if that connection is bad,

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and the words I believe it described as no Omic contact, that's a bad electrical connection. Once again, when current flows through that, it can cause problems and reduces the ruggedness of the device.

So the problem here is poor connection between the source contact trench and the body, and then trying to find a way to make that better.

Q. Why was that a problem?

A. Again, when large amounts of current flow through it, you can develop voltages that shouldn't be there. In the worst case, if the body is not connected at all, the device will not operate properly at all.

MR. HANBA: And so, Mr. Doyle, would you please bring up column 2, lines 1 through 11 for JX 2.12?

Q. (BY MR. HANBA) And, Dr. Neikirk, how does the '634 Patent provide a solution to these problems?

A. So the '634 really concentrated on the sides of the trench in this body region and discussing adding some extra dopants to the side walls of the trench. It's adding those dopants that allows you to get a better electrical connection. The patent referred to it as P*. So it's referring to a doping concentration between what it called P and P*+.

But by adding that higher doping concentration to that wall, it allows a better electrical connection.

Q. Are there any figures in the patent that show this

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lateral contact layer you just mentioned?
A. Yes, there are.
MR. HANBA: So why don't we bring up figure 2G.
Q. (BY MR. HANBA) Is this what you're talking about here?
A. It is. This is a cross section, and the thing that looks like a double T--let me try to do this again--that is a source
10:20 trench, and the side walls are over here. Sorry. That's not a very good arrow. There. And the patent discusses trying -- adding dopants to those side walls.
MR. HANBA: And so, Mr. Doyle, would you please display PX 27.2?
10:21 Q. (BY MR. HANBA) Dr. Neikirk, what is this?
A. This is a scanning electron microscope image. This is a sample that's been cut and cross sectioned. This particular one happens to be stained. And you can see the various parts of the device here. It's a substantial blow-up; it's 23,000 times. You need to be able to look that closely in order to see these structures.
Q. And so were you -- you said you were here for all of the
10:21 testimony today. Did you hear Mr. Diep's deposition?
A. I did.
Q. Did Mr. Diep and Microtech do this image?
A. My understanding is, yes, he did.
Q. And so let's talk a little bit about the claims of these patents. Did you provide any boards for the jury to look at

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here?
A. Yes, I did.
MR. HANBA: Your Honor, may I put up some of the boards?
THE COURT: You may.
10:22 MR. HANBA: Can you-all see that?
THE COURT: Don't ask the jury a question.
MR. HANBA: Excuse me.
10:22 THE COURT: It's up to you to determine where to put it.
MR. HANBA: Sorry, Your Honor.
Q. (BY MR. HANBA) So let's turn our attention to the Force MOS patents. What claims are being asserted in the '409 Patent?
A. Claim 1 of the '409 Patent is being asserted.
MR. HANBA: And so if we could go to claim -- excuse me, JX 3, claim 1, Mr. Doyle.
10:22 Q. (BY MR. HANBA) Does that claim 1 match the board for claim 1 of the '409 Patent here?
A. It does.
Q. And can you explain to the jury how you've labeled claim 1 of the '409 Patent on the claim board?
A. Claim 1 has a lot of parts to it, so I've tried to break it up into pieces labeled 1-pre--that's just the beginning--and then elements 1[a] through 1[e] so we can go

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through it more easily.

10:23 Q. And is there any connection between the claim and the benefits of the '409 Patent that you discussed earlier?

A. Yes, there is.

Q. How so?

A. Well, the claim itself doesn't recite or claim the benefits, but there are structures in there that speak directly to what we already discussed.

If we look at element 1. There. Just element 1[a] talks about the substantially square-shaped cells with rounded corners. So that was that -- the boundary at the outer square that we talked about. So it's square-shaped, but with rounded corners.

And it may not be the first place, but it mentions element 1[c], circular trench contact. That was what was in the middle. And so it's calling out that that should be circular in shape.

Q. And so if you would, let's turn our attention to JX, 2 which is the '634 Patent.

MR. HANBA: Mr. Doyle, would you bring up claims -- column 5, lines 37 to column 6, line 26, please.

Q. (BY MR. HANBA) And, sir, what are the claims being asserted in the '634 Patent?

A. In the '634 Patent, it's claim 1, 2, and 3.

Q. And those are up there on the board?

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A. Yes, they are --
10:24 Q. So how did you label these claims?
A. For claim 1, I labeled it 1-pre and then 1[a] through 1[h]. For claim 2, there's 2-pre and 2[a] and 2[b]. And claim 3 is a fairly short single piece so I didn't add an additional breakout for it.
Q. So for claims 1 through 3, is there any connection between the claim and the benefits of the '634 Patent that you described earlier?
A. So, yes, there is.
Q. And what are those?
10:25 A. Again, the claim itself doesn't claim the benefit, but there are structures described that relate directly to that benefit. So, for instance, in claim 1, we see fairly late in the claim, I think it's on the board there in 1[g], a discussion of a lateral contact layer.
Above that, talking about the side walls of the trenches in the base layer, that was what I was describing earlier from
10:25 the text of the patent.
Q. And, Dr. Neikirk, are you aware that the Court construed certain claim terms of these patents?
A. Yes, I am.
Q. And have you applied the Court's constructions in your analysis?
A. I have.

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Q. How did you interpret the terms of the patent that the Court didn't construe?
A. So for the terms that have not been construed, I
10:26 interpreted them using their plain and ordinary meaning.
Q. What do you mean by the phrase 'plain and ordinary meaning'?
A. Well, to look at a patent, you do that through the eyes of someone with appropriate skill related to that patent, and then that person would understand what these terms mean. So that's the plain and ordinary meaning to one -- to a person of ordinary skill in the art.
Q. And so have you rendered an opinion as to what the
10:26 qualifications of a person of ordinary skill in the art for the '409 and '634 Patents would have?
A. I have.
Q. And what is that level of ordinary skill in the art for these patents?
A. In my opinion, a person of ordinary skill in the art would have a Master's degree in electrical engineering or related field, they would have two years of experience in semiconductor device design and fabrication, although I do -- it's also my opinion that more experience could
10:27 substitute for education and more education could substitute for experience.
Q. And so that's who these patents were written for?

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A. Yes.
Q. Okay. So let's talk about the accused products.
Did you analyze the thousands of products that ASUS sells in order to determine infringement?
A. No, I did not.
Q. Why not?
A. Well, there are many, many ASUS products, and my understanding is that the parties agreed to a much smaller set of what they refer to as representative products. It was those representative products that I had -- that I examined and had studied.
Q. Did you prepare a demonstrative showing which ASUS products you analyzed?
A. Yes, I did.
MR. HANBA: Mr. Doyle, would you please bring up -- I believe it's PDX 3.10.
Q. (BY MR. HANBA) Will you please tell the jury what each of these ASUS products are?
A. So if you look to the left-hand table, the first column is representative ASUS products. The first one is the dual RTX3060-08G, that's our graphics card. The next is PH-GTX-1660S-06G, another graphics card. The next is the ASUS ROG Strix Z790, a motherboard.
The next, a TUF, or tough, Gaming Z490-plus, another motherboard. Then the E410 -- NE410MA laptop, and it is just

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that, a laptop. The next one is the EX-B760M-V5D4, a motherboard; and then, finally, the Zenbook Pro 14 UX6404VI, which is another laptop.

Q. Sir, did you get a chance to look at each of the respective products?

A. I have examined photographs of the products, both inside and out.

Q. And do all of the ASUS representative products contain a trench MOSFETs?

A. Yes, they do.

Q. Is there any dispute about that?

A. No, I don't believe there is.

10:29 Q. And how do these MOSFETs end up in ASUS products?

A. Well, there are printed circuit boards in these products. There are places where the MOSFETs are soldered to those boards. So those components have to be purchased, assembled onto the board, the board is placed into ASUS equipment if it's a laptop; or if it's a motherboard, at that point it's pretty much done besides packaging.

Q. And so will you please tell the jury the names of the accused MOSFETs?

A. So the table on the right, the left-hand column of that table lists the components, the actual MOSFET model numbers. The first is the 2N7002K. The next is the L2N7002SLT1G by LRC. The last column is who makes the part, excuse me.

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10:30 The next is the 2N7002KDW made by Panjit; then the PJX138K, also made by Panjit; the QM3016AM, made by uPI/Ubiq, then the QM3058M6, also made by uPI/Ubiq, and, finally, the EMB20N03V made by Excelliance.

Q. And, sir, is there a shorthand that we can refer to each of these accused products?

10:31 A. Yes, there is.

Q. And how would you like to refer to those?

A. Well, for the first one the easiest thing to do is to call that the 2K. For the next, we can just call that the LRC because that's the only LRC component. The next one, the 2KDW is how I usually think of it. The next, 38K. The next one, the uPI/Ubiq 3016 of 3016. The next one, 3058. And then the last one, Excelliance works because there's only one Excelliance product --

10:32 Q. Thank you, sir.

A. -- or component.

Q. Dr. Neikirk, does ASUS sell each of the representative products in the United States?

A. Yes, they do.

10:32 MR. HANBA: Mr. Doyle, would you please bring up Joint Exhibit 68 and page 333.

Q. (BY MR. HANBA) You said they sold it in the United States. Dr. Neikirk, can you please explain how you came to that opinion?

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A. So this is a printout of a web page. This happens to be for the Strix Z790F. You can go to this web page. I've been to the web page. You can search for these products.

10:32 Once you find them, you can click on the add-to-cart button, put them in your cart. And if you were to finish the processing procedure, you can then have it delivered to you here in the United States.

Q. And what web page is this?

A. This is a web page from ASUSTek Computer, Inc.

Q. And is it asus.com? Is that right?

A. The URL is asus.com.

MR. HANBA: Mr. Doyle, would you please bring up JX

10:33 68.379 through 80, please?

Q. (BY MR. HANBA) And, Dr. Neikirk, does this document -- did it inform your opinion as to who owns the asus.com website?

A. It did.

Q. And how so?

A. There is a process or a website called Whois, where you can enter a URL and it will tell you information about who set

10:33 it up and so on. And, in particular, if you look at the Whois search for asus.com, you'll find a line called R Org. That's the responsible organization for that web page, and this Whois web page, I see that it's listed as ASUSTek Computer, Inc.

Q. And, sir, when did you take this screenshot or print off

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this page?
10:34 A. It's down at the bottom there. It was May 13th, 2024, at 12:10:03 p.m.
Q. And, Dr. Neikirk, what type of information did you review or rely on in forming your opinions regarding whether the accused ASUS products infringe?
A. I started with the patents themselves and their histories
10:34 at the Patent Office, their file histories. I considered -- well, I applied the Court's constructions to those patents. I looked at deposition testimony from various witnesses. I looked at technical documents. I looked at what are called interrogatory responses where the parties exchange question and answers. And, finally, I had these products taken apart and the components inside examined.
10:35 Q. And so I think -- did you hear -- when you were here, did you hear Mr. Vinh say that Dickinson Wright served as a middleman?
A. I don't recall that he used the word 'middleman', but he certainly identified Dickinson Wright as a client.
Q. And so who told Dickinson Wright what Microtech should do?
10:36 A. I don't think anybody did besides identifying the parts.
Q. Right. So I guess when putting together the work order, who told Dickinson Wright what should be included in that work order?

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A. Well, we have a list of representative products, and not all of those were sent but a subset. I believe five of the
10:36 seven, I think, were sent. I found the chip marking codes for all of the allegedly -- or of the accused components and supplied those marking codes to Dickinson Wright with the instruction that that's what they should send on to Microtech so that they would know what components to study from the printed circuit boards inside the products.

Q. Would you please explain to the jury how Mr. Diep was
10:36 involved with the analysis you performed?

A. Mr. Diep, as he just described, provided the images. The rest of the analysis was my own. I'm the one who examined those images to determine what they showed.

Q. And so did Mr. Diep take the SEM images in this case?

A. Yes. Mr. Diep did SEM messages. He mentioned EDS images. I think they did some overall pictures of the
10:37 deencapsulation process as well.

Q. Why did you have Microtech do the imaging?

A. Microtech is a professional laboratory to do reverse engineering. I've actually been there before. It's in Plano, Texas. I've worked with them on other projects in the past, toured their facility, discussed with them their capabilities which were also quite similar to other reverse engineering labs I've worked with over the years. I thought that they would be well-qualified to do these tear-downs.

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10:38 Q. And, sir, why didn't you just take the SEM images yourself?
A. Well, I mean, there's at least two reasons. One, I don't have an SEM myself. But this is a laboratory -- these reverse engineering laboratories do this all the time. They're very familiar with the overall process, they have a work flow, and in my experience they do very professional work.
Q. Sir, why don't you have an SEM imaging system?
10:38 A. They're pretty expensive. I think maybe I could get one on the used market for a few hundred thousand dollars, but the ones we had at UT cost in the millions of dollars.
Q. Will you please explain I guess how familiar you are with the tear-down process that Microtech performed?
A. I'm very familiar with that process. I have used it myself in our teaching laboratory at the university. My -- I taught a similar process to my students there. Our graduate
10:38 students at UT had to use those kind of tear-down processes all the time to determine what they had built in their research.
Q. And I believe Mr. Diep used the phrase -- term 'junction staining'. Will you please explain how you're familiar with the junction staining process that Microtech performed?
A. Mr. Diep talked about that etching process. It's one, again, that I've personally done and actually we used in my
10:39 undergrad teaching laboratory. I taught my students how to do

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junction staining, discussed it in lecture.

So this is a pretty standard technique that people in the semiconductor world use to help them image what they've made.

Q. And you heard what Mr. Diep explained about the process that Microtech used?

A. I did.

Q. And are you familiar with the process he described that Microtech used?

A. Yes. Again, that's a process that I've used, my students have used, and I've seen other laboratories use. It's pretty standard.

10:39 Q. What is one type of image that Microtech provided?

A. Oh, one of the images they did was what they call scanning electron microscope images of samples that had been depackaged so that you can actually see the sample itself.

Q. And those are the SEM images?

A. Yes.

MR. HANBA: So, Mr. Doyle, would you please bring up PX 30.1?

Q. (BY MR. HANBA) Dr. Neikirk, would you please explain what this image is?

10:40 A. This is an example cross-sectional image. So as Mr. Diep described, the sample has to be prepped, it's polished to get a cross section through it, and then this is an SEM picture. This one was done at 65,000 magnification, and it shows the

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various structures that are used to make up the MOSFET.

This one I can tell happens to be junction stained by looking at the -- some of the shapes and colors I see there.

Q. And so you mentioned the magnification there. Why is that magni -- why is there such a magnification?

A. Well, looking at this we can see that it is a quite small structure. With a regular optical microscope, the best one I ever had at UT could magnify about a thousand times, and here we're at 65,000 times. So an electron beam allows you to zoom in much more so. SEMs really yield much better images of small things.

Q. So you mentioned it's a quite small structure. How small?

A. Well, the bar there, here, is a 2 micron scale bar. A human hair is about 70 microns in diameter. So in class, I would have said this is about a 35th of a hair.

Q. And what is an SEM?

A. An SEM, it stands for scanning electron microscope. Again, it uses electrons to illuminate the sample instead of just regular light. Then it collects electrons that the sample emits to form the image. So electrons illuminate. And electrons in this one, I don't see the label on theirs, but most of the time you use what are called secondary electrons to form the image.

Q. And, sir, what do you think of the quality of the SEM

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images that Microtech provided?
A. This image and the other images from Microtech that I examined seemed -- appeared to be excellent to me.
Q. And so how did Microtech's SEMs inform your analysis?
A. They were one of the things that I considered in trying to determine whether the accused products had the features required by the claims, that, along with the specification and
10:42 other documents, but this is certainly one piece of material that I studied to try to determine the structure.
Q. Did you hear Mr. Diep say that there were some good images and some bad images during his testimony?
A. I did.
Q. And were those kind of the -- I think they look like a tooth. Is that what those -- those are some of the bad images?
A. I think Mr. Diep was talking about the staining process usually was the problem where a region was etched to such a
10:43 large extent it made it hard to see the features. I think he talked a little bit about these little black squares. And if you look at it and you know what you're looking at, you can actually tell there's a little cavity there. That's what makes it easier to see.
And his concern was sometimes those cavities are too large or too deep and that spoils the image, in which case what he said was you basically start over again.

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Q. Did you use any of those bad images in your analysis?
A. No, I didn't. I certainly didn't use any image where I couldn't see the structures involved in the device.
Q. And were there any other types of images from Microtech that you analyzed?
A. Yes. They also did an analysis technique called EDS. It stands for energy disbursive X-ray spectroscopy. It's a special kind of tool that allows you to do kind of a spot, very -- zoom in a lot to determine what a material is made out of. It tells you what atoms are present in a given location.
MR. HANBA: Mr. Doyle, would you please bring up PX -- Plaintiff's Exhibits 37.1.
Q. (BY MR. HANBA) And, Dr. Neikirk, is this one of those images of these EDS images?
A. It is.
Q. And, Dr. Neikirk, if we go to page 10 of this document, what is this showing us?
A. So when you use an EDS tool, it actually has a scanning electron microscope as part of it. So if you look at that upper portion, that is an SEM. But it then allows you to point the analysis equipment -- I'm sorry--at a specific location where those cross hairs are.
It then takes a spectrum, and that's shown at the bottom. And if you look at the peaks, it will tell you what the material is made out of. This big peak in that spectrum is

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labeled AL. That stands for aluminum. So it would tell me that where that little cross hair was located, the material there is aluminum, a metal.

Q. So EDS combines an SEM and the materials analysis?

A. It does.

Q. So how did these EDS documents inform your opinion?

A. There are a number of claim limitations that not only require structure but also material to be used for certain structures. And these kind of EDS images would allow me to determine that.

Q. And so how did Microtech know which MOSFETs to take images of?

A. So there were a list of accused components, but they have the full -- that part number. I actually went out to find how the manufacturers mark the plastic packages, and generated that list, which I supplied to Dickinson Wright who supplied it to Microtech.

Q. How many pictures did Microtech take?

A. You know, I think in total it was certainly many hundreds. Some were close-up, some were a little bit further out. They shared X-ray images which kind of show you the overall structure as well.

Q. And how do you know which of the Microtech images correspond to which MOSFET?

A. Microtech used a file naming convention where the first

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part of the file name was that marking code that I had found that identified a given component. So the 2K was the first one on our list. Now I've forgotten the marking code for it, but it's the code they would find and they marked the files using that code.

MR. HANBA: Mr. Doyle, would you please bring up PX 42.1 and JX 16.5?

10:47 Q. (BY MR. HANBA) Would you look at these? Would you please explain how you know which MOSFET in the representative ASUS product corresponds to the packaged MOSFET?

A. So this is the specification sheet for that 2K component. And if we look a little bit further -- oh, this actually ends. This is page 5, and if you look right here, it says marking. And what that means is that's what the manufacturer of this

10:47 component puts on the outside of the little black package.

So it says K72. If you look at the printed circuit board and start examining components, you'll see those two, you can read the K72. That's what Microtech would then remove from the board and do their study on. When they returned the images, all of those file names would start with K72.

10:48 Q. Dr. Neikirk, what instructions did you provide for Microtech on how to image the products?

A. I didn't provide any instructions to them on how to do the imaging.

Q. Did you tell them what type of imaging you wanted done?

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A. Beyond SEM cross sections, top views, and EDS, those were the only things that I believe were communicated to them.
Q. Why didn't you provide them instructions on what to do?
A. Again, I was familiar with the laboratory. They're a
10:48 reverse engineering firm. This is what they do. And they described the various processes they go -- to go through, and those fit with what I would expect to do myself in my old labs at UT or at other reverse engineering firms I've worked with.
Q. And do you recall Mr. Diep testified about the processes that Microtech used for sample preparation?
A. I do.
Q. What do you think about the process that Microtech used for the sample preparation?
10:49 A. That process is exactly as I would expect it to be. It's what I used to teach my students. It's what the process is followed by many laboratories, others I've worked with in the past.
Q. And so did Microtech provide anything else in addition to the SEMs and EDSes?
A. Yes, they did.
Q. And what was that?
10:49 A. One thing they provided was a parts count.
Q. And so do you have a demonstrative showing a summary of your estimated counts of MOSFETs in the accused products?
A. I do.

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MR. HANBA: Could we bring up, Mr. Doyle, PDX 3.11, please?

Q. (BY MR. HANBA) And, sir, when did you determine these estimates?

A. These estimates were done, it seems like it must have been around May of 2024; early to mid May.

Q. Sir, after you provided these estimates, did any additional evidence from ASUS come to light?

A. Yes.

Q. And how does the additional information from ASUS on MOSFET numbers compare to the numbers that ASUS provided before?

A. There are many examples in that document that have component counts substantially larger than the -- my estimates. There are some that are smaller, but there are many that are larger.

Q. And can you please explain how you arrived at these numbers?

A. Well, I was trying to come up with an estimate for total component counts by category. We have the seven representative products, but they have to represent a much larger universe of products. I did look at Microtech's results to see if my estimates -- to make sure my estimates were broadly in line with. But these are not Microtech's numbers. They're my estimates to try to represent what I

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think is a more averaged product over the wide range of products that ASUS makes.

Q. Are these a count of the packaged MOSFETs that we saw earlier?

A. Yes. This would -- this is -- would correspond to packaged MOSFETs on printed circuit boards in the products.

10:51 Q. So why are you providing a count of the packaged MOSFETs?

A. These devices can't be used in the printed circuit boards unless they're packaged. That's the thing that you place on the board is a packaged MOSFET.

Q. And, sir, do you have an opinion whether the representative ASUS products contain the accused MOSFETs?

A. I do.

Q. And what is your opinion?

A. The representative ASUS products all contain at least one, and in many cases more than one, of the types of components that have been accused.

10:52 Q. What does the accused MOSFETs in this case all have in common?

A. They're all N-channel enhancement mode MOSFETs. That's a specific type. But because of the device physics, that tells you actually quite a bit about how they have to be built. They also are all trenched MOSFETs. They all have trenched source contacts as well.

10:52 Q. And so does ASUS's expert, Dr. Shanfield, contend that

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there's something else?
A. I haven't seen anything to indicate that there's any other structure to substitute for those.
Q. Okay. So what did you base your opinion on regarding the commonality?
A. Well, an examination of the specification sheets, the imaging, both top view and cross section view, those -- and -- well, from the spec sheets, the device physics of the
10:53 MOSFETs would show what the commonalities are.
MR. HANBA: And so, Mr. Doyle, would you please bring up JX -- Joint Exhibit 16.1, please?
Q. (BY MR. HANBA) I believe this is for the Panjit 2K. Is -- did you find accused -- that the accused MOSFETs have the common features of the Panjit 2K?
A. Yes, it does. We see that it's an N-channel enhancement mode MOSFET. The circuit symbol also tells me the same thing.
10:54 That has to be N-channel and enhancement mode. And this one identifies right there that it's a trench process technology. It's a trenched gate MOSFET.
MR. HANBA: And, Mr. Doyle, would you please pull up PX 34.1, which is a DDS of the 2K.
Q. (BY MR. HANBA) Dr. Neikirk, will you please explain to the jury what features you can see here that are common to all of the accused MOSFETs?
10:54 A. So, again, the EDS has an SEM, and you can see this is

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the package. It's been cut open, so this is a cross section. This is a semiconductor substrate. They're all MOSFETs. They have to have a semiconductor to be built in. They have a drain connection down here as well.

Q. So the scale under there says 700 and sort of a backwards um. Would we see more features if we -- if we zoomed in?

10:55 A. Yes. In fact, to see more features, we will have to zoom in quite a bit.

Q. And did you prepare a demonstrative to help the jury visualize what structures you'd see when you zoomed in?

A. I did.

MR. HANBA: And would you please bring up PDX 3.2, please?

Q. (BY MR. HANBA) And is this such a demonstrative?

A. It is.

MR. HANBA: And if we could go to the first page

10:55 back, please. The underlying image, excuse me.

Q. (BY MR. HANBA) And so what is this that we see on the screen here?

A. So these are two SEMs that Microtech took. On the left is a top view; on the right is a cross sectional view.

Q. Okay. And so adding in the colors, if you will, would you please explain the image on the left?

A. So on the left in the top view, we can see from this

10:55 image I've highlighted in red, that's the trenched gate. And

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in the middle, these little circular silver dots, those are the source contacts. So I can see directly in this image where the source contacts are, where the gates are, and where the cell that makes up one subpart of this MOSFET is located.

Q. Could you please explain the image on the right to the jury?

A. On the right is a cross sectional image, and there we can 10:56 see this lower layer is part of the drain and it needs to be an epitaxial layer. Manufactures use what are called epi wafers to have the doping right in this layer.

And then, as I work my way up, these are MOSFETs. That O stands for oxide. That's this layer in green there, the bright green. There is a gate inside that. So the whole 10:56 thing has a trenched gate. There is a body region that has to be there for any N-channel enhancement mode MOSFET. It has to run along the gates.

Then next in orange is a source region. If it's a MOSFET, it has to have a source, a channel, and a drain. So the source is in orange, the channel is formed in the body, and the drain is down here. It has to have an electrical 10:57 connection to source and body. That's the trenched source contact.

In these devices there's an insulating layer to prevent shorts, and that's the interlayer oxide film. And then there's a very thick sheet of metal on top to hook all the

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sources together. That's the front source metal. All the accused components have these structures in them.

Q. So on the right, all the accused components for both patents, for the '634 and the '409, have those structures in it?

10:57

A. So all of the accused products, both '409 and '634, have this cross sectional kind of structure.

Q. How about on the left? Do all of them for both have that?

A. So there were seven accused products, and I believe five of them share this kind of arrangement; two don't. So for the '409 Patent, it's a subset of the seven. Five of the seven are accused of infringing the '409 Patent.

10:58

Q. And then five of those seven are all -- have common structures and features?

A. Yes. They all have an arrangement very similar to what's seen here--trenched gates surrounding the cells with a circular source contact.

Q. Where did the colors from these images come from?

A. I had these colors added to these images. I identified where the structures were. I had some help putting the colors on, but those are my colors.

10:59

Q. Microtech didn't put these colors on. Right?

A. No. Microtech supplied just the images.

Q. So, sir, you mentioned that you were using the Panjit 2K

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here as an example. What do you mean by that?
A. Well, I examined all of the products to identify what the structures are, but the 2K is one, I just selected that one there, I just explained the commonalities. The others have the same collection of structures. They're all located
10:59 relative to one another in the same way.
Q. Let me see if I get this right. So if the accused -- if a MOSFET is accused of infringing the '409 Patent, are you saying that it has the top view structures that we have there on the left?
A. So for the 2K, this is precisely the structure. Examining the other accused '409 products, I've found the same structures and the same general shape. The SEMs will look slightly different.
10:59 Q. And then you're also saying then, if I get you, that if a MOSFET is accused of infringing the '634 Patent, it has those side view structures that we see there on the right. Is that correct?
A. Yes. It has the same structures arranged relative to one another in the same way.
Q. And let's look at another example. Did you prepare a demonstrative exhibit as to the LRC component?
A. Yes, I did.
11:00 MR. HANBA: And if we could bring up PDX 3.1, please.

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Q. (BY MR. HANBA) And is there an underlying image to this also?
A. Yes, there is.
Q. And is this that underlying image that Microtech provided to you?
A. It is.
Q. So let's go back to the colored image. And can you explain the image on the left for the LRC?
A. So for the LRC product, again I've highlighted in red where the trenched gates are and in green here where the gate oxide is. Inside that is an individual cell, and this source contact in the middle. So it looks in a lot of ways very similar to the last image we looked at. Some of the dimensions might be slightly different, but the general shapes are the same.
Q. And so would you please explain the image to the right -- on the right to the jury, please?
A. So this is -- on the right is the cross sectional image from the LRC, and again it has the same structures. There's an epi layer on a wafer, the N, or the epitaxial layer epi wafer which forms a drain, it has a body, it has a source contact, trenched sources, trenched gates, interlayer oxide front/source metal.

Again, the structures are the same structures in the same relative positions as we saw for the 2K.

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Q. What is the body region for each of the accused MOSFETs?
A. So the body region, it's in teal, and this is where what's called the channel is formed along the gate that makes the control valve, if you will, for the MOSFET.
11:02 Q. Does Dr. Shanfield claim that these MOSFETs are structured in some other way?
A. I've not seen anything that indicates that there are any other structures to replace these, no.
Q. So let's get to what we're here for. Let's start with the '409 Patent.
Dr. Neikirk, would you please give the jury a roadmap as to what they will see?
A. So I'll put up claim 1 of the '409 Patent, and then we'll
11:02 start looking at each accused component, looking at the information I have about it to try to determine whether each and every of those requirements for claim 1 are present or not.
MR. HANBA: Mr. Doyle, would you please bring up again PDX 3.10?
Q. (BY MR. HANBA) Dr. Neikirk, will you please summarize the representative accused MOSFETs which you analyzed for the '409 Patent?
11:03 A. I have analyzed for the '409, the 2K, the LRC, the 2KW, the 38K from Panjit, and the 3016 from uPI/Ubiq.
Q. And while I'm asking for the '409 Patent, will you

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understand that when I say accused products or accused MOSFETs, I'm referring to the products and MOSFETs you mentioned that are accused of infringing only the '409 Patent while I'm talking about the '409?

11:03 A. Yes, I understand that.

Q. Okay. And did you reach an opinion as to whether each of these products and MOSFETs infringe claim 1 of the '409 Patent?

A. I did.

Q. And what is the first accused MOSFET you're going to analyze?

A. I'll look at this 2K first.

Q. And so if you will, will you please explain your

11:04 understanding of how many MOSFETs in a representative product would need to meet the limitations of a claim for ASUS to be infringing?

A. It would only have to be one of these components in the product for the product to infringe.

Q. So just let me make sure we're on the same page. You're saying for ASUS to infringe, they only need to have one of these components to infringe the patent?

A. Yes, that's my understanding.

Q. Now, is it your opinion that there is one individual MOSFET that infringes?

11:04 A. No. In the products, there are typically many more than

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one, and in some of the products they contain more than one of these components.

Q. So how many of these components did you find infringe the '409 Patent?

A. So of these -- the five is my opinion that they all, individually analyzed, all practice all the requirements they all infringe claim 1 of the '409 Patent.

Q. Okay. Now we have an understanding of infringement. Why don't we take -- start talking a little bit about the '409 Patent, the .pre, the preamble. What is your opinion as to whether the Panjit 2K MOSFET satisfies limitation 1.pre of the '409 Patent?

A. It does satisfy the 1.pre.

Q. So let's take a look at the first portion.

MR. HANBA: Mr. Doyle, would you please bring up JX 16.1, which I believe is the specification sheet for the 2K?

Q. (BY MR. HANBA) Dr. Neikirk, if we look at the top of the specification sheet, can you please explain your opinion on whether the Panjit 2K is a trenched semiconductor power device comprising a plurality of trenched gates?

A. So just from the specification sheet alone, I know that it's a MOSFET. That's a semiconductor power -- at the levels it's a power device. It is trenched. We see the trench process technology. In order to get these kind of currents, you have to connect many together. So there will be a

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plurality of those gates inside the packaged device.
Q. So let's take a look at the next part of the limitation.
MR. HANBA: Mr. Doyle, will you please bring up PX 27.1? This is a top view of the SEM of the 2K.
11:06 Q. (BY MR. HANBA) Dr. Neikirk, can you explain your opinion on whether there are trenched gates surrounding a plurality of transistor cells?
A. So these regions are the trenched gates. And it surrounds this region that is the cell. So it is a
11:07 semiconductor device. The cell is here, the trenches are here, and of course we see many of those.
Q. And so let's look at the next portion of the limitation.
MR. HANBA: Mr. Doyle, would you please bring up PX 34.1, which is an EDS of the 2K.
Q. (BY MR. HANBA) Dr. Neikirk, if we look at the top of this page, could you please explain your opinion as to whether the Panjit 2K has transistor cells formed in a semiconductor substrate?
11:07 A. As I just explained, they are MOSFETs. That's a semiconductor device. We can see in this image this is the semiconductor substrate.
Q. Does ASUS's expert, Dr. Shanfield, opine that any of the accused MOSFETs lack a substrate?
A. No, I haven't seen that he's opined on any alternative to the semiconductor substrate.

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Q. Does ASUS's expert, Dr. Shanfield, opine that any of the accused MOSFETs lack transistor cells inside a substrate?

11:08 A. Again, I haven't seen anything to suggest a substitute for that structure.

Q. So, Dr. Neikirk, what is your opinion as to whether the Panjit 2K meets the requirements of limitation 1.pre?

A. It does meet that limitation.

Q. So, Dr. Neikirk, I have a marker here. May I check the box next to 1.pre?

A. Yes.

11:08 Q. So let's move on to limitation 409 -- excuse me, 1[a]. What is your opinion as to whether the Panjit 2K MOSFET satisfies limitation 1[a] of the '409 Patent?

A. In my opinion, it does satisfy element 1[a].

Q. So let's look at the first portion, said trenched gates.

MR. HANBA: And, Mr. Doyle, would you please bring up PX 27.1 again?

Q. (BY MR. HANBA) Are these the same trenched gates that you talked about earlier?

11:09 A. Yes, they are. It's -- these regions here are the trenched gates.

Q. So if we look at the next part of the limitation, would you please explain whether the Panjit 2K has trenched gates surrounding said transistor cells as closed cells?

A. So the cells, the transistor cells, are these, they're

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clearly closed, and the gate goes all the way around. They're completely surrounded by that gate.

Q. So let's turn to the next portion. What is your opinion as to whether in the Panjit 2K there are substantially square shaped cells with rounded corners?

A. So I just identified where the cell is just to put the arrow on it. That's it. And a simple -- looking at the image, it's square-shaped, substantially square-shaped, and the corners are rounded.

Q. So will you please explain how you came to the conclusion that there are substantially square-shaped cells with rounded corners?

A. By looking at the image.

Q. Okay. And so -- and so what is your opinion on whether the Panjit 2K meets the requirements of the limitation 1[a]?

A. It does.

Q. Can I put a check box in 1[a]?

A. Yes.

Q. And so let's move on to 1[b]. This is a little bit longer. What is your opinion as to whether the Panjit 2K MOSFET satisfies limitation 1[b] of the '409 Patent?

A. It does.

Q. So we'll start with the first person and cut this up in chunks, which begins, each of said closed cells.

MR. HANBA: Mr. Doyle, PX 27.1, please.

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Q. (BY MR. HANBA) Are these the same closed cells we've been talking about earlier?
11:11 A. They are.
Q. Okay. So can you please explain your opinion as to whether the Panjit 2K -- in the Panjit 2K, each of said closed cells further includes a circular trenched contact disposed substantially in a central portion of said closed cells?
A. So the source connections are these little circular structures, so they are circular. They pass down, and they
11:12 are a trench. And they're located near the middle of the cell, so they are centrally located.

MR. HANBA: Now, turning to the next portion, Mr. Doyle, PX 34.22, please, which is the EDS of the Panjit 2K?
Q. (BY MR. HANBA) Dr. Neikirk, what is your opinion as to whether the Panjit 2K has closed cells with a source region surrounding said trenched gates?
11:12 A. So in these devices, again, the source is -- these are actually the gates. There has to be a source, there has to be a body, and there has to be a drain. And the source has to be connected to the source connection.

So we see it on both sides. So that source region surrounds these trenched -- I'm sorry. This is trench gates here. Source, both sides, it surrounds those trenched gates.
11:12 Q. What would happen if it didn't have a source region?
A. If it doesn't have a source region, you can't have an

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electrically functional MOSFET.
Q. So it wouldn't work?
A. No. You'd be missing one connection.
Q. Is there any claim by ASUS or Dr. Shanfield that the MOSFETs accused in either the '409 or the '634 don't work?
A. Not that I know of, no.
Q. And so looking at the next portion of the claim, what is
11:13 your opinion as to whether the Panjit 2K has closed cells with a body region encompassing the source region?
A. So it does have that feature.
Q. And is there an image that would help you describe to the jury why?
A. Yes, there is.
Q. Is that the one that we just saw, 27.1?
A. Yes, the same image.
Q. And so how does this inform your opinion?
11:13 A. So the -- I'm trying to -- the source region from a top view is here, and we see that it surrounds the -- well, it's here as well as here. It surrounds the gate. And we also
11:14 see -- we saw in the cross section that it penetrates two -- excuse me.
We're on element 1[b]. I'm trying to make sure we're on the same element.
Q. Would you like me to repeat?
A. Yes, please.

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Q. How does this image inform your decision as to whether the Panjit 2K has closed cells with a body region encompassing the source region?

11:14 A. So the cell is here, the source is here, and in order for this to be a working MOSFET, there must be a body region. Underneath here, it has to actually be up against the gate, so it has to encompass that source.

Q. And what's your opinion as to whether in the Panjit 2K the circular trench contact penetrates through a source region

11:15 surrounding said trench gates and extends into a body region encompassing said source region?

A. So the source contact has to connect to both the source region and the body. The electrical schematic, for instance, on the spec sheet shows that. So it has to penetrate down and contact to both.

Q. Would a trench MOSFET work if it didn't have this structure?

A. No. If it doesn't touch both, it would not work.

Q. So, sir, what's your opinion as to whether the Panjit 2K

11:15 meets the claim limitations of element 1[b]?

A. It does.

Q. May I put a checkmark on 1[b]?

A. Yes.

Q. And so now let's move to 1[c]. What is your opinion as to whether the Panjit 2K meets the limitations of 1[c]?

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A. It does meet this limitation.

MR. HANBA: PX 27.1, please.

Q. (BY MR. HANBA) So, Dr. Neikirk, can you explain your opinion on whether, in the Panjit 2K, the circular trench contact comprises a hole opened from a top source -- excuse me, from a top surface of the semiconductor?

A. So, again, the source is in the middle here. It extends down. It is open from the top surface. So looking here, I can see that. Looking in the cross sections, I can also see it.

Q. So, Dr. Neikirk, looking at PX 34.22, which is the EDS of the 2K, what is your opinion on whether the Panjit 2K has holes filled with a contact metal plug?

A. So the source holes are here, and they're filled with what shows up as a bright sort of white here. We can use EDS, put the cross hair there, that will tell me what the material is that's filling those holes.

Q. So how do you know that that's metal?

A. If we look at the EDS spectrum here, we see this big peak with the W label. W stands for tungsten. So this is what we call a tungsten metal plug.

Q. Did you say W stands for tungsten?

A. It does.

Q. Why's that?

A. I believe it's from the German Wolfram, which I believe

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is tungsten.

Q. Okay. Is this on the Periodic Table?

A. Yes, it's on the Periodic Table.

Q. So what was your opinion as to whether the Panjit 2K meets the requirements of limitation 1[c]?

A. It does.

Q. Can I check the box for 1[c]?

A. Yes.

Q. So let's go down to 1[d]. What is your opinion as to whether the Panjit 2K MOSFET meets the limitations of 1[d]?

A. It does.

Q. So this is a big one. We're going to break it down into many pieces. Do you have a demonstrative to help explain this limitation to the jury?

A. I do.

MR. HANBA: Would we please bring up PDX 3.8?

Q. (BY MR. HANBA) So let's take it from the top with this first portion. Could you please explain your opinion on whether the Panjit 2K has side walls of the hole surrounded by and in contact with the source and body region?

A. Yes. And in this demonstrative, this is a top view and there is a side view. And the hole is what holds the metal plug. There has to be a source region at the beginning of a MOSFET, and it has to be electrically connected to the source contact. So we see that connection here.

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And in the top view, I've colored the source region orange so it's easier to see. In the top view, the orange would surround, it does surround, the circular trench contact hole.

Q. So let's look at the next portion of the limitation. In the Panjit 2K, does it have the circular trench contact is separate from said trench gates?

A. It does. The circular trench contact is here, the trench gates are here, and they are separate.

Q. And for the next portion, what is your opinion as to whether the Panjit 2K has a gate oxide lining?

A. These are MOSFETs, and the O stands for oxide. The gate insulator, I've highlighted in green. To be a MOSFET, it has to have that.

11:20 Q. And so what does the O in MOSFET stand for?

A. O stands for oxide.

Q. Okay. And so let's turn to the next portion, sir. What is your opinion as to whether the Panjit 2K has the source region disposed between the gate oxide lining, the trenched gates, and all circumferential points of the circular trench contact?

11:20 A. So we can see that in the top view. Here's the circular trench contact. Here is the gate. Oxide in green. And we see the source region that is all the way around. And so we can see this element there.

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Q. So if we turn to the next portion, what is your opinion as to whether the Panjit 2K has a body region disposed between the gate oxide lining the trenched gates and all
11:21 circumferential points of the circular trench contact?
A. So here I've used teal for the body region, and I think we can -- I can turn that off in this image. You'd see there's the raw image. The teal is here, it's below that source region, it extends all the way from one trench gate to another, and it has to be an electrical contact with the
11:21 trench contact. So it does satisfy this limitation.
Q. And so, sir, what is your opinion as to whether the Panjit 2K meets the requirements of limitation 1[d]?
A. It does.
Q. So can we check the box for -- next to 1[d]?
A. Yes.
Q. So last limitation of the '409. What's your opinion as
11:22 to whether the Panjit 2K MOSFET satisfies limitation 1[e] of the '409 Patent?
A. It does satisfy limitation 1[e].
MR. HANBA: So let's take a look at PX 34.22, which is an EDS. I believe we saw this earlier.
Q. (BY MR. HANBA) Dr. Neikirk, if you look at the top of the screen, will you please explain your opinion as to whether the Panjit 2K has said contact metal plug connected to a
11:22 source metal disposed on top of said circular trench contact?

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A. So the source metal plugs are these, and this layer up here is another layer of metal that connects all of those plugs together.
Q. Are there any trench MOSFETs that don't have a source metal layer?
A. For trench MOSFETs with trenched sources, they all have
11:23 to have a metal layer to connect all those sources together.
Q. So they have to have that to work?
A. For one structured like they are for the '409 Patent, yes.
MR. HANBA: And so, Mr. Doyle, would you please bring up PX 34.9? I want to see the top and the bottom together.
Q. (BY MR. HANBA) Does this inform your analysis regarding the metal layer?
A. It does.
Q. How so?
A. This is an EDS spectrum, and I've zoomed out -- or
11:23 Microtech zoomed out to get to where they could put the crosshair in that layer that I identified on the previous slide.
When we look at the EDS spectrum, we see that big peak, and here we see it's labeled with AL. That's the chemical symbol for aluminum, a metal.
Q. So what is your opinion as to whether the Panjit 2K meets

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the requirements of claim element 1[e]?
A. It does.
Q. So can I put that final checkmark there?
A. Yes.
11:24 Q. So we stepped through all the limitations of the '409 Patent and we've checked all those boxes. What is your opinion as to whether the Panjit 2K infringes claim 1 of the '409 Patent?
A. The Panjit 2K practices each and every limitation of claim 1; hence, it infringes claim 1.
Q. Just as a reminder, how many MOSFETs need to infringe claim 1 for ASUS to infringe the '409 Patent?
A. Just one.
11:25 Q. And what was your opinion regarding the Panjit 2K?
A. It does infringe claim 1 of the '409 Patent.
Q. Have you also analyzed whether the other accused MOSFETs infringe the '409 Patent?
A. I have.
Q. And could you remind us, earlier when you did a comparison of the features of the Panjit 2K and the relevant features of the other accused MOSFETs, what was your opinion?
A. That they all share the same features, the same
11:25 structures arranged in the same way relative to one another.
Q. And so what did you do in respect to the other accused MOSFETs?

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A. So I examined the images in the EDS results to identify those structures. That's how I came to the conclusion they all share the same structures, where they are relative to one another.

Q. And did you do a limitation-by-limitation analysis for those accused MOSFETs?

A. I certainly did.

Q. And now we've methodically walked through at least one of the accused MOSFETs. Since we have limited time, let's speed up the rest of these, if you don't mind.

Please let the jury know the results of your analysis for the remaining accused MOSFETs.

A. For each of the remaining accused MOSFETs, I found that they each -- each individual MOSFET practiced each and every limitation of claim 1, and, hence, they do infringe claim 1 of the '409 Patent.

Q. Did you analyze the LRC MOSFET and whether it infringes claim 1 of the '409 Patent?

A. I did.

MR. HANBA: Mr. Doyle, can you please bring up JX -- Joint Exhibit 18.1, which is the spec sheet of the LRC?

Q. (BY MR. HANBA) Dr. Neikirk, how does this inform your opinion for the LRC MOSFET?

A. So just as for the rest, I see that it is N-channel and is an N-channel enhanced MOSFET, so I can tell a lot about how

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11:26 the various elements--the required presence of a source, the required presence of a body, the required presence of a drain, and for trenched devices--how they would have to be arranged top to bottom.

Q. And sir, is there any dispute as to whether the LRC is a trenched MOSFET?

A. I haven't seen anything to suggest there's anything other than the trenched MOSFET present.

Q. Has Dr. Shanfield, that you know of, opined that the LRC uses something other than a silicon substrate?

11:27 A. No, I have not seen it.

MR. HANBA: Mr. Doyle, please bring up PX 30.2, which is an SEM of the LRC.

Q. (BY MR. HANBA) Did you analyze this to form your opinion on the LRC MOSFET?

A. This, among other images, but certainly this one.

Q. And how did this inform your analysis?

A. Well, again, we see in the top view the trenched gates

11:27 surround the cells, and we see the circular source contacts in their trenches here in the central portion, and looking at the shape of the cell, see a shape that is substantially square with rounded corners.

Q. How about gate oxides? Is there gate oxides in there?

A. There is. In this image the gate oxide corresponds to that black ring.

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Q. I guess -- with regards to this substantially square-shaped with rounded corners, how do you know that this is -- that there are substantially square-shaped cells with rounded corners?

A. I simply looked at it, and to a person of ordinary skill in the art, I believe they would interpret that as being substantially square and see that the corners are rounded.

MR. HANBA: Mr. Doyle, would you please bring up 37.28? I believe it's the EDS for the LRC.

Q. (BY MR. HANBA) So if you look at the top of what is on your screen, Dr. Neikirk, can you explain, please, what else you analyzed?

A. Well, this is an EDS SEM where we can see those sources, we see drains, we see the source metal over the top, arranged in the same way that we saw for the 2K.

Q. If you would, what other structures are in the -- this side view SEM that we see?

A. So in order for this to be a working MOSFET, there has to be a drain -- a source up here that has to be electrically connected to that source contact. There also has to be a body region that is also connected to that source contact. The schematic circuit symbol shows me that. There has to be a drain region here; the trenched gates; and actually you can see that dark band, the oxide insulator. All of those structures are present here.

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Q. And just to be clear, Dr. Neikirk, would you please tell the jury how this structure differs from that of the Panjit 2K?

A. In terms of the structures that are present and their arrangement relative to one another, there is no difference.

Q. And so what is your opinion as to whether the LRC MOSFET meets claim 1 of the '409 Patent?

A. It does.

Q. Did you also analyze whether the Panjit 2KDW infringes claim 1 of the '409 Patent?

A. I did.

MR. HANBA: Joint Exhibit 15.1, please, Mr. Doyle. This is the spec sheet.

Q. (BY MR. HANBA) Dr. Neikirk, how does this inform your opinion as to whether the Panjit 2KDW MOSFET meets the claim limitations?

A. The specification sheet again shows it's an N-channel enhancement MOSFET, the schematic circuit diagram shows me that it's also enhancement mode, and the source and substrate are connected together, are source and body, and it uses an advanced trench process. It is a trenched gate MOSFET.

Q. And rather than ask this question each and every time, because I'm sure you're going to get tired of it, but just to be clear, is there any dispute as to whether any of the accused MOSFETs is a trenched MOSFET?

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A. No.
Q. Okay. And will you explain if there's any dispute as to whether any of the accused MOSFETs has a silicon substrate?
A. No.
Q. Have you prepared a demonstrative for the jury to assist with your analysis of the Panjit KDW?
11:31
A. I have.
MR. HANBA: And so, Mr. Doyle, would you please bring up -- I believe it's PDX 3.3.
Q. (BY MR. HANBA) And what did you analyze to form your opinion on the Panjit KDW MOSFET?
A. In addition to the specification sheet, I examined the SEMs, both top view and side, and EDS results.
11:31
Q. And so are these -- are these effectively built -- these colors built on top of SEM images?
A. Yes, they are.
MR. HANBA: And so we will go back to the color portion.
Q. (BY MR. HANBA) Can you please show your analysis on this demonstrative?
A. So in -- I'll start with the cross section first. I see the drain region. There has to be a drain region below the gates, there has to be a body region above that, there has to
11:32
be, in orange, the source region. Above that, it's a MOSFET. It's a trenched MOSFET.

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So it has a gate, it has an oxide insulator, it has a source contact that has to contact both source region and body region. Otherwise, it couldn't work and wouldn't match the schematic symbol on the spec sheet. So all of those elements are arranged in the same way that we saw, for instance, for the 2K product. It has an interlayer oxide, and it has an overlaying piece of metal.

11:33

If I look at the cross section, I see the gates surrounding in red, the gate oxide in green. The scale of these matches, the scale of these, I see circular source contacts in the middle.

Q. And so would you please explain to the jury how these structures differ from your analysis for the Panjit 2K MOSFET?

11:33

A. They don't differ from the Panjit 2K product.

Q. Just to be clear, so -- and I know -- I think this has become a big deal. Would you please identify where those cells have substantially square shapes with rounded corners, where it is in that image?

A. So looking at the image, I can identify where the gate is. That's one edge of the trench. And inside that is the cell. I see a shape that is substantially square and I see

11:33

rounded corners.

Q. I know this is painted over. Do you mind if we remove it to kind of show the same analysis?

A. Yes, please.

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THE COURT: Mr. Hanba, could you slow down just a little bit? You're talking awfully fast.

MR. HANBA: I'm sorry, Your Honor.

THE COURT: Please continue.

THE WITNESS: So in top view, I can see the circular trench, and these are actually open so you can really see the trench, because the plug has fallen out of that one. And you see the drain regions between them, and the boundary for the cell going around.

And again, in my opinion, a person of ordinary skill would recognize that as being substantially square with rounded corners.

Q. (BY MR. HANBA) So, sir, what is your opinion as to whether the Panjit 2KDW MOSFET meets claim 1 of the '409 Patent?

A. It does.

Q. And so now let's turn to another accused MOSFET.

11:34 MR. HANBA: Mr. Doyle, would you please bring up Joint Exhibit 14.1. It's the spec sheet for the Panjit 38K.

Q. (BY MR. HANBA) So, Dr. Neikirk, how does that inform your opinion on the Panjit 38K MOSFET?

A. So for the Panjit 38K, again, I see it's an N-channel enhancement mode MOSFET. I see from the circuit schematics that source and body and -- well, source, body are connected together. So I see the same things that I've seen in the

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other specification sheets. It would be in a silicon substrate. It uses an oxide. It's a MOSFET.

Q. Dr. Neikirk, have you prepared a demonstrative for the jury to assist in showing your analysis for the Panjit 8K [sic]?

A. I have.

MR. HANBA: Mr. Doyle, would you please bring up -- I believe it is PDX 3.4?

11:36 Q. (BY MR. HANBA) Is this the demonstrative that you made?

A. It is.

Q. And like the other, is it also built on top of the original image?

A. It is.

Q. And so what did you analyze to form your opinion on the Panjit 8K MOSFET?

A. So in cross section, I'm seeing the same structures arranged relative to one another in the same way as I did for

11:36 the 2K. I see a teal body, I see blue source contacts, I see the source contact region itself, the gates, and the oxide -- the gate oxide.

In a top view we see then the gates, trenches -- the trench gates are in red. The oxide is visible in this one, and I've highlighted in green. Inside that is the cell. The

11:36 circular source contacts are in the middle.

Q. Are all the structures in the Panjit 38K similar to those

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in the Panjit 2K?
A. Yes, same structures arranged relative to one another in the same way as in the 2K.
Q. And so will you please identify on that left-hand image
11:37 where the substantially square-shaped cells with rounded corners are in that image?
A. So the cells are inside the gate trench. And the gate trench has the oxide on the edge, so I've highlighted the green circle for the oxide. What's inside that is the cell. And, again, I see an object that is substantially square-shaped and it has rounded corners.
11:37 Q. If we go to the native image, does this also show the same thing regarding the substantially square-shaped cells with rounded corners?
A. It does. Again, this outer light gray is the gate oxide, the inner is the cell region, and we can see that it is substantially square-shaped and it does have rounded corners.
Q. And, sir, what is your opinion as to whether the Panjit
11:38 38K MOSFET meets claim 1 of the '409 Patent?
A. It does.
Q. So let's go over to the next accused MOSFET. I believe this is the last one for the '409; the UBIQ 3016 I believe we're calling it?
A. Yes.
MR. HANBA: Mr. Doyle, would you please bring up

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JX 52.1? It's a spec sheet.

Q. (BY MR. HANBA) And, Dr. Neikirk, how does this spec sheet inform your analysis on the Ubiq 3016 MOSFET?

11:38

A. It is a MOSFET; it's an N-channel MOSFET. The circuit diagram tells me it's enhancement mode, that source and body are connected together, and it uses trench technology. It is a trenched MOSFET.

Q. Have you prepared a demonstrative for the jury--excuse me--to show the jury your analysis for the Ubiq 3016?

11:39

A. I have.

MR. HANBA: Mr. Doyle, would you please bring up, I believe it's PDX 3.5.

Q. (BY MR. HANBA) This is the painted view. And is this also painted on top of the original image?

A. Yes, it is.

Q. And what did you analyze for your opinion?

A. So I'll go ahead and do the side view first. And, once again, it has the same components or same structures to build up the component arranged relative to one another in exactly the same way. The lower drain region, the body region in teal, the source region in orange, the source contact trenches with plugs in them, all of those are the same elements that we saw or same structures we saw for the 2K. They are arranged relative to one another in exactly the same way.

11:39

11:40

If we look at the top view, we can see -- again, we see

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the trenched gates are in red, the gate oxide is in green, the cells inside those, and those circular source contacts in the middle, again arranged -- same structures arranged relative to one another, the same way we saw in the 2K product.

Q. And so just to be clear, would you please identify the substantially square-shaped cells with rounded corners?

A. So we can see the cell here. It's inside the green. That is substantially square, and it does have rounded corners.

11:41

Q. Could you please tell the jury, how does this structure, these structures on the left and right images, how do they differ from your analysis for the Panjit 2K MOSFET?

A. It does not differ. They have the same structures in the same places relative to one another, so it's the same as for the 2K.

Q. So what is your opinion as to whether the UBIQ16 MOSFET infringes claim 1 of the '409 Patent?

11:41

A. It does.

Q. So, Dr. Neikirk, we've gone through your analysis for each of the accused MOSFETs for the '409 Patent.

MR. HANBA: Mr. Doyle, could you please bring up PDX 3.10?

Q. (BY MR. HANBA) And, Dr. Neikirk, will you please summarize your opinion as to whether the accused MOSFETs infringe claim 1 of the '409 Patent.

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11:41 A. For the accused MOSFETs, which were the first five in that column, they all practice each and every limitation of claim 1; hence, they all infringe claim 1 of the '409 Patent.

Q. Thank you.

So I will move on to the '634 Patent. And I will -- and

11:42 so can you give the jury a roadmap of what we'll see in our analysis for the '634 Patent?

A. So for the '634 Patent, in a manner similar to what we did for the '409, I'll go through the accused products and look to see if those accused products have each and every one of the structures that are required by claim 1, claim 2, and claim 3.

THE COURT: Counsel, approach the bench, please.

(The following was had outside the hearing of the jury.)

11:43 THE COURT: We can break for lunch now before you transition to this next patent, or we can get into it a little bit and break in 15 or 20 minutes. I'd be interested in your input. My interest is trying to prevent any confusion on the jury's part.

MR. HANBA: This would be good to break. It's a

11:43 great breaking point right now, Your Honor.

THE COURT: And you've still got what on your direct left time-wise?

MR. HANBA: Another hour.

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THE COURT: Okay. Any problems from Defendant?

MR. McMAHON: None, sir.

THE COURT: Okay. Thank you.

MR. McMAHON: Thank you.

MR. HANBA: Thank you.

(The following was had in the presence and hearing of the jury.)

THE COURT: Ladies and gentlemen, this looks like a natural break in the testimony. And we are about 15 minutes before noon, so it's not a perfect match, but we're going to take this opportunity to break for lunch.

11:43 If you will, take your notebooks with you to the jury room over the lunch break. Please remember to follow all my instructions about your conduct, including not to discuss the case with each other. And if Ms. Clendening doesn't have lunch waiting for you, she should be there with it in just a few minutes.

We'll break for approximately 45, 50 minutes, and then we'll be back and move on to the next section of this witness' direct testimony.

With that, the jury's excused for lunch.

11:44 (Whereupon, the jury left the courtroom.)

THE COURT: All right, counsel. We stand in recess until lunch. I'll target approximately 12:30, or thereabouts,

11:44 to reconvene.

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We stand in recess.

(Lunch recess.)

11:47 THE COURT: Be seated, please.

12:42 Counsel, before I bring the jury in, a point of clarification. I know after Dr. Neikirk, the Plaintiffs indicated they intend to call a Defense witness adversely, Mr. Max Fu.

And I understand Mr. Fu speaks English to some extent, 12:42 but it's not his native language and he's not completely comfortable testifying without at least the available aid of an interpreter. And there is an interpreter that's been identified and will be sworn at the time he testifies.

It seems to me the thing I should do is tell the jury if he understands the question in English and can answer it in English, he will. If he needs help with the interpreter, he'll turn to the interpreter. The fact that he answers some 12:43 in English and uses an interpreter for the others shouldn't be taken as anything negative. I don't want the jury to be confused.

Does my understanding comport with your understanding and does anybody have a different suggestion as to how this is clarified for the jury?

MR. HANBA: I --

THE COURT: Mr. Thane, Mr. Underwood, he is going to be your witness, I understand.

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MR. UNDERWOOD: Yes, Your Honor. So, first of all, your understanding does comport with my understanding. And I'll add I've gotten to know Mr. Fu over the last week or so, and my guess is that he won't have to rely on the translator at all.

So I think it's not going to be a matter of being disruptive or anything, but there is a possibility, and in light of that, I think the Court's instruction would be a good idea.

THE COURT: And we still need to have the interpreter there --

MR. UNDERWOOD: Yes, Your Honor.

THE COURT: -- if he should call on them.

Mr. Thane, do you have any different understanding?

MR. THANE: I do not, Your Honor, and I don't have any problem with the instruction to the jury.

12:44 THE COURT: Okay. I'll do that when that comes up. I know we've got a while to go, but I probably won't have another chance to ask without the jury in the room.

Thank you, counsel.

MR. UNDERWOOD: Thank you, Your Honor.

THE COURT: Are you ready to continue with your direct, Mr. Hanba?

MR. HANBA: Yes, Your Honor.

THE COURT: Let's bring in the jury, please.

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(Whereupon, the jury entered the courtroom.)

THE COURT: Welcome back from lunch, ladies and gentlemen. Please have a seat.

We'll continue with the Plaintiff's direct examination of Dr. Dean Neikirk.

Mr. Hanba, you may continue.

Q. (BY MR. HANBA) Welcome back, Dr. Neikirk.

Let's -- so I'll go to the element-by-element analysis for the asserted claims of the three -- '634 Patent.

So let's talk about -- we -- give the jury a roadmap of where we're -- what they'll see.

A. So just as I did with the '409 Patent, I'll go through -- for each product I'll go through and check that product to see whether it does or does not have each and every one of these limitations by considering the various pieces of information I have about that product.

MR. HANBA: And so, Mr. Doyle, would you please bring up PDX 3.10 again? I believe that's the accused components and products.

Q. (BY MR. HANBA) And, Dr. Neikirk, would you please remind us of the MOSFETs that you analyzed for the '634 Patent?

A. So for the '634 Patent, I've analyzed, again, the same five we've already talked about--the 2K, the LRC, the 2KDW, the 38K, and the 3016 Ubiq.

In addition, for the '634 Patent, the Ubiq QM3058M6 and

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the Excelliance EMB20N03 are also accused.

12:46 Q. Sir, do you mind if we call the QM3058M6, the Ubiq 3058?

A. That's fine.

Q. And how about the Excelliance EMB20N03V, do you mind if we call that just the Excelliance since there's only one?

A. Yes.

Q. So what is your opinion as to -- excuse me. Strike that.

Did you reach an opinion as to whether each of the

12:47 products and MOSFETs on this slide infringe claim 1 of the '634 Patent?

A. I did.

Q. And so while I'm asking you about the '634 Patent, will you understand that if I use the term accused product or accused MOSFET, that I'm referring to the products and MOSFETs that you just identified with the '634 Patent?

A. Yes, I do understand that.

12:47 Q. And did you compare each of the accused MOSFETs to each limitation within the asserted claims of the '634 Patent?

A. I did.

Q. And what particular MOSFET will you start your explanation of your analysis of infringement of the '634 Patent?

A. I'll start with the Panjit 2K.

Q. So let's start piece by piece. So we'll start with the preamble. What is your opinion as to whether the Panjit 2K

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MOSFET satisfies limitation 1.pre of the '634 Patent?
A. Well, looking at, amongst other things, the specification sheet, it is a MOSFET, it's an N-channel enhancement mode MOSFET, is trenched, and it does have a trenched source contact.
MR. HANBA: So, Mr. Doyle, would you please bring up JX 16.1?
Q. (BY MR. HANBA) I believe this is the specification sheet, again, for the Panjit 2K. And how does this inform your opinion as to whether the Panjit 2K MOSFETs meet this limitation?
A. So the specification sheet tells me it's a MOSFET and, in particular, an N-channel enhancement mode MOSFET, as does the symbol down there. And, furthermore, it tells me that it uses trench process technology. It is a trenched gate MOSFET.
Q. And so what is your opinion, sir, on whether the Panjit 2K meets the requirements of limitation 1.pre of the '634 Patent?
A. It does meet that limitation.
Q. And, sir, can I check the box for 1.pre?
A. Yes.
Q. I'll move this down.
So let's move on to element 1[a] of claim 1 of the '634 Patent.
What is your opinion as to whether the Panjit 2K MOSFET

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satisfies limitation 1[a] of the '634 Patent?
A. It does satisfy limitation 1[a].
Q. So what is your opinion as to why the Panjit -- strike that.
12:50 Dr. Neikirk, did you prepare a demonstrative to show the jury as to your analysis for limitation 1[a]?
A. I did.
MR. HANBA: And so, Mr. Doyle, would you please bring up PDX 3.2?
Q. (BY MR. HANBA) Is this that the demonstrative?
A. Yes, that is.
Q. I think we saw it before. Is this the one that's effectively painted on the initial original picture?
A. Yes, sir.
Q. And so what is your opinion as to why the Panjit 2K MOSFET meets this limitation?
12:51 A. Well, if we look at the side view, it has -- and I'll just go through. It has a drain region. That's the green region at the base of the trench gates. It has a body region which is in teal. It has to be there for this enhancement
12:51 mode MOSFET. It has a source region, which in orange. Again, that source region has to be there for a trenched MOSFET. It is in a silicon substrate. The specification sheet would say if it was not silicon. The practice is that if it says nothing, it is silicon.

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The layer in light green here is an epitaxial layer. That is the drain region. These are fabricated on epi wafers with silicon substrate that has a top layer that is epitaxially grown.

Q. Sir, are all of these -- sir, are all of these required parts for a modern trenched MOSFET?

A. For a modern trenched MOSFET, they are. The source region, the body region, the drain region are always required for trenched MOSFET. For the kind of trenched MOSFETs that the specification sheets describe, they do need to use an epitaxial layer to achieve the proper doping.

MR. HANBA: So, Mr. Doyle, would you please bring up PX 34.1, which is the EDS for the Panjit 2K?

Q. (BY MR. HANBA) So, Dr. Neikirk, how does this inform your opinion as to whether the Panjit 2K has a semiconductor region and silicon substrate?

A. So this is the package outline. And this object here, that is the silicon substrate. You can see it in this image.

Q. I think we looked at the specification sheet previously. Does the specification sheet also confirm whether this has to be silicon?

A. It does. Again, the practice would be that it would very clearly call it out if it was not silicon.

Q. So does -- excuse me. Turning to the next portion of the limitation, you mentioned this before, but will you please

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explain whether the Panjit 2K has an epitaxial layer corresponding to said drain region?

A. So in that demonstrative the light green layer was the epitaxial layer. It has to be at the base of the trench. And, again, in these kind of modern high performance MOSFETs, this is the epitaxial layer.

The doping down here has to be light. Otherwise, it won't work. And so that is done with an epitaxial layer.

Q. Will you explain what you -- excuse me.

Do the manufacturers have any say in the various layers?

A. Well, the manufacturers will have say in creating from the body layer up, but they use epitaxial wafers. They would specify how thick the epi layer is and what its doping is, but they obtain those from a wafer vendor.

MR. HANBA: Mr. Doyle, if you would, would you please bring up PX 34.18 again -- excuse me, for the first time?

Q. (BY MR. HANBA) Dr. Neikirk, how does this inform your opinion as to whether the Panjit 2K has an epitaxial layer corresponding to said drain region?

A. So this image is actually going to address the substrate being silicon. We can see that in the EDS image.

Q. Oh, excuse me.

A. This image itself doesn't show the epitaxial layer.

Q. Thank you for correcting me.

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So does Dr. Shanfield opine that the Panjit 2K lacks an epitaxial layer corresponding to a drain region?

A. I've not seen that opinion, no.

Q. And you may have mentioned this previously, but, Dr. Neikirk, turning to the next portion of the limitation, I think we can probably bring up the demonstrative.

Would you please provide your opinion on whether the Panjit 2K has a body region and base layer corresponding to said body region disposed on the top of said epitaxial layer?

A. So, Again, for a trenched MOSFET, the drain has to be down here towards the bottom. That was the epitaxial layer. Above that, you have to have an oppositely doped layer to form the channel in. That is the body region, and it has to be above this. And I think that was the element we were talking about there. So there is a body disposed on the epilayer.

Q. And how about in the base layer corresponding to said body region disposed on the top of said epilayer?

A. So this is the body or base layer. It is on top of the epi as it would have to be for this N channel MOSFET.

Q. Thank you, sir. And so does Dr. Shanfield claim that the Panjit 2K lacks a body region or a base layer?

A. I haven't seen anything to indicate that there's an alternative structure, no.

Q. So I know we talked about this for the '409 Patent, so -- but turning to that next portion of the limitation, will

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you please explain to the jury whether the Panjit 2K has a source region with a source layer corresponding to said source region disposed on the top of said base layer?

12:57 A. So again, this kind of N channel MOSFET, drain on the bottom, it has to have a source. That was the other connection to it. It has to be located on the opposite side of the body region from the drain. So it has to be up here. And so you can see it's disposed on that body region.

Q. And does Dr. Shanfield opine that the Panjit 2K lacks a source region or source layer?

A. I haven't seen any opinion indicating any alternative

12:57 structure, no.

Q. And, sir, what is your opinion on whether the Panjit 2K meets the requirement of this limitation 1[a]?

A. It does meet the limitation 1[a].

Q. Can I check that box?

A. Yes.

Q. Sir, can you see this okay from your --

A. I can see through 1[a]. I can't see below that.

Q. I'll raise it up. It that better?

12:58 A. Yes, it is. Thank you.

Q. So let's go to limitation 1[b].

What is your opinion as to whether the Panjit 2K satisfies limitation 1[b] of the '634 Patent?

A. It does satisfy limitation 1[b].

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MR. HANBA: Mr. Doyle, would you please put up PX 34.11? That's an EDS of the Panjit 2K.

12:58 Q. (BY MR. HANBA) And, Dr. Neikirk, how does this inform your opinion as to whether the Panjit 2K has a front metal layer formed on the upper surface of said semiconductor region?

A. So this is an EDS image, an SEM from an EDS, and the upper portion of the semiconductor would be about there. This layer is a metal layer. It's formed on that upper surface of

12:59 the semiconductor region. This layer is the metal layer formed on the upper surface.

Q. Dr. Neikirk, how do you know that that is metal?

A. If we use EDS, which will tell us what it's made of and there's the crosshair right there, we look at the spectrum, the big peak is labeled AL. That layer is made of aluminum, a metal.

Q. So what was your opinion on whether the Panjit 2K meets the requirements of limitation 1[b]?

A. It does.

Q. So can I check that box?

A. Yes.

01:00 Q. So let's move on to the limitation 1[c]. Sir, what is your opinion as to whether the Panjit 2K MOSFET satisfies limitation 1[c]?

A. It does.

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MR. HANBA: Mr. Doyle, would you please put up on the screen PX 34.23? It's an EDS for Panjit 2K.

Q. (BY MR. HANBA) And, Dr. Neikirk, how does this inform your opinion as to whether the Panjit 2K has an inner layer oxide film formed between said source layer and said front metal layer?

A. Again, this is EDS so you can see the SEM here. The source regions were up here. We already talked about those the metal layer is up here. We talked about that. And I can check to see what this layer is made of by doing the spectrum. And in this spectrum I see two peaks, silicon and oxygen. That indicates that it's made up of a silicon oxide, which is an insulator. It is an interlayer oxide film.

Q. And so what is your opinion on whether the Panjit 2K meets the requirements of element 1[c]?

A. It does.

Q. Can we do a check box on 1[c] then?

A. Yes, please.

Q. So let's move over to element 1[d]. What is your opinion as to whether the Panjit 2K MOSFET satisfies element 1[d]?

A. It does.

MR. HANBA: Let's bring up PX 34.29, Mr. Doyle, which is the EDS of the Panjit 2K?

Q. (BY MR. HANBA) And, Dr. Neikirk, will you please explain whether the Panjit 2K has a bottom metal layer formed on the

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lower surface of said semiconductor region?
A. So the semiconductor region or substrate we've been talking about is up here. This is that lower surface. And, again, this is an EDS image so I can check to see what this is made of. If we go check that spectrum, we see NI. That's the chemical symbol for nickel, a metal.
Q. And so what is your opinion as to whether the Panjit 2K MOSFET meets the limitation of element 1[d]?
A. It does.
Q. Can I put that checkmark on that?
A. Yes.
Q. And so let's move to the next limitation, which is element 1[e]. What is your opinion as to whether the Panjit 2K MOSFET satisfies limitation 1[e]?
A. It does.
Q. And have we already discussed trenched gates a couple of times?
A. We have.
Q. So I know we already discussed this in, I believe, 1.pre, but will you please explain whether the Panjit 2K has a plurality of trenched gates?
A. It does. It has many, many trenched gates.
MR. HANBA: If we would please bring up PDX 3.2 again.
Q. (BY MR. HANBA) Is there any dispute between you and

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Dr. Shanfield as to whether the Panjit 2K has a plurality of trenched gates?

A. Not that I know of, no.

Q. And, Dr. Neikirk, will you please explain your opinion on whether the Panjit 2K has trenched gates covered by said interlayer oxide film?

01:03

A. So as I was illustrating earlier, the red regions, those are the trenched gates. And we just actually identified this interlayer oxide film with the EDS. So the trench gates are here, the interlayer oxide is highlighted in purple, it covers those gates.

Q. So let me get -- would you -- what is the relationship between the gates and the interlayer oxide?

A. So the trenched gates are here.

Q. Okay.

01:04

A. And they are covered. The interlayer oxide is here, so they are covered by an interoxide film.

Q. And so turning to the next point of the limitation, sir, what is your opinion as to whether the Panjit has -- excuse me, the Panjit 2K has trenched gates that are formed on top of said source layer extending downward through said base layer to a portion of said epitaxial layer?

01:04

A. So as I've illustrated before, the arrangement of the components is required to have a functional MOSFET. But in any case, we see the source region here, the top of the gates

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here. It extends down through that source, which it must to have a functional device, down through the body. Again, it won't work if it doesn't do that.

And it has to reach the drain region, that is, the epitaxial layer. If it doesn't do any of those things, it couldn't work as the specification sheet indicates.

01:05 Q. And just, if you could, remind the jury whether there's any claim that this MOSFET, the 2K, or any of the accused MOSFETs don't work?

A. No, not to my knowledge.

Q. Okay. And so what is your opinion on whether the Panjit 2K meets the requirements of limitation 1[e]?

A. It does meet this limitation.

Q. And, sir, do you mind if I put a checkmark next to 1[e]?

01:05 A. Yes, please.

Q. And so let's go to element 1[f]. What's your opinion as to whether the Panjit 2K MOSFET satisfies limitation 1[f]?

A. It does.

MR. HANBA: Mr. Doyle, will you please bring up PX 34.22?

Q. (BY MR. HANBA) Dr. Neikirk, how does this inform your

01:06 opinion as to whether the Panjit 2K has a plurality of source contact trenches?

A. So we can see every one of these source contact trenches, and there are many of them. So there are a plurality of

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source contact trenches present.
Q. Plurality means many, more than one?
A. Yes, more than one.
Q. Okay. And -- and what is your opinion as to whether the
01:06 Panjit 2K has source contact trenches formed on the top of
said interoxide, excuse me, of said interlayer oxide film?
A. So I identified the interlayer oxide film was here, and
we see that this source contact trench extends downward from
that interlayer oxide's top surface.
MR. HANBA: Mr. Doyle, if we could bring up the
demonstrative PDX 3.2 again.
01:07 Q. (BY MR. HANBA) Dr. Neikirk, would you please explain
whether the Panjit 2K has source contact trenches extending
downwardly through said source layer to a portion of said base
layer?
A. So these in blue, that's the source contact trench. And
in an N-channel MOSFET that has a so-called common source body
01:07 connection, which this schematic symbol shows, it must contact
the source. It also must contact the body. So the only way
to do that is to extend down through the body -- through the
source into the body.
Q. So there are a lot of musts in there. Why must it?
A. The schematic symbol, for instance, indicates that the
source and the body are connected together. And if it uses a
trench contact, there's just one contact to do both, so it has

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to go down and through.

Q. So, sir, what is your opinion on whether the Panjit 2K meets the requirements of limitation 1[f]?

A. It does.

Q. So, sir, can I check that box?

A. Yes.

Q. So, sir, let's move on to limitation 1[g]. What is your opinion as to whether the Panjit 2K MOSFET satisfies this limitation 1[g]?

A. It does.

Q. And are there any relevant claim constructions for this limitation?

A. Yes, there are.

Q. And have you applied the Court's claim construction for this limitation?

A. I have.

Q. I believe that's the entire side wall. Is that right?

A. Yes, entire side wall.

Q. And so, Dr. Neikirk, in the term sidewalls of said trenches in said base layer, what trenches is that referring to?

A. This is referring to that source contact trench.

MR. HANBA: So, Mr. Doyle, will you please pull up the SEM of the Panjit 2K at -- I believe it's 27.2? It's the side view. Thank you.

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Q. (BY MR. HANBA) Dr. Neikirk, can you point to one of the sidewalls of said trenches in said base layer in this figure?
A. So the source contact trenches are these objects. This
01:10 region is the body region, and so the sidewall of the source contact trench in the body region would be along the side or this side, around that trench.
Q. Dr. Neikirk, what shape are the source contact trenches?
A. As we can see here, these are tapered. They look kind of like a cork, a plug. And so they're tapered as they go down into the body region.
01:10 Q. A plug -- a plug rather than a cork or a cork --
A. Well, we call them plugs, but they've -- look like a tapered cork.
Q. Okay. Thank you.
Dr. Neikirk, have you prepared a demonstrative to assist the jury in understanding your analysis as to the lateral contact layer?
A. I have.
MR. HANBA: So let's bring up PDX 3.9.
Q. (BY MR. HANBA) So, Dr. Neikirk, can you walk us through
01:10 your analysis regarding whether the accused products have a lateral contact layer as recited in this limitation?
A. Yes. And in this image, to sort of orient you, there is a trench gate, there's a trench gate. I've been using red for those. This is a source region in orange, and the body region

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in teal.

This is the trench. And in this picture, that would be -- at this stage, it would be an empty trench. So it's a hole down through these layers.

01:11 Q. And --

A. So to introduce the dopants into this structure, a process called ion implantation is used. Ion implantation takes atoms, makes them go fast enough so that they'll actually end up in this solid material. So up here there's

01:11 nothing there but these atoms coming in. It's kind of like raining down into the trench.

And just like when it's raining, if you stand up, your sides, your sidewalls, they'll get wet, but they won't get soaked; whereas, if you lay down, when you're horizontal, you'll get soaked. So you end up with many more dopants here than you do here.

Q. And so you just mentioned this ion implantation. What is

01:12 your opinion as to whether all of the accused MOSFETs use ion implantation?

A. All of the accused products use ion implantation and, in particular, using boron as the dopant.

MR. HANBA: Mr. Doyle, will you please go to PX 27.2? It's a side view SEM for the Panjit 2K.

01:12 Q. (BY MR. HANBA) Dr. Neikirk, how does this image SEM inform your opinion as to whether the entire sidewalls of the

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source contact layers in the base layer of the accused MOSFETs are covered by the lateral contact layer?

A. With this kind of tapered shape and the characteristics of ion implantation, every part of that side wall, the entirety will become doped.

01:13 MR. HANBA: And so, Mr. Doyle, if you'd please zoom out of this.

Q. (BY MR. HANBA) Is this the whole image right here that you -- we got -- excuse me, that you got from Microtech?

A. Yes, it is.

Q. Okay. And so are you aware that ASUS's expert, Dr. Shanfield, has opined that the accused MOSFETs do not infringe this limitation because I believe he says their source contact trenches aren't tapered?

01:13 A. Yes, I'm aware of that.

Q. And do you agree with him, sir?

A. I do not.

Q. Why?

A. Well, if we look at these source contact trenches, they are clearly tapered.

Q. And so, sir, are you aware that Dr. Shanfield also claims that the accused MOSFETs don't infringe this limitation because they receive a single ion implantation into the source contact trenches?

A. Yes, I'm aware of that.

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Q. Do you agree with him?
A. No, I do not.
Q. Why not?
01:14 A. Well, I've just illustrated a single ion implantation process where the ions come down like that will implant into the sidewalls and into the bottom. It doesn't require multiple ion implantations to achieve that.
Q. And that was your raining down demonstrative?
A. Yes, that's -- the analogy is rain, and falling into a hole, if you will.
Q. And are you aware that Dr. Shanfield has opined that the
01:14 accused MOSFETs do not infringe because they use rapid thermal annealing?
A. I'm aware of that.
Q. Do you agree with that opinion?
A. No, I do not.
Q. Why not?
A. Rapid thermal annealing is a process that essentially heals defects that can be caused during ion implantation. So if there are any irregularities, RTA, for short, that's what we call it, tends to wash those away. Its whole purpose is
01:15 not to move dopants in any appreciable manner. The dopants are still there in the region of the sidewall and in the bottom.
Q. Sir, but based on your years of experience, how relevant

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is rapid thermal annealing to your analysis of this claim limitation?

A. I don't believe it is at all. If anything, it would help even out any small defects or irregularities that might be there.

01:15 Q. And so what is your opinion on whether the Panjit 2K meets the requirements of limitation 1[g]?

A. So I don't think I explained why it's a lateral contact layer.

Q. Excuse me, sir. Well, let's -- thank you.

MR. HANBA: So if we might, let's pull up the

01:16 demonstrative again. Excuse me, the -- actually let's pull up the SEM, Mr. Doyle. I'm sorry, PX 27.2.

Q. (BY MR. HANBA) Does that help inform your opinion as to whether there's a lateral contact layer?

A. Again, this is fine along with the ion implantation explanation. Again, the sidewalls receive dopants, but fewer

01:16 than the bottom. The base region, the body region, establishes the reference for P.

So the sidewalls are implanted and their doping concentration is greater than P. But, again, the bottom receives a great deal more doping. That would establish a reference for P+.

The requirement for a lateral contact layer is that it be

01:17 doped between P and P+, otherwise called by the patent P*.

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And the characteristics of the implant process in this geometry will produce such a lateral contact layer.

Q. So is there another picture we can use to show the lateral contact layer?

A. I believe the demonstrative shows that, illustrates that.

Q. This one?

A. Yes. So here where it's flatter, the bottom, it receives many more dopants, it establishes this reference P+. The

01:17 sides do get ions, the dopants, but not nearly as many. That's larger than P. The body establishes the reference point for P.

Q. And so, sir, now that we've established the lateral contact layer, what is your opinion as to whether the Panjit 2K meets the requirements of limitation 1[g]?

A. It does.

Q. And can I check that box?

A. Yes.

01:18 Q. And now, sir, let's go to element 1[h]. Dr. Neikirk, what is your opinion as to whether the Panjit 2K MOSFET satisfies the limitation of 1[h]?

A. It does.

Q. So let's start with the first portion where the limitation states, the bottom base of said trenches in said

01:18 base layer are covered by the base contact layer. What is your opinion as to whether the Panjit 2K meets this

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limitation?
A. It does.
Q. And why?
A. As I illustrated with my demonstrative, my picture, the characteristics of the ion implantation is such that it will dope this bottom region and, again, more heavily than the
01:19 sides. That will establish a base contact layer.
Q. And so, sir, what is your opinion on whether the Panjit 2K meets the requirement of limitation 1[h]?
A. It does.
Q. And so can I check that one off?
A. Yes.
Q. And so have we checked off all the limitations for claim 1 of the '634 Patent with regards to the Panjit 2K?
01:19 A. Yes, they're all checked off.
Q. So, sir, what is your opinion on whether the Panjit 2K infringes claim 1 of the '634 Patent?
A. The Panjit 2K practices each and every limitation of claim 1, and hence it does infringe claim 1 of the '634 Patent.
Q. And we discussed previously that if any MOSFET infringes claim 1 of the '634 Patent, does it -- is ASUS liable for infringement -- I'll strike all of that because it was a bad
01:20 question. Excuse me, Dr. Neikirk.
If ASUS -- if a single MOSFET infringes claim 1, have we

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established that ASUS infringes claim 1?
A. If one of those MOSFETs is in an ASUS product and even if it's only one, it does infringe.
Q. Thank you.
And so have you also analyzed whether other accused MOSFETs infringe claim 1 of the '634 Patent?
A. I have.
Q. And did you analyze whether the LRC MOSFET infringes
01:21 claim 1 of the '634 Patent?
A. I did.
Q. And so did we discuss the LRC MOSFET specification sheet previously?
A. Yes, I believe we have.
Q. And what was your opinion as to whether the LRC is a trenched MOSFET?
A. It is a trenched MOSFET.
Q. Is there -- how about -- what is your opinion as to
01:21 whether the LRC is an N-channel trenched MOSFET?
A. The specification sheet tells me it is a N-channel MOSFET.
Q. So, sir, similar to the analysis for the Panjit 2K MOSFET, for the LRC MOSFET did you review images from Microtech?
A. I did.
MR. HANBA: So, Mr. Doyle, would you please bring up

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PDX 3.1?

Q. (BY MR. HANBA) Dr. Neikirk, will you please show your analysis on this demonstrative as to whether the LRC has the features and limitations of 1.pre through 1[f] of the '634 Patent?

A. So just as I explained for the 2K, this product has the same structures in the same relative position with respect to one another. It has to use a lightly-doped drain, an epitaxial layer here, a body region above that, a source region above that. The trench gates, of course, are here.

It has an interlayer oxide. Again, I've used purple again. It has a front surface metal, and the trenches themselves, the dopants are placed in there using ion implantation as we discussed before.

So it has all the same structures for elements 1.pre through 1[f]. The arrangements are the same as what we just discussed. We can see in that that it does satisfy all of those limitations.

MR. HANBA: Mr. Doyle, would you please bring up PX 30.1? It's the SEM of the LRC.

Q. (BY MR. HANBA) And, Dr. Neikirk, would you please explain how this informs your analysis as to whether the LRC MOSFET has the required features for limitations 1[g] and 1[h] of the '634 Patent?

A. So this, again, ion implantation is used to put the

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dopants into the empty source trenches. I can see that these are tapered. The same explanation -- the same characteristic of implant that then ends up doping the sides but not as heavily as the bottom.

The bottom establishes the P+ reference. The body region establishes the P reference. This sidewall has a doping that
01:23 is between P and P+, and because of the way ion implantation basically rains down on it, it will implant ions into the entirety of that sidewall. So element 1[g], it's the entire sidewall of the trench and the base layer, and it is covered by a lateral contact layer as the Court has construed those terms.

Q. And how about 1[h]?

A. And for 1[h], we need the bottom. Ion implant will put more in the bottom than it did on the side. That will constitute that base contact layer.

01:24 Q. And so based on your consideration of the evidence, what is your opinion as to whether the LRC MOSFET infringes claim 1 of the '634 Patent?

A. It does.

Q. So did you also analyze whether the Panjit 2KDW infringes claim 1 of the '634 Patent?

A. I did.

Q. And I think we discussed the Panjit 2KDW specification sheet previously. Right?

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A. Yes, we did.

01:24 Q. And what did that specification sheet show you?

A. Well, it establishes that it's an N-channel MOSFET, that it's an enhancement mode MOSFET. And I don't remember whether that one said trenched MOSFET on it, but by examining the rest of the information, it is clearly trenched.

Q. And so is there any dispute whether the Panjit 2KDW is a trenched MOSFET?

A. I don't believe there is.

01:25 Q. Okay. And so similar to the analysis of the Panjit 2K MOSFET, for this Panjit 2KDW MOSFET did you review images from Microtech?

A. I did.

Q. What is your opinion as to whether all of the same structures we saw for the Panjit 2K are present in the Panjit 2KDW MOSFET?

A. So all of the same structures are present, their arrangements relative to one another are the same as what

01:25 we've seen in, for instance, the 2K. All of these requirements are met by this product.

MR. HANBA: And, Mr. Doyle, would you please bring up PDX 3.3?

Q. (BY MR. HANBA) I believe, Dr. Neikirk, you said this was a demonstrative you created for the Panjit 2KDW. Is that right?

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A. Yes, it is.
Q. So can you show your analysis on this demonstrative as to whether the Panjit 2KDW has the features of limitations 1.pre through 1[f] of the '634?
A. So for 1.pre through 1[f], I need the drain region, that epitaxial layer from the wafer vendors. I need the body region in teal as I explained. For a working MOSFET, that has to be present. Source region as well, the source trenches, the metal on top in purple, just as we've seen, and the interlayer oxide in a -- oh, this is pink. I guess this is purple. All of those elements are seen and all of those structures are seen in this demonstrative.
MR. HANBA: Mr. Doyle, would you please bring up the junction stained SEM of the Panjit 2KDW, which is PX 28.1?
Q. (BY MR. HANBA) So this is PX 28.1, Dr. Neikirk. How does this SEM inform your analysis as to whether the Panjit 2KDW meets limitations 1[g] and 1[h]?
A. So the base region ends about there. We request see the source contact trenches are tapered. Again, because of the characteristics of ion implantation, you'll end with those sidewalls doped more lightly than the bottom region.
The bottom region is the P+ reference. The base or body layer is the P reference. That sidewall and its entirety because of ion implantation characteristics will be P*. And again, will have the element 1[h], the base contact layer

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formed there. It receives the higher number of atoms per unit area.

Q. And so based on your consideration of the evidence, sir, what is your opinion as to whether the Panjit 2KDW MOSFET infringes claim 1?

A. It does.

Q. Did you analyze whether the Panjit 38K MOSFET infringes claim 1 of the '634 Patent?

A. I did.

01:29 Q. And, Dr. Neikirk, did we discuss the specification for the Panjit 38K MOSFET previously?

A. We did.

Q. And what did that specification sheet show you?

A. Again, it shows me that it's an N-channel enhancement mode MOSFET. Once again, I don't remember whether that one explicitly says that it's trenched on the cover of it, but it is a trenched MOSFET.

Q. And is there any dispute whatsoever about whether any of the MOSFETs in this case are trenched MOSFETs?

01:29 A. Not to my knowledge no.

Q. And so similar to the -- similar to your analysis for the Panjit 2K, did you review images from Microtech for the Panjit 38K MOSFET?

A. I did.

Q. And what is your opinion as to whether all of the same

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structures we saw in the Panjit 2K are present in the Panjit 38K MOSFET?

01:29 A. So in the Panjit 38K product, I found all of the same structures arranged relative to one another in the same way as I did in the 2K.

Q. I believe you prepared a demonstrative. Can we use that demonstrative to show the jury your analysis of the 38K?

A. Yes.

MR. HANBA: So, Mr. Doyle, it's PDX 3.4. The next slide, please. This is a demonstrative. Thank you.

01:30 Q. (BY MR. HANBA) So is this the demonstrative, Dr. Neikirk?

A. It is.

Q. And so would you please show your analysis to the jury on this demonstrative as to whether the Panjit 38K has the features of claim 1 of the '634 Patent?

A. So for claim elements 1 through [f], we have that drain

01:30 region, body region, source region, interlayer oxide, up here capping metal.

For element 1[g], we see the trench, it is tapered. Again, as I've explained before, the characteristics of ion implantation will end up -- will dope the sidewalls. That doping will be between the P of the body and the P+ of the base contact layer.

And element 1[h], I actually kind of tried to highlight

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that in hot pink there. That's because the larger number of atoms that end up in the bottom implanted area than in the sides.

Q. Because the ion implantation rain?

A. Using the rain analogy, the bottom of the bucket gets wetter than the sides of the bucket; or you laying down, you get wetter than when you stand up.

Q. So if we could talk a little bit about [f]. How does this inform your opinion as to whether the 38K has the features of limitations 1[f] of the patent?

A. So it does have 1[f].

Q. Can you talk a little bit about those tapered source contacts?

A. Well, as we -- if we look at this, we can see that these are tapered. Again, that's relevant to the establishing that ion implant will form the lateral contact layer on the entirety of those sidewalls.

Q. So, Dr. Neikirk, what's your -- what's your opinion as to whether the Panjit 38K has the features of limitation 1[g] and 1[h] of the '634 Patent?

A. It does.

Q. And so why?

A. Well, we've discussed this several times. The taper on the sidewalls. The ion implantation process itself will produce the doping of the sidewall at a level greater than the

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body but less than the base region.
Q. And so based on your consideration of the evidence, what is your opinion as to whether the Panjit 38K MOSFET infringes claim 1 of the '634 Patent?
A. It does.
Q. So did you also analyze whether the Ubiq 3016 MOSFET infringes claim 1 of the '634 Patent?
A. I did.
Q. And did we discuss the specification sheet previously for the Ubiq 3016 MOSFET?
A. We did.
Q. And so what did that specification sheet show you?
A. Again, these are enhancement mode N-channel MOSFETs. I believe the UBIQs explicitly state they use trench technology. They are trenched MOSFETs.
Q. There is no disagreement about whether these MOSFETs are trenched?
A. I don't know of any.
Q. Okay. Did you also look at images from Microtech for the UBIQ 3016?
A. I did.
Q. And so what is your opinion as to whether all of the same structures we saw in that Panjit 2K present in the UBIQ 3016?
A. So, again, I found all of the same structures in the same relative positioning relative to one another that I did in the

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2K.

Q. Can we use your demonstrative that we saw earlier to help you show the jury your analysis as to this claim?

A. Yes.

01:34 MR. HANBA: So, Mr. Doyle, would you please bring up PDX 3.5?

Q. (BY MR. HANBA) So, Dr. Neikirk, can you please show your analysis on this demonstrative as to whether the UBIQ 3016 has the features of limitations 1.pre through 1[f] of the '634 Patent?

A. So looking at the limitations 1.pre through 1[f], I'll just work up my way up from the bottom. The bottom drain

01:34 region, the epitaxial layer on the epi wafer, the teal body region that has to be here to form a channel, the overlying source region in orange, and interlayer oxide in purple, a metal layer across the top that ends up connecting all of the sources together, those are the structures I believe, along

01:35 with the location of the trenches passing downward from this oxide into these regions, I think that description covers 1.pre through 1[e], I believe.

Q. How about 1[f]?

A. I think I ended -- here's the trench. Here's the interlayer oxide. We can see it extends down from the surface of that interlayer oxide. So that's 1[f].

01:35 MR. HANBA: And so, Mr. Doyle, would you please

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bring up PX 31, I believe it's page 1, the SEM of this UBIQ 3016.

Q. (BY MR. HANBA) I know I made you go through element 1[g] previously because I think that seems to be the limitation that everybody's focused on while we're here. But, Dr. Neikirk, would you please explain how this image here informs your analysis as to whether the UBIQ 3016 MOSFET has the required features for limitations 1[g] and 1[h] of the '634 Patent?

01:36

01:36

01:37

A. So we see this source contact trenches. We see the same kind of taper that we've seen before. The sidewalls in the base contact layer are roughly here. I'm not a very good drawer; my hand's not too steady right now. But along this side, it's tapered.

Then there's the bottom. Given the characteristics of ion implantation process, you'll end up with more doping on the bottom than you will on the side, but the sides will be doped. Hence, it's larger than the P of the body and smaller than the P+ of the base contact layer.

So that satisfies the P* requirement for lateral contact layer. The shapes and the characteristics of ion implant will ensure that the entirety of the sidewalls are doped P+. And, again, we've seen the bottom will form the base contact layer. That's element 1[h] on that chart.

Q. So just so we're clear, element 1[g] and element 1[h] are

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also in the UBIQ 3016. Right?
A. They are.
Q. Okay. So based on your consideration of the evidence, what is your opinion as to whether the UBIQ 3016 MOSFET
01:37 infringes claim 1 of the '634 Patent?
A. It does.
Q. And so let's take a look at the -- take it back.
Did you do an analysis as to whether the UBIQ 3058 infringes claim 1 of the '634 Patent?
A. I did.
MR. HANBA: Mr. Doyle, would you please bring up JX 53? It's a joint exhibit.
01:38 Q. (BY MR. HANBA) This is the specification for the UBIQ 3058. Is that correct?
A. Yes, it is.
Q. And, Dr. Neikirk, did you review this document?
A. I did.
Q. What did the specification sheet show you relevant to the claim limitations?
A. Well, it shows me that it's an N-channel MOSFET. The symbol shows me that it's enhancement mode. And this one
01:38 specifically says it uses trench technology. It is a trenched MOSFET.
Q. And there's no dispute--right?--whether these features are present in the UBIQ 3058?

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A. Not to my knowledge.
Q. And did you also look at images from Microtech, similar to what you did with the Panjit 2K, but did you do it for the UBIQ 3058 also?
A. I did.
Q. And so what's your opinion as to whether all of the same structures we saw earlier in the Panjit 2K are also present in the UBIQ 3058 MOSFET?
A. Again, examining the 3058, I found all of the same structures in the same relative positions to one another as I had found in the 2K.
Q. And, sir, have you prepared a demonstrative to help the jury understand what you saw?
A. Yes, I have.
MR. HANBA: Mr. Doyle, would you please bring up PDX 3.6?
Q. (BY MR. HANBA) Is this that demonstrative?
A. It is.
Q. So will you please show your analysis on the demonstrative as to whether the 3058 has the features of limitations 1.pre through 1[f]?
A. Yes. So working up from the bottom, again, this slightly doped drain region formed using an epitaxial wafer. The body region in teal. There is the trench gates. We see the source contact trenches. The source located on the other end of the

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gate from the drain. The other side of the body, we see the interlayer dielectric in purple. We see the overlying metal in pink. We see the source contact trenches extending downwardly from the top of the interlayer oxide.

Let's see. I think that covers everything from pre through 1[f].

Q. And so, Doctor -- Dr. Neikirk, is it your opinion that the UBIQ I believe this is the 3058, meets all of the limitations of 1.pre through 1[f]?

A. It does.

MR. HANBA: So, Mr. Doyle, would you please bring up PX 32.01?

Q. (BY MR. HANBA) And what is this, Dr. Neikirk?

A. This is a junction-stained cross section -- a junction-stained SEM taken of a cross section of this product.

Q. And this is one of those junction-stained cross sections that Microtech did?

A. It is.

Q. And all of the junction-stained SEMs that we've seen today are from Microtech. Right?

A. Yes, they are.

Q. Okay. Would you please explain how this image forms your analysis as to whether the UBIQ 3058 MOSFET has the required features for limitations 1[g] and 1[h]?

A. So, again, we can see a taper to the -- these are the

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trenches. This time there's a trench here; there's another one here. These are gates, so it looks a little different.

But the sidewalls are tapered in the -- at least in the base contact region, and, hence, given the characteristics of an ion implantation process, you'll have a number of atoms implanted there that gives it a doping greater than the body, so more than P, but less than the bottom, so less than P+. The doping at the bottom will form the base contact layer.

01:42 Q. So based on your consideration of the evidence, what is your opinion as to whether the UBIQ 3058 MOSFET infringes claim 1 of the '634 Patent?

A. This product practices all of the limitations of claim 1; hence, it infringes claim 1.

Q. So, sir, did you also analyze whether the Excelliance MOSFET infringes claim 1 of the '634 Patent?

A. I did.

MR. HANBA: Mr. Doyle, would you please bring up Joint Exhibit JX 17?

Q. (BY MR. HANBA) And, Dr. Neikirk, did you review this document?

A. I did.

Q. And what is this document?

01:43 A. This is the specification for the Excelliance component, and again we see it's an N-channel enhancement mode field effect transistor. It is a MOSFET, and it is trenched.

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Q. And so similar to your analysis of the Panjit 2K MOSFET, did you review the images from Matech for the Excelliance MOSFET?
A. I did.
Q. What is your opinion as to whether all of the same structures we saw for the Panjit 2K are present in the Excelliance MOSFET?
A. In examining the Excelliance MOSFET, I found all of the same structures arranged relative to one another in the same way that we saw in the 2K. They're essentially the same, at least with respect to the features required for claim 1.
Q. Dr. Neikirk, have you prepared a demonstrative to help the jury understand what you saw with regards to the Excelliance MOSFET?
A. I have.
MR. HANBA: Mr. Doyle, would you bring up -- I believe it's PDX 3.7.
Q. (BY MR. HANBA) Is this that demonstrative?
A. It is.
Q. Dr. Neikirk, will you please show your analysis on this demonstrative as to whether the Excelliance has the features limitations 1.pre through 1[f]?
A. Again, starting at the bottom, we have the lightly doped drain region, the epitaxial layer. We have the body or base region in teal. It's covered by the orange source region. We

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see the trenched gates. We see the trench and source contact trench or plug. We see the interlayer oxide and that top metal. We see that these source contact trenches extend
01:45 downwardly from the surface of that interlayer oxide. Those are the features of this that would -- that show 1.pre through 1[f].

MR. HANBA: So, Mr. Doyle, please bring up PX 50.1.

Q. (BY MR. HANBA) And, sir, what is this here?

A. This is an SEM. It's an SEM of a junction-stained sample to illustrate what a cross section of this device looks like.

01:45 Q. So, sir, let's focus here on I think what are the important elements of claim 1, 1[g] and 1[h]. And so would you please describe for the jury whether the Excelliance MOSFET has the required features of the limitations 1[g] and 1[h]?

A. So the base or body region ends there. That's the source region. And so the sidewalls in the base body are here. We
01:46 see the taper to that source contact trench. Again, as I've discussed before, the characteristics of ion implantation are such that this will be doped on the sidewall. That will raise its doping to larger than the P body, but it will be doped less than the base, the P+ reference. And, hence, it will be P*. The characteristics of the implant will cause the dopants to be introduced on the entirety of those sidewalls. And then
01:47 this region down here is where it received more of those

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raining down doping atoms that will form the base contact layer.

Q. And, sir, you said the entirety of those sidewalls. Why did you say that?

A. Well, the Court's construction is that it's not simply the sidewalls of the trenches in the base layer, but the entire sidewall. So it has to be the entirety of that sidewall as construed by the Court.

01:47 Q. And in each of the accused MOSFETs, is it -- is the -- are they -- do they meet the limitation of the entirety of the sidewalls --

A. They do.

Q. -- as construed by the Court?

A. Excuse me. Yes, they do.

Q. And so based on your consideration of the evidence, what is your opinion as to whether the Excelliance MOSFET infringes claim 1 of the '634 Patent?

A. It does.

Q. And so to be clear, have you determined that all of the

01:47 MOSFETs infringe claim 1 of the '634 Patent?

A. Yes. All of the MOSFETs, I have examined each one individually, they practice each and every limitation of the claim, they all infringe claim 1 of the '634 Patent.

MR. HANBA: Mr. Doyle, will you please bring up the demonstrative with the accused products?

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Q. (BY MR. HANBA) So are these the -- excuse me.

01:48 Dr. Neikirk, are -- is each and every one of the MOSFETs listed on PDX 3.10 infringe claim 1 of the '634 Patent?

A. Yes, they do.

Q. So, Dr. Neikirk, let's move on to claim 2.

What does claim 2 add to claim 1?

A. So claim 2 adds some additional requirements that all relate to the doping type of the various parts of this MOSFET.

01:48 Q. And, sir, what is your opinion as to whether all of the accused MOSFETs infringe claim 2?

A. In -- they all do infringe claim 2.

Q. Why?

A. They are all N-channel enhancement mode MOSFETs. They're all in a silicon substrate. I've already discussed the epitaxial layer. In that kind of N-channel MOSFET, the source

01:49 and the drain must be N type. That's the pre there. The base layer, that is the layer that is below -- the base layer is below the source region and above the N type drain, in an N-channel MOSFET, that must be P type as required in claim 2[a].

The ion implantation that forms the lateral contact layer

01:49 is done using boron, that is a boron dopant. So that is -- I'm sorry, boron is a P type dopant. That's element 2[a].

And for element 2[b], it requires that they have a P-type

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base contact layer. Again, those are the same boron atoms. So it is P type at the bottom, we've already discussed that.

And for the lateral contact layer, I've already gone over how it has less doping than that base contact layer. The ion implantation process ensures that that's the case.

Q. And that's the rain image?

A. Yes, that's the rain image.

Q. Thank you.

And Mr. -- Dr. Neikirk, what is your opinion as to whether all of the accused components on PDX 3.10 infringe claim 2 of the '634 Patent?

A. All of the products listed on this page do infringe claim 2 of the '634 Patent.

Q. And so moving on to claim 3, which states the trenched MOSFET of claim 2, let's see, wherein further comprises a barrier metal layer and a plurality of contact metal plugs. What does claim 3 add to claim 2?

A. So claim 3 adds a requirement for a specific kind of metal. It's called a barrier metal. It's commonly used in device fabrication. Certain types of metals are viewed as being barrier metal. So they are to stop things going from where they shouldn't.

Q. So have you formed an opinion as to whether the Panjit 2K MOSFET satisfies claim 3?

A. I have.

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Q. And what is that opinion?
A. It does.
MR. HANBA: And, Mr. Doyle, would you please pull up PX 34.21 and 34.22, which are the EDSes of the Panjit 2K.
Q. (BY MR. HANBA) And, Dr. Neikirk, could you please provide your opinion on whether the Panjit 2K MOSFET meets the limitations of claim 3?
A. So this requires this additional layer. You can see that right layer there, and we can use EDS to check to see what that layer is made of. If we look at the spectrum down here, we'll see that that layer has in it titanium. And just above it is the aluminum layer. So that's the big aluminum peak. But this titanium layer is a barrier metal. You see three peaks for that. That is recognized as being a barrier metal.
Q. And how about the picture on the right?
A. On the right, that's looking at the plugs which establish that they are tungsten.
Q. And is tungsten a metal plug?
A. It is. I'm sorry. The requirement is there has to be a barrier metal and a metal plug, and that is a metal plug.
Q. Just so we're clear, tungsten is W on the Periodic Table?
A. Yes, it is.
Q. Okay. So what is your opinion as to whether the Panjit 2K MOSFET infringes claim 3?
A. It does.

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Q. Sir, have you reviewed similar EDS materials for the other accused MOSFETs to analyze whether they practice claim 3?

01:53

A. I have. I've looked at EDS for all of the other products.

MR. HANBA: And, Mr. Doyle, can you please pull up PDX 3.10 again?

Q. (BY MR. HANBA) Dr. Neikirk, have you formed an opinion whether the six accused MOSFETs, I think, other than the Excelliance infringe claim 3?

A. I have.

Q. What is that opinion?

A. For the first six on this list, they all have metal

01:53

plugs, and specifically to that shape that looks like a plug, and they all have that additional layer that I just illustrated from the 2K.

The EDS analysis confirms in every case that that was -- I believe it was a titanium layer.

Q. And we've looked at those EDSes throughout the morning and the afternoon?

A. We have.

Q. Okay. And so with everything we've discussed in mind,

01:54

what is your conclusion as to whether ASUS infringes the asserted claim of the '409 Patent?

A. In my opinion, these -- the first five components all

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practice or they all practice all three claims. They infringe all three claims. The Excelliance practices the first two so they also infringe claim '634.

01:54 Q. So can I just put those checkmarks to complete the board over there for claim 2 and claim 3?

A. Yes.

Q. So just to recap, both -- ASUS infringes both the claim 1 of the '409 Patent and claims 1 through 3 of the '634 Patent.

A. Yes, they do.

Q. Can you -- if you would, please remind the jury how much

01:55 time you've spent on this case?

A. The case in total, I think it's around 200 hours.

Q. And so what opinions have you formed regarding ASUS's role in the infringement of these patents?

A. I have looked at, for instance, their sales web page. I've seen that they offer for sale and sell the products in the United States. So I believe they directly infringe these

01:56 claims of the two patents. And, furthermore, I also believe they indirectly infringe.

Q. And so with regards to indirectly infringe, who are the parties involved in the use, sale, or distribution of the ASUS products in the United States?

A. So the importers that would bring a product to the United States, resellers that then provide those products to consumers, and of course the users themselves, the consumers,

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all three of those parties.
Q. And so what is the basis for that opinion, sir?
A. Again, my general knowledge of the industry in terms of how things are built overseas and then ultimately offered, for instance to me, in the United States.
Q. Dr. Neikirk, based on your experience, do you know whether ASUS designs products for different territories?
A. My experience is that virtually all electronics companies, in order to sell products in different geographical regions, for instance, they have to design those products to satisfy the given region's regulatory requirements is a for instance. So the U.S. is different from Europe. So in order to sell it here, it has to be designed to be sold here.
Q. What do you mean by regulatory requirements?
A. I mean, you can think of something as simple as the plug that you plug into the wall. A European wall plug is different from a U.S. wall plug. But there are other things that the U.S. will require that are different than, for instance, Europe.
Q. And, sir, did you review the notice letters that ASUS was sent?
A. I did.
Q. Are your opinions consistent with those contained in the notice letters that Force MOS sent?
THE COURT: Just a minute, counsel.

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What is it, Mr. McMahon?

MR. McMAHON: May we approach, Your Honor?

THE COURT: Approach the bench.

(The following was had outside the hearing of the jury.)

THE COURT: What is it?

01:57 MR. McMAHON: We're getting into state of mind and the exchange of notice letters and opinions and I think we're headed for willfulness and knowledge of infringement under induced infringement. These are well outside his stated expertise.

THE COURT: What's the response?

MR. HANBA: This is my last question. There is -- we're not going to get into anything --

THE COURT: Whether it's first or last doesn't address --

MR. HANBA: It's he reviewed -- the notice letters are in his materials considered. That's it. That's all it is. It's in his materials considered, Your Honor. All I'm

01:58 asking is if it's consistent with what he's done today.

MR. McMAHON: I thought when we agreed to the Matech stipulation, you represented that he would not be speaking to the notice letters.

MR. HANBA: No. That's not in the stipulation.

THE COURT: Keep your voices down, please.

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MR. HANBA: Yes, sir.

MR. McMAHON: When we agreed to the Matech stipulation, we had an agreement that neither expert would speak to the Matech images that appear in the notice letters because they do appear there. And my understanding--I can go back and find the correspondence--is that we -- that the agreement was neither party addressed those notice letters so it would not be an issue at trial.

01:58

MR. HANBA: Well, Your Honor, we saw the notice letters in Mr. Chung's testimony. So I'm -- maybe I'm a little confused. But because he's seen the notice letters -- and we're not going talk about the images or anything. All it is is the notice letters, whether he's seen them, whether it's consistent.

THE COURT: Well, I don't know what you two may or may not have agreed to, but from my perspective the question is, is this within this expert's report and has it survived *Daubert*. And if so, it's fair game. If it's not within his report or if it's somehow been *Dauberted* out in pretrial, then by all means it's not fair game.

01:59

So notwithstanding you all may now have a different recollection of what you previously thought you agreed to, is this last question, quote, unquote, something that's within the scope of his report and is Defendant on notice of it or is it not?

01:59

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MR. McMAHON: I believe it is not, Your Honor.

THE COURT: And Mr. Hanba?

MR. HANBA: I believe it is, Your Honor, because this is within that materials he considered, and he will not opine upon anything else.

THE COURT: Well, I mean, the only option I have is to send the jury out and get his report and let you point to me where you think it is covered, let me look at it, and then I can give you a decision. That's the only way I can proceed.

02:00

MR. McMAHON: In the interest of efficiency, may I ask what's the one question you want to ask?

MR. HANBA: Whether it's consistent with what he's talked about today.

THE COURT: Whether what's consistent?

MR. HANBA: Whether the notice letters are consistent with what he has talked about today. I can keep it to a yes or no.

THE COURT: Mr. McMahon, what do you want to do? Do you want to maintain your objection which I'll get the report and look at it or you want to withdraw your objection?

02:00

MR. McMAHON: Will you also consider correspondence between the parties and their agreement pretrial?

THE COURT: Are you -- are you asking me a question?

MR. McMAHON: I'm saying that, to me, the stronger objection here is we had an agreement that the experts would

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not speak to the notice letters.

THE COURT: And how is that agreement memorialized?

MR. McMAHON: In email.

THE COURT: Well, I mean --

02:01 MR. McMAHON: Actually it may be -- Your Honor, I'm not -- I don't know off the top of my head. I don't know.

THE COURT: Well, my typical approach is it's very common for counsel to have agreements during the trial of a lawsuit either in advance or during the trial itself. The ones I enforce are the ones that you make me aware of and I approve or consent to. This is not something I recall being

02:02 raised before me.

So I'm not excited about trying to somehow be an arbiter of what is or isn't within an email exchange as far as an agreement.

MR. McMAHON: Understood.

THE COURT: It's not my agreement and it's not my directive to you, so I'm a little hesitant to try to arbitrate it.

MR. McMAHON: Understood, sir.

THE COURT: But if this is within his report substantively, fine. If it's not, then it shouldn't come in.

02:02 MR. McMAHON: I have no doubt it is in his materials considered. I do not believe it is in his report.

THE COURT: Well, I mean, the materials considered

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are not in the analysis in the report. As I've told you, the text in the report can be supported by demonstratives that flow from the materials considered, but the reverse is not true. The materials considered cannot give rise to analysis that's not spelled out in the report.

So, Mr. Hanba, is there analysis within his report on this matter or is it simply contained within the materials considered, listed at the end in the appendices?

MR. HANBA: I believe -- Your Honor, I believe he says, I reviewed the notice letters. I'm not willing to burn the time on the jury.

THE COURT: We're burning time right now. This time's going to get charged to somebody.

MR. HANBA: So, Your Honor, I'll withdraw the question. I have one more question, and I'll withdraw the question.

THE COURT: Okay. So the question that gave rise to the objection is being withdrawn.

MR. HANBA: Yes.

THE COURT: Let's move on then.

MR. McMAHON: Thank you, sir.

(The following was had in the presence and hearing of the jury.)

Q. (BY MR. HANBA) Just one quick question, and I think I answered it, but, sir, did you review the notice letters that

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ASUS sent?

A. Yes, I did.

Q. Okay.

MR. HANBA: No further questions. Pass the witness.

THE COURT: All right. Cross examination by the Defendant.

02:03 Mr. Hanba, you need to take your boards down.

Mr. McMahon, are there cross-examination binders to be distributed?

MR. McMAHON: There are, sir.

02:04 THE COURT: Let's get that done.

MR. McMAHON: May I approach?

THE COURT: You may approach.

02:05 Ladies and gentlemen, while they're doing that, when I'm talking with counsel here at the bench, that's not a signal that you can whisper or talk back and forth among yourselves. You-all shouldn't be communicating at all at any time while you're in the courtroom.

Go ahead, counsel.

02:05 MR. McMAHON: May I approach, Your Honor?

THE COURT: All right, Mr. McMahon. You may proceed with cross examination of Dr. Neikirk.

MR. McMAHON: Thank you, Your Honor.

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CROSS EXAMINATION

BY MR. McMAHON:

Q. Good afternoon, Dr. Neikirk.

A. Good afternoon.

Q. Can you hear me all right?

A. I can. Thank you.

02:05 Q. If you can't, at some point please let me know.

A. I will.

Q. It's good to see you again, sir. We've met previously?

A. We did.

Q. During your deposition?

A. Yes, sir.

Q. This case, Dr. Neikirk, is about trench MOSFETs. Right?

A. I think that's certainly a lot of about what the case is, yes.

Q. The '634 Patent is directed to trench MOSFETs?

A. It is.

Q. As is the '409 Patent?

A. It is.

Q. So both patents are directed to trench MOSFETs?

A. Yes, they are.

02:06 Q. You have never -- let me start that over. Prior to this case, you've never done any work with trench MOSFETs before. Right?

A. This style of trench MOSFET, no, I have not.

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Q. You've never done any patent work with trench MOSFETs?
A. I'm trying to think. I don't think that's quite correct.
Q. Have you done patent work with respect to trench MOSFETs before?
A. I'm trying to recall the last patent work I did on a
02:06 power MOSFET. I believe -- I'm trying to remember whether that used trenched gates. I don't recall right now off the top of my head.
THE COURT: You're not sure is an acceptable answer.
THE WITNESS: Excuse me, sir. Yes. Thank you, Your Honor.
Q. (BY MR. McMAHON) You don't recall doing any -- any patent-related work on trench MOSFETs?
A. I do not recall doing any patent-related work on trench MOSFETs.
Q. And in your academic career, you have not done any work on trench MOSFETs. Correct?
A. Yes, that's correct.
02:07 Q. You've never designed a trench MOSFET?
A. That's correct.
Q. And you've never built a trench MOSFET.
A. That's correct.
Q. You wrote some reports outlining your opinions in this case. Right, sir?
A. I did.

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Q. In those reports, you described all of your opinions for this case?
A. Yes, to the best of my -- yes, I did.
Q. You are not here to testify about any new opinions?
A. No, I'm not.
02:07 Q. In your testimony today, you addressed seven specific MOSFET models. Right?
A. Yes, I did.
Q. Those are the seven specific MOSFET models that Force MOS has accused of infringement. Right?
A. Yes.
Q. Okay. Force MOS has not accused any other MOSFETs of infringement.
A. Not to my knowledge, no.
Q. And you have not offered an infringement opinion in this trial on any other MOSFET. Right?
A. No, I have not.
Q. Just those seven.
A. Just those seven, yes, sir.
02:08 Q. You would agree that there are other MOSFETs in ASUS products beyond those seven. Right?
A. I would guess so, sir.
Q. You don't know for sure?
A. I haven't looked for any others.
Q. Force MOS did not invent MOSFETs. Right?

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A. No, they did not.
Q. Did not invent power MOSFETs?
A. No, they did not.
Q. Did not invent trench MOSFETs?
A. No, they did not.
Q. Force MOS invented none of those things?
A. No, I don't believe they did.
Q. Trench MOSFETs have been around since the '80s. Right?
02:08 A. That sounds right. I don't remember a precise year.
Q. If I -- so going back to the seven and I think you've already done this, but just to be clear between you and me, if I refer to those seven MOSFETs as the accused MOSFETs, will you understand what I mean?
A. I will, sir.
Q. Thank you.
You mentioned this morning that you've spent about 200 hours working on this case. Did I get that right?
A. I think that's about right, yes.
Q. And in that time you reviewed a lot of documents, you
02:09 prepared some reports, you had two days of depositions, you analyzed the products, the MOSFETs, themselves. Right?
A. I analyzed the images of the products, yes.
Q. And the depositions, those were back in July. Right?
A. I had forgotten what month they were, but that sounds right, yes, sir.

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Q. And you told me in July that as of that time, you had spent about 70 to 100 hours on the case. Is that right?
A. Yes.
02:09 Q. Do you recall how many pages you reviewed in forming your opinions? Let me take that back.
You have a list of materials that you've considered that you attached to your report. Right?
A. Yes.
Q. And do you have any idea how many pages are in that list?
A. I don't know a number. I'm sure it's a very large number.
Q. Would you take my word if I said 33,000?
A. I wouldn't be surprised. I wouldn't dispute that.
Q. Okay. And your reports have been quite voluminous, too. Right? Your infringement report was 524 pages?
02:10 A. That sounds about right.
Q. You had a second report that was 127 pages?
A. Yes.
Q. And maybe another report after that that was shorter?
A. I don't recall -- the -- I don't recall a third report honestly, I'm sorry.
Q. And it's taken some time to analyze the products themselves. Right?
A. Yes.
Q. Okay. So all of that work, 524 pages of the first

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report, 127 pages in the second report, reviewing 33,000 pages of documents, analyzing all of these products, you've got all that done in 70 to 100 hours?

A. Well, I believe my second report was submitted -- I guess it was before the -- I'm not sure whether it was before the deposition. But yes, sir.

Q. Okay.

A. I'm sorry.

Q. This morning the jury heard video testimony from Mr. Vinh Diep. Did you see that?

A. I did.

Q. Mr. Diep is the person who conducted and supervised the work at Microtech. Right?

A. That's my understanding from his testimony, yes.

Q. He tore down certain ASUSTek products?

A. That is my understanding, yes.

Q. And he was looking to find the accused MOSFETs inside those products.

A. Yes.

Q. Mr. Diep counted those accused MOSFETs. Right?

A. Yes, he did.

Q. And he conducted all of the SEM imaging that Microtech did. Right?

A. That's my understanding from what he said in his testimony, yes.

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Q. Mr. Diep is the SEM guy at Microtech.
A. I'm sorry. I believe he said he supervises some others as well.
Q. Okay. But for purposes of this case, Mr. Diep is the SEM guy at Microtech.
A. I guess, yes.
Q. Did you observe anyone else conducting the SEMs?
A. I didn't observe anyone conducting the SEMs.
Q. You previously stated that you, quote, directed and observed tear-downs of various ASUS devices such as laptops, motherboards, graphics cards, and power strips, end quote. Correct?
A. Yes.
Q. 'Directed', you used that word a number of times, didn't you, sir?
A. I did.
Q. For example, you said that you, quote, directed a tear-down, end quote, of the ASUS PHGTX1660S graphics card. Right?
A. Yes.
Q. And you also said that you, quote, directed a tear-down, end quote, of the ASUS ROG Strix Z790 laptop. Right?
A. Yes.
Q. And you said that you, quote, directed a tear-down, end quote, of the ASUS RTX3060 graphics card. Right?

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A. Yes.
Q. And you also said that you, quote, directed a tear-down, end quote, of the ASUS Zenbooks model UX6404VI. Right?
A. Yes.
Q. And you said that you, quote, directed a tear-down, end quote, of the ASUS TUF gaming B706M plus WiFi motherboard. Right?
A. Yes.
02:13 Q. And, finally, you said that you, quote, directed a tear-down, end quote, of the ASUS E410 laptop. Right?
A. Yes.
Q. But that wasn't all you said about directing tear-downs, was it, Dr. Neikirk?
A. I don't recall what else I said.
Q. You also told me that you had all those products, quote, examined under your direction, end quote. Right, sir?
A. I believe that would have been -- that sounds right, yes.
Q. And you told me that you sent the ASUSTek products to
02:13 Microtech, that you, quote, instructed, end quote, Microtech to count the accused MOSFETs. Right?
A. Yes.
Q. Sir, you did not actually direct or instruct any of that. Right?
A. I wouldn't agree with that characterization, no.
Q. You did not meet with Mr. Diep about this case, did you?

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A. No, I did not.
Q. You did not talk to him on the phone.
A. No, I did not.
Q. You did not send him an email.
A. I did not.
Q. You did not have a video conference with him.
A. I did not.
02:14 Q. You did not send him a letter.
A. I did not.
Q. And you received no letter, email, or phone call from him.
A. That is correct, I did not.
Q. You've never even met Mr. Diep, have you?
A. I believe that's correct.
Q. Never?
A. Well, I've been to Microtech before. His face looked familiar. I met quite a few people there. I don't recall his name.
Q. He doesn't recall yours, either, does he, sir?
A. No, he doesn't.
Q. When I asked Mr. Diep if he had any contact with you, do you know what he said?
A. I believe he said he did not.
02:15 Q. Mr. Diep said he had never even heard of you. Right?
A. I believe I heard that this morning, yes.

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Q. And we all heard that testimony from Mr. Diep this morning. Right?
A. Yes.
Q. Mr. Diep is the SEM guy at Microtech. Right?
A. He is certainly a supervisor of the reverse engineering group for SEMs, yes.
Q. And that's the same Vinh Diep who conducted and supervised all of the Microtech tear-downs. Right?
A. That's my understanding yes.
Q. The tear-downs that you said you directed.
A. Yes.
02:15 Q. Okay. In reality, it was actually Force MOS's attorneys who directed all of those activities. Right?
A. Well, I communicated with Force MOS attorneys.
Q. And Force MOS's attorneys had all of the communications with Microtech. Right?
A. That is my understanding, yes.
Q. The lawyers sitting right here at this table. Correct?
A. I don't know that it's the lawyers sitting at the table --
02:15 Q. Do you know --
A. -- or not.
Q. Sorry. Were you finished?
A. Yes, sir.
Q. I didn't mean the interrupt you. I apologize.

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THE COURT: One at a time, gentlemen. Please.

THE WITNESS: Pardon me.

THE COURT: Go ahead, counsel.

Q. (BY MR. McMAHON) Force MOS's lawyers talked to Mr. Diep. Right?

A. Yes, that is my understanding.

Q. Force MOS's lawyers directed Mr. Diep.

A. Yes, my understanding. That would -- yes.

Q. Force MOS's lawyers instructed Mr. Diep.

A. Yes.

Q. Force MOS's lawyers decided what to tell Mr. Diep.

02:16 A. I suppose, yes.

Q. Force MOS's lawyers received the results from Mr. Diep.

A. Yes, they did.

Q. And Force MOS's lawyers are not here to testify today, sir; you are. Correct?

A. Yes, sir.

Q. Dr. Neikirk, were you here on Friday when Mr. Rafael Chung testified?

A. I was.

Q. You saw that testimony?

A. I did.

Q. And Mr. Chung is the Plaintiff's corporate representative. Correct?

A. That's my understanding.

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Q. Do you remember he testified that words matter?
02:16 A. I do recall he was asked that question, yes.
Q. And you would agree that words do matter. Right, sir?
A. Sometimes.
Q. In this context, certainly words matter. Right?
A. Certainly patent claims, the words matter.
Q. It's important to get the words right. Right, sir?
A. In certain circumstances, it certainly is.
Q. When you're sitting in the witness stand in a courtroom testifying under oath, it's certainly important to get the words right. Right, sir?
A. It absolutely is, yes.
02:17 Q. Can we also agree that numbers matter?
A. Again, it depends on the context. Sometimes, yes.
Q. It's important to get numbers right sometimes. Right, sir?
A. Well, numbers have to be placed in a context. In the context, they should be right, yes.
Q. And, in particular, when you're sitting in the witness stand in a court of law testifying under oath, getting the numbers right does matter. Right, sir?
A. Yes, given the numbers have some context.
02:18 Q. I'd like to turn to component counting. Prior to trial, you stated that you had, quote, sampled various ASUS products, including the representative products, containing the accused

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components to arrive at a conservative estimate of the number of accused components per device. Right?

A. Yes.

Q. Conservative estimate?

02:18 A. I believe so, yes.

Q. Okay. We'll come back to that.

The component counts in this case are important, aren't they?

A. I understand they are.

Q. Because Mr. Lamotta relied on your component counts. Right?

A. That's my understanding, yes.

Q. Mr. Lamotta will testify perhaps later today or tomorrow. He's another expert in this case. Right?

A. Yes.

Q. Okay. You know Mr. Lamotta?

A. Well, I've met him, yes.

Q. Okay. You talked to him, to Mr. Lamotta, several months ago?

02:18 A. I did.

Q. And you told him about the component counts.

A. I did.

Q. And everything you told Mr. Lamotta was in your reports. Right, sir?

A. Yes. I told him about my estimates, yes.

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Q. And you didn't tell him anything that was not in your reports. Right?
A. I don't believe I did.
Q. You didn't tell him anything that wasn't in your reports.
A. I don't believe I did.
Q. You also told me before trial that the product sampling and component counting was done under your direction. Right, sir?
A. Yes.
Q. You didn't just say it once; you said it multiple times. Right?
A. I imagine I did, yes, sir.
Q. You said it was done under your direction?
A. I wouldn't be surprised if those are my exact words.
Q. You also told me that the counting was done by a laboratory that you engaged. Right, Dr. Neikirk?
A. That's correct.
Q. But you did not actually engage the laboratory, did you?
A. I did not hire them or pay them. So, no, I did not.
Q. You did not engage them.
A. Well, I picked the laboratory and informed counsel as to what laboratory to use.
Q. You didn't call Microtech to say, Hey, I've got a job for you?
A. I did not.

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Q. You didn't sign a contact with Microtech to say, I need you to do this work?
A. I did not.
Q. You didn't send sign Microtech a work order.
A. I did not.
Q. You didn't talk to anybody at Microtech about what Microtech was going to do?
A. I did not.
Q. Okay. And you did not actually sample the products, either. Right?
02:20 A. I sampled the spreadsheets that claimed to have component counts on them. Those I examined, but I did not physically disassemble the boards.
Q. So several questions ago we started down this line talking about product sampling. That's what I meant by sampling. You are talking about spreadsheet sampling. Let me make sure we get this right. You did not actually sample the products. Correct?
A. Again, I'm sorry. I'm not sure I understand what you mean by sample the products.
02:20 Q. Well, did you tear the products down and count the number of components inside?
A. No, I did not.
Q. Okay. And the counting was actually not really done under your direction, either, was it, sir?

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A. I asked that the counting be done. But, no, I was not standing there watching it be done.
Q. To whom did you ask that the counting be done?
A. I communicated through the attorneys at Dickinson Wright.
Q. And that was it. You had no further contact beyond that.
02:21 A. Further -- I'm sorry. Further contact --
Q. No further -- you had no direct contact with Microtech. I think we've established that.
A. Yes, that's correct.
Q. All right. In fact, before trial you admitted to me that you did not even know the name of the person who did the counting. Right?
A. I did not.
Q. But now you do know. Right?
A. I do.
Q. And that's Mr. Diep.
A. I understand that from both his deposition and his testimony.
Q. Mr. Diep and his team did the counting.
A. Yes.
Q. Okay. He's the SEM guy at Microtech.
A. That's my understanding, yes.
02:21 Q. The very same Mr. Diep who testified just this morning that he had never heard of you.
A. I assume so, yes.

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Q. Okay. Do you remember that during opening statements I -- were you here for opening statements?
A. I was.
Q. I thought I saw you. Thank you.
Do you remember I told the jury to watch the counts during opening statement? Do you remember that?
A. I don't recall those exact words, but it sounds familiar.
02:22 Q. Okay. You could have watched the counts that Microtech did. Right?
A. I could have, yes.
Q. But you didn't.
A. I did not.
Q. You were not physically present.
A. I was not.
Q. You did not see the counts being done.
A. No, I did not.
Q. You rely 100 percent on trusting Mr. Diep that he got the counts right.
A. That's correct.
Q. Okay. And to be more precise, you rely on what Force MOS's lawyers told you about Mr. Diep's counts. Right?
02:22 A. I received the information that Microtech provided via or through a share site that was at Dickinson Wright.
Q. And so the information you received came from Force MOS's lawyers and you relied on them.

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A. Yes.
Q. You prepared a table that included your own counts. Right?
A. I created a table that included my own estimates.
02:23 Q. Your own estimates. Did you prepare the table or did someone else prepare?
A. That was prepared in collaboration -- well, I didn't type the numbers into that table. I had assistance in drafting and assembling the document, but that -- those estimates were developed based on my input.
Q. Assistance from Force MOS's lawyers?
A. Yes.
Q. Okay. We'll get to your table. I'll come back to that in a few minutes. But first I'd like to talk about a
02:23 different table, and that is Mr. Diep's table.
Mr. Diep, the SEM guy at Microtech, he prepared his own table documenting his counts. Correct?
A. Yes.
Q. Let's take a look at that.
MR. McMAHON: Mr. Buck, could you please bring up Mr. Diep's table?
Q. (BY MR. McMAHON) Dr. Neikirk, do you recognize what we see on the screen here, PDX 5, as Mr. Diep's table?
A. I do.
Q. And this is the table in which Mr. Diep documented his

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component counts. Right?

02:24 A. Yes, I'm -- I was just trying to remember whether it was only one page. I think it was. But, yes, this looks certainly like one of two pages, if not the only page.

Q. Okay. On the left side of Mr. Diep's table, he listed the various ASUSTek products that he tore down. Right?

A. That's correct.

Q. And you may recall in his video testimony this morning, he referred to the green bars.

A. I didn't recall that he referred to them as green bars, but I see --

Q. Sorry?

A. Excuse me.

Q. My fault. My fault. I apologize.

02:24 We do see green bars on this screen. Right? Separating each product and the counts underneath it.

A. Yes, we do.

Q. Okay. On this list, there are three laptops. Correct?

A. Let's see. Yes, there are.

Q. Zenbook Pro 4, UX6404V, that's a laptop. Right?

A. It's a Zenbook Pro 14. I believe you called it the Zenbook 4. Yes, that's a laptop.

02:25 Q. Thank you for the correction. You're right, Zenbook Pro 14. And the E10 is a laptop. Right?

A. Yes. The E410.

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Q. I have a problem with 4s. Let me say that over. The E410 is a laptop. Right, sir?
A. Yes, sir.
Q. Thank you. We'll get through this together.
The Q526F Zenbook is a laptop. Right?
A. Yes, it is.
Q. Okay. Let's mark those three laptops with L for laptop. Is that okay?
A. That's fine.
Q. Okay. On Mr. Diep's list, there are two motherboards. Right?
A. I believe there are, yes.
02:26 Q. I'll try to read these correctly. The ROG Strix Z7920-A. That is a motherboard. Right?
A. Yes, it is a motherboard.
Q. And TUF Gaming B760M is also a motherboard. Right?
A. Yes, it is.
Q. And that one actually is listed twice in Mr. Diep's table. Do you see that?
A. I do.
Q. Let's mark those with M for motherboard. Is that okay?
A. Yes, that's fine.
02:26 Q. So we've marked the laptops, we've marked the motherboards. That leaves us with one left at the top. That is the PH-GTX1660S, which is a graphics card. Right?

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A. Yes, that's correct.
Q. Let's mark that with a G, please. And at the bottom of Mr. Diep's list, there are three power bricks. Do you see that?
A. I do.
Q. Power brick means like an AC adaptor that you would plug into the wall to power a laptop?
02:26 A. I assume it does. That's what many of us call those devices. We call them bricks.
Q. But you didn't see these actual bricks?
A. I'm sure I saw photographs of them in the materials that I reviewed that came back from Microtech. But other than that, no, I didn't physically handle them.
Q. Okay. Is it okay if we mark those with PB for power bricks?
A. Sure.
Q. Okay. Let's do that.
So on this list, Dr. Neikirk, I see laptops, motherboards, a graphics card, and power bricks. Right?
A. Yes.
02:27 Q. There are no handhelds anywhere on Mr. Diep's table. Right?
A. No, there are not.
Q. Okay. Let's talk about the laptops if that's okay.
In the Zenbook Pro 14 UX6404V, Mr. Diep counted 58

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accused MOSFETs. Right?
A. Yes.
Q. And that's a matter of math here. We see he counted 2 of the M3058M. Yes?
A. Yes.
Q. And 56 of the 8K. Right?
A. Right.
02:27 Q. And those are the codes that appear on the packaging of those two accused MOSFETs.
A. That is correct.
Q. So total here we have for this laptop is 58 accused MOSFETs.
A. Yes.
Q. Okay. Let's fill that in if that's okay.
In the E410 laptop, Mr. Diep counted 28 accused MOSFETs. Right? I'm sorry. 22.
A. Yes.
02:28 Q. Mr. Diep counted 2 of the M0316 -- sorry. Got to slow down. He counted two of the M3016(a)M. Right?
A. Yes.
Q. And 15 of the 8K?
A. Yes.
Q. 1 of the 701?
A. Yes.
Q. 1 of the K27?

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A. Yes.
Q. And 3 of the K72?
A. Yes, sir.
Q. Again, all being the codes that on the packaging of those MOSFETs.
A. That is correct.
Q. Let's add 22 as a total in the total column, if that's okay.
A. That's fine.
02:28 Q. Of those 22 MOSFETs, three of them were actually on the battery controller for that laptop. Right?
A. I don't recall that it was three. I honestly don't recall. I believe he stated that he did find typically one in a battery? I honestly don't remember.
Q. Did you look at the photographs that he provided of the battery controller?
A. I did, and I don't recall whether it was large enough to
02:29 read what was on that controller. I just don't remember.
MR. McMAHON: Mr. Buck, could we bring up PX 41 at page 22, please?
Q. (BY MR. McMAHON) Dr. Neikirk, do you recognize this image?
A. I do.
Q. What is this?
A. That is the -- it's been removed from a battery pack, so

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I think it's a -- it is appropriate to refer to that as a battery controller.

MR. McMAHON: And let's go to page 23, please.

Q. (BY MR. McMAHON) That's zooming in a little bit closer, still the same thing. Right?

A. It is.

02:30 Q. And you see in the top center, there is a small device labeled 701.

A. I do see that one.

Q. That is one of the accused MOSFETs that Mr. Diep found in the E410 laptop. Right?

A. I would assume that's one of the ones he counted.

Q. Okay. Let's --

MR. McMAHON: Mr. Buck, let's go to PX 41, page 8.

Q. (BY MR. McMAHON) And actually just to step back a little bit and provide some context, Dr. Neikirk, this is Mr. Diep's

02:30 photo at the early stage of his tear-down when he had just taken the computer apart. Correct?

A. That's my understanding, yes.

Q. And the big black thing in the middle is actually the battery.

A. Yes, the thing that kind of looks like a foil pack or something that's black, yes, that's the battery.

Q. And attached at the top right is that blue circuit board we just looked at. Right?

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A. That's correct.

MR. McMAHON: Next page, please, Mr. Buck?

Q. (BY MR. McMAHON) Here we see the battery by itself with the controller removed from the laptop. Right?

A. Yes. I've seen this photograph before.

MR. McMAHON: Mr. Buck, next page, please.

02:30 Q. (BY MR. McMAHON) And this is just the flip side of the battery and the battery controller. Correct?

A. Yes, that's correct.

MR. McMAHON: Mr. Buck, next page, please.

Q. (BY MR. McMAHON) And this is zooming in to see that same battery controller. Correct?

A. Yes.

Q. And if we look at it here --

MR. McMAHON: Actually let's go on to the next page, please, zooming in a little bit more.

Q. (BY MR. McMAHON) Dr. Neikirk, do you see at the bottom of the blue board, there are two identical-looking chips that read M3016AM?

02:31 A. Yes, I do see those.

Q. Those are the other two MOSFETs, accused MOSFETs, that Mr. Diep found on the battery. Right?

A. Those are certainly accused, and I assume those are two that he counted.

MR. McMAHON: And so, Mr. Buck, if we could go back

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to Mr. Diep's table, please.
Q. (BY MR. McMAHON) And here we do see, in fact, that Mr. Diep listed two of the M3016(a)M. Right?
A. Yes.
Q. And one of the 701. Right?
A. Yes.
02:31 Q. So he counted the battery.
A. Well, again, that's assuming that these are the ones that he's referring to. I don't know that with certainty, but it certainly matches the battery controller.
Q. You have no reason to question it.
A. I do not.
Q. Let's move on to the Q526F laptop. In that one, Mr. Diep found only two accused MOSFETs. Right?
A. That's correct.
Q. He counted two of the K72 components.
A. Yes.
02:32 Q. And that was it, giving a total of two accused MOSFETs for this laptop.
A. Those are the two that he reported in his account.
MR. McMAHON: Okay. Let's add the two total. Thank you, Mr. Buck.
Q. (BY MR. McMAHON) Dr. Neikirk, you don't have any reason at all to question Mr. Diep's counting. Right?
A. I do not.

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Q. He counted every accused MOSFET he found in those laptops and you trust his totals.
A. I would assume he looked for the ones he could find and he counted them accurately question, yes.
02:32 Q. And any reason to believe that there are some he couldn't have found?
A. I don't know that he looked into the display section or disassembled that.
Q. And that's understandable because you didn't give him the instructions. Right, Dr. Neikirk?
A. I did not. I requested that the laptops be disassembled, but no further instruction than that.
Q. The instructions actually came from Force MOS's lawyers.
A. Yes, they did.
Q. And it's --
A. Excuse me. Yes, they did.
02:33 Q. It's fair to assume that Force MOS's lawyers wanted Mr. Diep to find as many accused MOSFETs in these laptops as he could. Right?
A. I -- it's fair to assume that he was asked to find what he could find, yes.
Q. And I'm going a little bit further. You understand, sir, as lawyers in the courtroom, we are -- we are -- as I believe the Court has instructed, we are here to zealously advocate for our clients. Correct?

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A. I understand that.
Q. So you would expect that Force MOS's lawyers would
02:33 zealously advocate for Force MOS. Right?
A. In terms of passing on my desires to Microtech, I don't know that they would amplify beyond what I asked for.
Q. Well, I'll be -- let me be a little bit more clear. These counts speak to damages. Right?
A. I don't know. I assume they might.
Q. Because you're not part of that part of the case?
A. Well, no. The table I developed are my estimates, not
02:34 these counts.
Q. Maybe we're talking past each other. I'm not disputing that.
My question is this: It is in Force MOS's interest, the client Force MOS, it's in their interest to find as many accused MOSFETs as they can. Right?
A. I wouldn't know. That's not my technical area.
Q. It stands to reason that the more accused MOSFETs you find, the more damages you can ask the jury for. Right?
A. Again, damages are outside my area of expertise. I don't know how it's done.
02:34 Q. Okay. But you have no reason to question Mr. Diep's count.
A. No. I don't have any reason to question his count.
Q. You assume he did a thorough job.

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A. I assume he did do a thorough job.
Q. And -- now, we've looked at three laptops. The highest number of accused MOSFETs that Mr. Diep found in any laptop was 58. Right?
A. I believe that's correct, yes.
02:35 Q. Okay. Remember that number, please, Dr. Neikirk. We'll come back to it.
For now let's move on to motherboards. So we've talked about the ROG Strix Z7920A, and here Mr. Diep counted 70 accused MOSFETs. Right?
A. Yes, he did.
Q. 16 of the K27?
A. Yes.
Q. 52 of the K72?
A. Yes.
Q. And two of the B20N03. Right?
A. Yes.
Q. For a total of 70?
A. Yes.
Q. Okay.
02:35 MR. McMAHON: If we could add that. Thank you, Mr. Buck.
Q. (BY MR. McMAHON) In the TUF Gaming B760M, that's another motherboard. Mr. Diep counted only 27 MOSFETs. Right? And I see the puzzled look on your face. This one was the

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motherboard that was listed twice in the table. We see 26 here. Right, Dr. Neikirk?

A. Yes, I do recall this.

Q. And in the other entry for the TUF Gaming B760M, there was just one.

A. Yes.

Q. So for a total of 27.

A. Yes.

02:36 MR. McMAHON: Mr. Buck, can we add that total of 27 to the screen?

Q. (BY MR. McMAHON) We've got 26 in one entry and 1 in the other for a combined total of 27. Right, Dr. Neikirk?

A. Yes, that's correct.

Q. And, again, you have no reason to question that count?

A. No, I don't.

Q. You expect that -- assume Mr. Diep did a diligent job and found all he could find.

A. I do assume that.

02:36 Q. The highest number of MOSFETs that Mr. Diep found in any motherboard that he counted was 70. Right?

A. Yes.

Q. Remember that number, too. We'll come back to that.

Let's turn to the graphics card. This is the PH-GTX166-0S. And this one is a bit curious. We have two zeros in the entry, but it does look like a total of 9.

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Right, Dr. Neikirk?

A. Yes, it does.

Q. Nine of the K27.

02:37 A. That's what it shows.

MR. McMAHON: So we can add nine to that, please, Mr. Buck.

Q. (BY MR. McMAHON) And that was the only graphics card that Mr. Diep was asked to sample and count. Right?

A. Yes, that's correct.

Q. So the highest number of accused MOSFETs that Mr. Diep found in any graphics card was nine.

A. Correct.

Q. Please remember that number, too.

Now, Mr. Diep testified that he triple-checked the counts. Right?

A. I did hear that testimony, yes.

02:38 Q. Okay. Dr. Neikirk, let's turn to your estimates.

MR. McMAHON: Mr. Buck, can we please bring up the demonstrative with Dr. Neikirk's estimates?

Q. (BY MR. McMAHON) Dr. Neikirk, do you recognize these numbers?

A. I do.

Q. And these are your estimates of the counts. Right?

A. That is correct.

Q. And this table accurately reflects your estimates?

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A. It does.
Q. And, in fact, this table mirrors a table that you included in your report with these same numbers.
A. Yes. Actually I was assuming this was the table, but, yes, I recognize the numbers. That is in my report.
Q. Okay. If I heard you correctly, sir, either this morning or maybe early this afternoon, I believe you described your estimates as an average. Did I hear that right?
A. I wasn't using the average in the sense of a specific mathematical average, but an attempt to provide an estimate that represents looking at more than just these products.
Q. But you did use the word 'average'.
A. I did.
Q. And an average does have a mathematical meaning. Right, sir?
A. It has several depending on the dataset, yes.
Q. Did you come up with these estimates, or was it Force MOS's lawyers who came up with these estimates?
A. These were arrived at in -- I was trying to formulate this. I looked at a variety of sources of information. And in discussions, these were the numbers that I felt were appropriate as estimates.
Q. Discussions with Force MOS's lawyers?
A. Yes.
Q. So somewhere between you and Force MOS's lawyers, these

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estimates were developed.
A. Well, they emerged from my discussions with counsel, yes.
02:39 Q. Mr. Diep was not involved in developing these estimates. Right?
A. Well, I don't think he was directly involved. He didn't write my report.
Q. Who did write your report, sir?
A. Well, the report contains my opinions. I did not type every word, certainly. Figures, content, were put in that report under my supervision. I did write portions. I reviewed every portion and edited severely, but I didn't type
02:40 every word.
Q. So Mr. Diep, back to that point, was not involved in developing your estimates.
A. Well, again, I think I pointed out that I considered his counts as well as other information in arriving with these numbers, but Mr. Diep didn't suggest what these numbers should be.
Q. In your table and as reflected here, at the top of the
02:40 column -- the next-to-last column on the right, you wrote ASUS graphics cards. Right?
A. That's correct.
Q. Mr. Diep only counted one graphics card. Right?
A. That's correct, he did.
Q. You didn't count any other graphics cards. Right?

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A. Well, there's that -- another graphics card listed here. Well, no, no, no. I'm sorry. That's a different component. I did not, and I was looking at other information from ASUS.

02:41 Q. So you estimated 12 accused MOSFETs in a graphics card. Correct?

A. I did.

Q. Okay. And you called that your conservative estimate.

A. I believe I did, yes.

Q. Okay. Mr. Diep, who actually did the counting, as we saw before, only came up with 9. Right?

A. For the one product that he had, he found 9, yes.

Q. And you did not count any other graphics card, did you, sir?

A. Well, again, I considered ASUS information that had many,

02:41 many products in it and information in that document concerning numbers of components. So I considered that in formulating these estimates.

Q. Okay. So you went beyond Mr. Diep's counts.

A. Well, yes.

Q. Okay.

MR. McMAHON: Mr. Buck, can we please have Dr. Neikirk's table side by side with Mr. Diep's table?

Q. (BY MR. McMAHON) So just again to close the loop on

02:42 this, graphics cards, Mr. Diep reported that he counted 9; you estimated 12.

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A. That's correct.
Q. Okay. You inflated the count to 12.
A. No. I considered more information than Mr. Diep had and arrived at 12 as my estimate.
Q. Let's look at your other columns. You have a column labeled notebooks. Right?
A. Yes.
Q. And in that -- actually you -- yeah, you say notebook. Notebook, laptop, same thing. Right?
A. Yes.
02:42 Q. Okay. In your notebook column, you estimated 65 in the total counts row. Right?
A. That's correct.
Q. And Mr. Diep did not count 65 in any laptop. Right?
A. No, he did not.
Q. And Mr. Diep only counted 58 in the highest number that he found in any laptop?
A. He counted 58 in the Zenbook Pro 14, yes.
Q. And he counted only 22 in the E410 laptop. Right?
A. That's correct.
Q. He counted only 2 in the Q526N laptop. Right?
A. That is correct.
02:43 Q. But you estimated 65.
A. That's correct.
Q. So your estimate is higher than any product that Mr. Diep

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actually counted.
A. Of the three products he examined, yes, it is larger than any of those individual products.
Q. And Mr. Diep is the only person in this entire case who has actually counted -- torn computers down and counted the accused MOSFETs in them. Right?
A. That's the only count of physical MOSFETs on physical objects that I know of.
02:43 Q. Okay. You previously admitted to me--right, sir?--that your 65 actually was not intended to reflect a single laptop.
A. I don't recall whether that's the way I phrased it. It may have been. It, again, was by looking at many laptops to
02:44 arrive at a number that I thought was a reasonable estimate ultimately to represent a laptop. So in that sense, I was certainly looking at many.
Q. What you did, sir, is looked at Mr. Diep's counts on the left and you took the highest number that he found of any component in any of the laptops and you added those highest numbers together. Right?
A. I wouldn't characterize it that way. I looked at Mr.
02:44 Diep's numbers, I looked at ASUS documents that indicated component counts for a much larger variety of product, and reached what I thought was a reasonable estimate to represent a product.
Q. Okay. Let's look at motherboards. In the motherboards

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column, you wrote 107 in your total counts estimate. Right?
A. I did.
Q. 107.
A. Yes.
Q. Okay. Mr. Diep did not count 107 in any motherboard.
02:45 A. I -- no, I don't believe he did.
Q. Mr. Diep counted only 70 accused MOSFETs in the ROG Strix 7920-A.
A. Yes.
Q. And he counted only 27 in the TUF Gaming B760M motherboard. Right?
A. Yes, that's correct.
Q. You increased the count to 107. Right?
A. So, again, considering a much larger set of information than Mr. Diep was looking at, I arrived at what I thought was a reasonable estimate of 107.
02:46 Q. Dr. Neikirk, yes or no, you increased the number to 107.
A. 107 is certainly larger. So, yes, it's increased.
Q. Okay. As with the laptops, you estimated 107 for motherboards even though you knew Mr. Diep had not counted any motherboard that had anywhere near that number. Yes?
A. Well, yes. You characterized 70 as not anywhere near 107, but I knew he never counted 107.
02:46 Q. You knew he didn't count anything higher than 70.
A. That's correct.

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Q. Okay. You inflated the count for motherboards to 107.
A. Again, it is a larger number. I wouldn't call that an inflation because that says it was based on the lower number.
Q. Okay. And you call that your conservative estimate. Right?
A. Yes.
Q. Okay. You also have a column called handhelds. Right?
A. I do.
Q. Mr. Diep did not count accused MOSFETs in any handheld. Correct?
02:47 A. That's correct.
Q. There are no handheld devices anywhere in Mr. Diep's table.
A. That is correct.
Q. But you still wrote 3 in your estimate for handhelds. Right?
A. I did.
Q. Okay. Now, I want to make sure I understand this correctly. Even though Mr. Diep counted no handhelds and listed no handhelds in his table, you still put 3 as your estimate in the handhelds table -- handhelds column of your table. Correct?
A. Yes. Excuse me. Yes, correct.
Q. Three, not zero.
02:47 A. Three, not zero.

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Q. You also have a column called batteries in your table. Right?
A. I do.
Q. And here you estimated 3. Right?
A. I did.
Q. Was that based on the battery in the E410 laptop?
A. So, again, it wasn't based on any single item, but seeing that number and what limited information that ASUS seemed to
02:47 be able to provide, I thought in this case that's the best conservative estimate I could do -- could make for the charge controller in a battery.
Q. But Mr. Diep did count a battery. Correct? And he actually did find three accused MOSFETs on that battery.
A. He did.
Q. Okay. Okay. You also wrote -- you also told me previously that batteries may include up to 15 MOSFETs. Right?
A. I don't recall that, but I may very well have.
Q. Okay. You haven't said that today.
02:48 A. No, I didn't say that today.
Q. And we can agree that Mr. Diep did not find 15 accused MOSFETs in any battery.
A. No. The one -- I believe the one battery examined had only 3.
Q. Thank you.

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I think we've covered all the components except I want to return to the power bricks at the bottom of Mr. Diep's table.

02:49 Separate from your table -- you did not list power bricks in your table. Right?

A. I did not.

Q. But separately, you told -- you said that you had estimates for power bricks. Right?

A. I believe that is in the text of my report, yes.

Q. Now, sir, you did not actually analyze any power bricks. Right?

A. Again, I had various documentation from ASUS to look at

02:49 and what limited information they provided. I did not physically tear down any power brick.

Q. Mr. Diep analyzed the power adapters. Correct?

A. He did.

Q. And you did not watch him count them.

A. I did not.

Q. Okay. In your report you wrote that there are at least 4 and as many as 14 MOSFETs in each power adapter. Right?

02:49 A. I wouldn't -- I believe that that is in my report, yes.

Q. But, in fact, Mr. Diep did not find any accused MOSFETs in the three power bricks that he counted. Right?

A. No, he did not.

Q. Let's go back to Mr. Diep's table. On the bottom left, he provided counts for, quote, MOSFETs. Do you see that?

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A. I do.
Q. Three different counts. Mr. Diep called them power bricks. Right?
A. He did.
02:50 Q. And he counted 3 to 4 MOSFETs in the small brick. Right?
A. I see that's what he put in the table.
Q. Not a -- I'm sorry, sir. Were you finished?
A. I'm sorry. I was just looking at the table.
Q. Not accused MOSFETs; just any old MOSFETs.
A. Well, I don't know how he identified that they were MOSFETs.
Q. Did you hear his testimony this morning that he found zero accused MOSFETs in that power brick?
A. I didn't recall that, but I have no reason to doubt that that's what he said.
02:50 Q. And Mr. Diep counted 13, quote, MOSFETs in the 150-watt brick. Right?
A. He stated that he found 13 components that he labeled as MOSFETs. I don't know how he arrived at that since they were not accused.
Q. Did you hear his testimony this morning? He said he found zero accused MOSFETs in that power brick.
A. Yes, certainly.
Q. And so across the three power bricks that he counted, looking at the 625-watt, he said he found 4 MOSFETs but zero

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accused MOSFETs. Right?
A. Yes.
02:51 Q. So those were other MOSFETs. We talked about this. Only seven are accused. What Mr. Diep looked for and found in those power bricks were other MOSFETs that Force MOS has not accused of infringement. Right?
A. So what I do not know is what component labeling he looked at. I do not know how he decided that those were MOSFETs.
02:51 Q. But we do know, based on Mr. Diep's sworn testimony, that he found zero accused MOSFETs.
A. Yes.
Q. If Mr. Diep found other MOSFETs, not accused MOSFETs, in the power bricks, those other MOSFETs are irrelevant to this case. Correct, Dr. Neikirk?
A. I haven't examined them nor have I formulated any infringement opinions. So, yes, I would say they don't matter for this case.
Q. Do you have any idea why Mr. Diep would look for MOSFETs that are not the accused MOSFETs?
02:52 A. I don't know.
Q. It's because Force MOS's attorneys told him to look for them, isn't it?
A. I don't know that.
THE COURT: Let me interrupt here, counsel.

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It's been more than two hours since we came back from lunch. This cross examination has got some additional length, and I wouldn't be shocked if there's not some redirect examination after that. So we're going to take a brief recess, ladies and gentlemen.

02:52 If you will simply close your notebooks and leave them there in your chairs, remember all my discussions or, excuse me, instructions, including not to discuss the case among yourselves, and we'll be back shortly to continue with this cross examination.

The jury's excused for recess.

02:53 (Whereupon, the jury left the courtroom.)

THE COURT: Court stands in recess.

(Brief recess.)

THE COURT: Be seated, please.

03:08 Are you prepared to continue with your cross examination, Mr. McMahon?

MR. McMAHON: Yes, Your Honor.

THE COURT: All right. Let's bring the jury in, please.

(Whereupon, the jury entered the courtroom.)

03:08 THE COURT: Please be seated. We'll continue with the cross examination of Dr. Dean Neikirk by counsel for the Defendant.

Mr. McMahon, you may continue.

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MR. McMAHON: Thank you, Your Honor.

Q. (BY MR. McMAHON) Dr. Neikirk, before the break we were talking about the counts. You received certain counts information that Mr. Diep had conducted and you arrived at your own estimates. You recall that?

A. Yes, sir.

Q. And I believe you said you considered other information, including information from ASUSTek.

A. I did.

Q. You relied on that information?

A. I was considering it. It should have been in my list of materials considered, yes.

Q. Okay. But you considered it reliable.

A. Well, I'm not sure how reliable it was. I couldn't tell. But it was the only thing I had. It wasn't a bill of materials, which normally I would have considered to be a better reference. It was the only thing I could get.

Q. But you didn't just disregard it.

A. I didn't just disregard it, no.

Q. Okay. I'd like to go back to the two tables.

MR. McMAHON: Mr. Buck, can you please bring up Dr. Neikirk's table, Mr. Diep's table, and bring up the two motherboards together, please?

Q. (BY MR. McMAHON) Comparing these tables, Dr. Neikirk, we sort of have to translate. Right? Because in Mr. Diep's

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table he used the packaging code and in your table you used the model number. Right?

A. That's correct.

Q. Okay. I'm going to try to step through that. If you could help me with this, I'd appreciate it.

03:10 On the left we have a K72. That's the Panjit 2N7002K. Right?

A. I don't have the codes memorized, so I would go back to the data sheet. I don't have any reason to dispute you, but I don't have these memorized.

Q. I'll -- if you'll trust me, I'll represent to you that that is the code for that component.

A. I accept that representation.

Q. So Mr. Diep found 52. Do you see that?

A. I do.

Q. And in your table, you also included 52.

03:11 A. I did.

Q. And the K27, that corresponds to the 2N7002KDW. Right?

A. I accept that representation, yes.

Q. And Mr. Diep found 16 of those; you included 26.

A. That's correct.

Q. And the 701, that corresponds to the LRC component. Right?

A. It does.

03:11 Q. And Mr. Diep found 26. You also included 26.

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A. I did.
Q. And the B20N03, that corresponds to the EMB0N03V. Correct?
A. Yes.
Q. And Mr. Diep found in these two motherboards a total of three accused MOSFET. Right?
A. Yes.
Q. And you included in your table three.
A. Yes, there's three there.
03:12 Q. So Dr. Neikirk, it looks an lawful like to me you just summed up the total of both motherboards and added the total as if it were one motherboard in that table. Is that correct?
A. That wasn't the intent, no.
Q. Okay. Let's try the laptops.
MR. McMAHON: Mr. Buck, could we please bring up the
03:12 three laptops together? And Mr. Buck, can we remove the highlighting on the right, please?
03:13 Q. (BY MR. McMAHON) Okay. So starting at the top, M3058M, this one's pretty easy to translate because on the right we have QM3058M6. Right?
A. Yes. I know that one is marked with the full number.
Q. And Mr. Diep found two of those among the three laptops he counted. Right?
A. Yes.
Q. And you included two of them in your table.

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A. I did.
03:13 Q. And then moving down the list we have the 8K. That corresponds to the Panjit PJX138. Correct?
A. Yes.
Q. And Mr. Diep found two of those in one laptop and 15 in another laptop. Correct?
A. Yes.
Q. Sorry. I read the wrong number. He found 56 in one laptop, and you included 56 in your table.
A. I did.
03:14 Q. So you took the higher number. Right?
A. That is the higher number of the two numbers for Mr. Diep, yes.
Q. Okay. The M3016AM, Mr. Diep found two and you included two in your table QM3016AM?
A. I did.
Q. And in the 701 Mr. Diep found one. That corresponds to the LRC component. Correct?
A. Yes, I believe it does.
03:14 Q. And you listed one there?
A. I did.
Q. And the K27, that corresponds to the Panjit 2N7002KDW?
A. Yes.
Q. Mr. Diep found one; you listed one.
And K72, Mr. Diep found -- in two laptops he found three

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in one laptop and two in the other. That corresponds to the 2N7002K. And you took the higher of the two--you took three.

A. Three is the larger of two, yes.

Q. So Dr. Neikirk, it looks an awful lot like you cherry-picked the highest of Mr. Diep's numbers to populate your own estimates. Is that true?

A. No.

Q. All right. Let's move on. I'd like to return now to a phrase we talked about earlier--conservative estimates.

You described your estimates as conservative. Right?

A. I believe I did, yes.

Q. And you described them as conservative even though every one of your estimates is higher than any product Mr. Diep counted. Right?

A. I didn't recall that every single number, but -- is higher than his, but regardless, yes.

Q. But we just went through that exercise a few minutes ago before the break, and your estimate was, in fact, higher than every number Mr. Diep counted. Right?

A. It may -- well, I'm sorry. The estimates where? At the -- down at the bottom, to be more specific, in my table?

Q. Yes. Your total was a row at the bottom of your table. Right?

A. Yes.

Q. And so --

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A. Excuse me.
Q. Go ahead, sir.
A. Yes, those numbers were bigger than any individual number Mr. Diep found.
Q. So your estimate for laptops was 65, and that was higher than any number Mr. Diep found in laptops?
A. Yes.
Q. And your estimate for motherboards was 107, also higher than any estimate -- any count Mr. Diep found in any motherboard.
A. Yes.
Q. And the same with the graphics card--you estimated 12. That was higher than the nine Mr. Diep found in the graphics card he counted.
A. Yes, it was.
Q. But you still call them conservative estimates?
A. I did.
Q. In May of last year you gave us a copy of your original expert report and disclosed your opinions. Do you recall that?
A. I do.
Q. In that original report, you included your table. Right?
A. I did.
Q. You did not include Mr. Diep's table. Right?
A. That's right. I believe that is correct.

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Q. In fact, you did not even list Mr. Diep's table among your list of materials considered at that time. Right?
A. That is quite possible, yes.
Q. That list we talked about before--it had 33,000 pages--did not include Mr. Diep's table, did it?
03:17 A. That is quite possible, yes.
Q. Dr. Neikirk, at that time in May of 2024, had you even seen Mr. Diep's table?
A. I hadn't seen it in that format, no.
Q. It's kind of coincidence the way the two tables match up, isn't it, sir?
A. I don't know whether it's a coincidence or not.
Q. Well, maybe -- you're right. I -- it would be an odd coincidence the way those two tables match up. I should say it that way. Do you agree?
A. No.
Q. No?
03:18 A. I wouldn't characterize it as an odd coincidence.
Q. Is it possible that you had -- the reason your table corresponded to Mr. Diep's table but boosted up even though you hadn't seen Mr. Diep's table is because Force MOS's lawyers gave you the estimates that you used?
A. No. Again, I explained that these estimates were arrived at during discussions and based on a variety of sources of information.

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Q. Discussions with Force MOS's lawyers?
A. Certainly.
03:18 Q. Okay. In any event, you did not tell us about Mr. Diep's table until months later in August. Right?
A. I don't recall when that table was provided. I was trying to recall if it came from Mr. Diep in response to a report he wrote.
Q. You served a supplemental report in August, three months after your original report. Right?
A. Yes, I did.
Q. And that's when you first told us about Mr. Diep's table.
03:19 A. That is the first time I would have discussed it, and I did it in my supplemental report. That's correct.
Q. Dr. Neikirk, the jury will soon hear from Mr. LaMotta. Do you know what Mr. LaMotta calls the numbers in your table?
A. I don't know what name he gives them.
Q. He calls them Dr. Neikirk's low-end estimate. Are you -- did you know that?
A. I don't recall those exact words.
03:19 Q. Would you be surprised if that's what Mr. LaMotta calls them?
A. I think I characterized them as conservative estimates.
Q. Okay. Would you be surprised if Mr. LaMotta called them your low-end estimates?
A. I just simply don't know what he characterized them as.

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Q. Okay. Would you find it odd if Mr. LaMotta characterized your numbers as the low-end estimate even though they're higher than any product Mr. Diep counted?
A. Unless I knew the full context of that statement, I wouldn't know.
03:20 Q. Okay. You did say that the products that Mr. Diep counted, in your opinion, were low-end products?
A. Right. I believe that is the phrase I used.
Q. All of them?
A. No, not all of them.
Q. Not all of the products that Mr. Diep counted?
A. Some of those products I think I'd characterize as mid-grade, some of them are undoubtedly low-end, so I don't really think I'd say every single one of those products that
03:20 he examined was necessarily low-end. That's kind of a qualitative evaluation in any case.
Q. Sir, when you disclosed your opinion, you told us that the products you sampled were low-end products. Right?
A. So, again, several of those I think in my mind are
03:21 unambiguously low-end. The Zenbook Pro 14, I think different people would have a different view as to whether that maybe is mid-level or lower-mid. It all depends on your demands.
Q. Sir, did you tell us that one reason the estimate you provided is conservative is because the devices you sampled are low-end devices?

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A. I believe that is what it -- the phrase in my report, yes.
Q. You didn't say some of them; you said all of them.
03:22 A. That is true; I did not.
Q. Okay. Thank you.
Sitting here today, do you believe all the products that Mr. Diep counted were low-end products.
A. Sitting here today, I believe that most were, and that there could be a lively discussion about the Zenbook Pro 14.
Q. Let's have that discussion. But before we do, let's
03:22 start with the E410M. That we can agree is a low-end product. Right?
A. I certainly believe that's a low-end product, yes.
Q. That's a laptop that's sold for maybe $300. Right?
A. I don't recall what it sells for.
Q. Would you agree that a laptop that sells for $300 is a low-end laptop?
A. Probably. I believe that uses a Celeron, which is one of the lower-end Intel processors.
Q. But you mentioned the Zenbook Pro 14. That one is not low-end. Right?
03:22 A. Well again, I think that depends on your demands. For I think for some gaming people, they still wouldn't consider it exactly high-end.
Q. That wasn't my question, sir. My question was would you

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consider the Zenbook Pro 14 to be low-end today?
A. I think I'd characterize it as being mid-grade. So to answer your question, no, I would not call it low-end sitting here today.
Q. But when you disclosed your opinions to us, you didn't clarify that that one you thought was mid-tier or mid-grade. Right?
03:23 A. No, I did not.
Q. You said the devices you sampled before were low-end?
A. I believe that is what my report said, yes.
Q. Let's take a look at that particular model.
MR. McMAHON: Mr. Buck, could you please pull up the asus.com website?
Q. (BY MR. McMAHON) Pause with me here for just a second. Dr. Neikirk, do you see this dialogue box?
A. I do.
03:23 Q. It says, "Switch to your local site to shop online and see relevant promotions."
Do you see that?
A. I do.
Q. There are two options. First option is "stay here." Right?
A. Yes.
Q. Second option is "switch to the U.S. website."
A. I see that.

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Q. Do you know if we say "stay here," are we allowed to order products?
A. I haven't clicked the "stay here" button before. I've always clicked the "switch to U.S. website," so I don't know.
Q. Okay. If we say "switch to the U.S. website," we will be allowed to see prices, or at least be referred to other sites where we can buy. Right?
03:24 A. That's been my experience with the website, yes.
Q. And the U.S. website -- you talked about the website during your direct examination. The U.S. website -- do you know who actually makes the sales that are sold on the U.S. website? Do you know, sir?
A. I know who operates the website; I explained that. I don't know who makes the sales.
Q. Sure. You know who operates an eBay website, too. Right? But I'm talking about who's actually selling the product.
03:25 Do you know who the seller of the products is on the U.S. website?
A. I guess I don't.
Q. That's okay, sir. That's okay.
MR. McMAHON: Let's click on "switch to the U.S. website," please. And Mr. Buck, let's search, please, for the
03:25 UX6404V. And you can enter the search, please.
Q. (BY MR. McMAHON) Okay. Here we see on the left is a

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component, maybe a graphics card, but let's focus on the right. Here we have the Zenbook Pro. 14 that's the one we were talking about. Right, Dr. Neikirk?

A. I believe that's the right model number.

MR. McMAHON: Okay. Let's click on where to buy, Mr. Buck. Click "buy" on the one on the left there.

Let's go to Amazon. Scroll down a little bit, please. Oh, I see.

Q. (BY MR. McMAHON) Dr. Neikirk, what's the price there? We see two prices actually for two different flavors of this laptop. Right?

A. Yes.

Q. What are the prices you see?

A. For the 4070, $2,480.28, and for the 4060, $2,850.

Q. Okay, sir. Today you and I can agree that those are not low-end laptops. Right?

A. I would not call those low-end. You're right.

Q. Okay. Thank you.

I'm sorry. You previously told us that you would expect high-end ASUSTek products to have more accused MOSFETs. Is that right?

A. That's correct.

Q. But you didn't tell us how many. Right?

A. I didn't specify in my report.

Q. Correct. And you said that high-end products would

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include things like gaming computers.
A. That would be an example.
Q. One of the products that Mr. Diep counted we looked at before was the TUF Gaming B760M. Right?
A. Yes.
Q. That's a gaming component.
A. That's a gaming component, yes.
Q. So not low-end.
03:27 A. Not necessarily. There's a whole range of gaming components from low-end to high-end.
Q. Well, sir, you said that the higher-end products would include things like gaming components, and there's no dispute that the TUF Gaming B760M is a gaming component. Right?
A. So I did say that, but I didn't say every gaming component is high-end.
Q. I see. So you just didn't fully disclose the opinion you had in your head.
A. I'm sorry, but I believe the statement I made was accurate and complete.
03:27 Q. So you didn't mean to say that all gaming is high-end; just some.
A. Well, I'm sorry, but the statement was that it would include high-end--I'm sorry--gaming components, and it would -- I didn't say it would include every gaming component.
Q. Okay. But again, you provided no specific numbers to us

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as to how many accused MOSFETs you thought high-end devices would include. Right?

03:28 A. No. Excuse me. No, I did not.

Q. And you did not provide that in any report you've given to us?

A. No, I did not.

Q. So if Mr. LaMotta has numbers that he says came from you on high-end component counts, they were not in any report you provided to us. Right?

A. If there's specific numbers that aren't in my table, then no.

Q. All of your numbers are in your table?

A. They are.

Q. Those are the estimates you gave?

A. Those are the estimates I gave.

Q. And you didn't tell Mr. LaMotta anything that you didn't

03:29 disclose in your report?

A. We had some conversations. I don't recall everything we conversed about.

Q. We talked about this earlier, sir. You said you -- I don't want to quote you, but I believe we talked earlier -- I asked you did you tell Mr. LaMotta anything that's not in your report.

A. And I don't recall telling him anything that isn't in my report.

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Q. Okay. And again, you -- we already established you're not here to offer any new opinions you didn't already tell us about.

03:29 A. No, I am not here to offer new opinions.

Q. Dr. Neikirk, I think we talked about this. You were here during opening statements. Right?

A. I was.

Q. And you recall Force MOS's counsel said there are hundreds of accused MOSFETs in each laptop. You recall that?

A. I don't recall the specific words. I recall the general statement.

MR. McMAHON: Mr. Buck, could we please bring up

03:29 Friday's trial transcript, page 144, lines 21 to 25?

Q. (BY MR. McMAHON) Right here. So this is a conversation about the MOSFETs. The second sentence, Dr. Neikirk, can you read that? It begins with the word "There."

A. I see that. I'm sorry. You asked me to read it?

Q. Yes, sir.

A. It says, "There are hundreds of these in each computer".

Q. Is that true?

A. Well, this references each computer. There are certainly computers that have fewer than hundreds of MOSFETs.

03:30 Q. Each computer.

A. I see the words.

Q. Mr. Diep counted three computers. Right?

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A. He counted three laptops and two motherboards, I guess, and one graphics card, yes, so he counted three complete computers in the sense that a laptop is a computer.
Q. And not one of those had even a hundred accused MOSFETs in it. Correct?
A. No, none of those laptops had a hundred.
03:30 Q. Okay. In one of those laptops Mr. Diep only found two accused components. Right?
A. Yes, he only found two accused components.
Q. Certainly not hundreds.
A. No, two is not hundreds.
Q. Okay.
MR. McMAHON: You can take that down. Thank you, Mr. Buck.
Q. (BY MR. McMAHON) Dr. Neikirk, we talked about the seven accused MOSFETs. Right?
A. We did.
Q. And each of those MOSFETs is rated for operation up to either 30 volts or 60 volts. Do you agree?
A. I believe that's correct. I remember lots of 60s and I
03:31 think I do remember some 30s.
Q. Let's take a quick look at the data sheets. You looked at some of those earlier today.
MR. McMAHON: Mr. Buck, can you bring up JX 16?
Q. (BY MR. McMAHON) And right at the top here you see this

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is the data sheet for the 2N7002K?
A. I do.
Q. And what's the rated voltage?
A. 60 volts maximum. Well, I'm sorry. We'd have to look at the table to see what they meant by 60. I assume it's 60 volts maximum, or it may be 60 volts nominal.
03:31 Q. But it certainly can operate at 60 volts. Right? By design.
A. Yes, that's what it's stating.
MR. McMAHON: Let's look at the next one, JX 15, please.
Q. (BY MR. McMAHON) This is the 2N7002KDW, and also a 60 volt MOSFET. Right, Dr. Neikirk?
A. Yes.
MR. McMAHON: Let's look at JX 18, please?
Q. (BY MR. McMAHON) This is the long one. I'm just going to call it the LRC component. This one's also a 60 volt MOSFET. Right?
03:32 A. It is.
MR. McMAHON: The next one is JX 14.
Q. (BY MR. McMAHON) This is the PJX138K. This is a 30 volt MOSFET. Right?
A. Yes, it is.
MR. McMAHON: And the next one is JX 52.
Q. (BY MR. McMAHON) This is the QM3016AM, and this is also

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a 30 volt MOSFET. Correct?

A. Yes.

MR. McMAHON: And JX 53, please, Mr. Buck.

03:33 Q. (BY MR. McMAHON) This is the QM3058M6. Also 30 volts. Right, Dr. Neikirk?

A. Yes.

MR. McMAHON: And finally the Excelliance component, JX 17, please.

Q. (BY MR. McMAHON) And this one also is a 30 volt MOSFET. Right?

A. Yes, it is.

Q. So every one we looked at is rated to operate at either up to 30 or 60 volts?

A. Yes, they're rated to those as a maximum usage voltage.

03:33 Q. And you would agree that in this ASUSTek's laptops, the accused MOSFETs never operate above 20 volts. Correct?

A. I don't know what their maximum operating voltage is.

Q. Do you have any reason to believe that any accused MOSFET in any ASUS product is designed to operate -- operates above 20 volts?

A. I honestly don't know. If there is a buck converter in there, there may be internal transient voltages much larger than that, but I don't know.

Q. Okay. Let's be clear. So you've seen no evidence to

03:34 suggest that there is any accused MOSFET in any ASUSTek

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product that operates higher than 20 volts. Right?
A. No, I have not.
Q. Okay. Twenty volts is 33 percent below 30 volts. Right?
A. It is.
Q. And it's 67 percent below 60 volts. Right?
A. It is.
Q. So 20 volts is nowhere near the operational limits of any of those seven accused MOSFETs. Correct?
A. The voltage operational limits. There are other limits and other requirements, but just considering only voltage, yes, that's correct.
Q. Thank you, sir.
All right, Dr. Neikirk, I'd like to turn to the '634 Patent, please.
MR. McMAHON: Mr. Buck, can you please bring up the '634 Patent?
Q. (BY MR. McMAHON) And you talked about this patent earlier. Right, Dr. Neikirk?
A. Yes, I did.
MR. McMAHON: Let's go to figure 1, please. Sorry, Mr. Buck. The next page or the -- there we go. This figure 1. Thank you.
Q. (BY MR. McMAHON) Dr. Neikirk, this figure -- you're familiar with patents. Right, sir?
A. I am. Yes, I am.

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Q. You've looked at many?
A. I have.
Q. This one says "figure 1 prior art." What does that mean?
03:35 A. Normally that indicates that the patentee is stating that what you see there was what was known before -- before -- at some point, so that's what it means--prior art.
Q. So stated another way, this was a MOSFET without the invention.
A. Well, I don't know that I'd necessarily characterize it exactly that way. Sometimes people show prior art that isn't to illustrate before the invention; sometimes they do.
03:35 Q. By definition, prior art is not the invention. Right, sir?
A. Oh, yes; certainly.
Q. Okay. So this -- what's shown here in figure 1 was the technology that existed before the claimed invention of the '634 Patent. Right?
A. Yes, that's what that would indicate.
Q. Okay. And the label No. 108, do you see what that's pointing to?
A. I do.
Q. That's the base contact layer. Right?
03:36 A. That is a P+ layer and a P region. I would assume that that is the base contact -- or a base contact layer, yes.
Q. A base contact layer.

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A. Yes.
Q. Okay. What we don't see in this figure is any lateral contact layer. Right?
A. Yes. As we see it described in the patent, no, I do not see any lateral contact layer shown.
MR. McMAHON: Okay. Let's go to figure 2G, please.
03:36 Q. (BY MR. McMAHON) Now, this figure is not labeled prior art. Right, Dr. Neikirk?
A. Right. Yes, sir.
Q. This is an example of the claimed invention.
A. I believe this is supposed to represent an embodiment. Yes.
Q. And -- but we do here see that same base contact layer. Right? Here it's No. 208?
A. Yes. In the drawing it looks the same, yes.
Q. Right. And -- but here what we see that's new compared to the previous figure is what's labeled 209. Right?
03:37 A. Certainly 209 was not shown in that previous figure.
Q. And that's because 209 is an example of the lateral contact layer, according to the claimed invention.
A. Yes, it is.
Q. Okay.
MR. McMAHON: Let's go to figure 3A and 3B, please. Start with 3A.
Q. (BY MR. McMAHON) Dr. Neikirk, what's shown in this

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figure is ion implanatation. Correct?
A. I believe that is what it is supposed to illustrate, yes.
03:37 Q. And in this case the ion implanatation is coming straight down to create the base contact layer. Correct?
A. I don't recall whether in the process flow that's what they say it's creating. That's what I would expect, but without consulting the text, I don't know how they describe that.
Q. Good point. Let's consult the text.
MR. McMAHON: Mr. Buck, could you please bring up
03:38 side-by-side column 3, lines 50 to 65?
Q. (BY MR. McMAHON) This text is a little bit dense, so bear with me, but at the top this paragraph begins, "Referring
03:38 to figures 2E and 3A, an implanatation procedure of BF2 with ninety degree respective to epitaxial layer surface and dose ranging from 5E14 to 5E15 cm-2." Is that right?
A. Yes, that's correct.
Q. Continuing on, "and an activation by heat treatment are
03:39 carried out to form a P+-type base contact layer."
Did I read that correctly?
A. Yes.
Q. So that text together with this figure is teaching us that you can use vertical ion implanatation to create the base contact layer 208 at the bottom of the source contact trench?
A. It is.

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Q. Okay. And BF2 is a particular type of ion?
03:39 A. BF2 is boron diflouride. It's frequently used in ion implanatation.
Q. And let me stop on that for just a moment, because we haven't really spent much time talking about doping concentrations. And doping concentrations are important to this patent. Right, sir?
A. Certainly relative doping concentrations, and what one of ordinary skill would view to be P+ and P is important.
Q. Right. So just to go back to fundamentals, doping means putting ions into silicon -- silicon by itself is sort of
03:40 neutral. Right? It's not doped P or N. Correct?
A. Well, real silicon is incredibly difficult to have -- not have dopants, but yes, dopants are added to silicon to alter the carrier concentration in the silicon.
Q. And that's because when you have semiconductor devices, including trenched MOSFETs, they are generally arranged by arranging N-type dopants and P-type dopants to create the type
03:40 of electrical reaction you're looking for. Right?
A. That's a reasonable characterization, yes.
Q. And when I say N-type dopants and P-type dopants, it's sort of like negative and positive, two different types of way - two different ways of modifying the silicon to change the way that it operates.
A. N-type silicon is one in which electrons are the majority

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carrier and P-type silicon is one in which holes are the majority carrier. The dopants can alter the types of carriers and enhance what is majority.

Q. And I promise I'm not going to go any deeper into the electronics, but holes are the place where an electron will go. Right?

Okay. I'm sorry. I can tell that's a question I'm going to regret. I take that one back?

THE COURT: Just a minute, counsel. You know, We haven't talked about that, that's a question I regret. You're not here to make statements; you're here to ask questions. This is not a conversation; it's a cross examination under the rules of procedure and evidence. Tighten things up a little bit. All right?

MR. McMAHON: Thank you, Your Honor.

THE COURT: Let's proceed.

MR. McMAHON: My apologies.

Q. (BY MR. McMAHON) When we talk about doping concentrations, Dr. Neikirk, we're talking about the amount -- the concentration of N dopants in the silicon or the concentration of P dopants in the silicon. Is that correct?

A. Yes.

MR. McMAHON: Okay. Let's go back to figure 3B, please.

Q. (BY MR. McMAHON) And here, Dr. Neikirk, what we're

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seeing is not vertical implanatation. Right? These lines represent angled implanatation.

A. Yes, they do.

Q. And if we go back to column 3 and continue on with this paragraph, we see that it says, "Referring to figures 2E and 3B, thereafter another implanatation procedure of BF2 with angle ranging from 45 to 80 degree respective to the surface of the epitaxial layer (202) and dose ranging from 1E14 to 4E14 cm-2 and another activations by heat treatment are carried out to form a P* type lateral contact layer (209)." Right?

A. Yes.

Q. So in this example of the claimed invention, that angled implanatation is being used to create the lateral contact layer.

A. Yes, it is.

MR. McMAHON: Okay. Thank you, Mr. Buck. You can put that down.

Q. (BY MR. McMAHON) Let's look at claim 1. You looked at this before, but just to go back to it briefly.

MR. McMAHON: Mr. Buck, can we show claim 1 of the '634 Patent?

Q. (BY MR. McMAHON) So Dr. Neikirk, I think you've covered this, but the claim is a series of elements or features or limitations that together make up the claimed invention.

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Right?
A. Yes.
03:43 Q. And if any one of those is missing, then there's no infringement. Right?
A. That is correct.
Q. Okay. I'd like to focus, Dr. Neikirk, on one particular limitation, and that is the -- you referred to it earlier as limitation 1[g]. It is the lateral contact layer, which
03:44 appears right here. Do you see that?
A. Yes, I do see those three words there.
Q. Okay. Well, that is a term that the Court has interpreted for all of our benefits. Correct?
A. Yes.
MR. McMAHON: Could we please bring up the Court's claim construction of lateral contact layer?
Q. (BY MR. McMAHON) So here on the left, Dr. Neikirk, we
03:44 see the phrase 'lateral contact layer', and on the right we see the Court's construction. Right?
A. Yes.
Q. And I'm not going to read the whole construction, but in the middle there is a parenthetical that says 'P* doping'. Do you see that?
A. I do.
Q. And that refers to the -- a doping concentration. Right?
A. Well, it specifically refers to a doping concentration

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between P and P+.

Q. Thank you.

And I just mean that's of the type of thing that we were talking about a few minutes ago. It's a -- that is what a doping concentration is. Right? This is a particular doping concentration that's between P and P+. It tells you that the concentration of P dopants in the lateral contact layer must be between P and P+.

A. Yes.

Q. Okay. And in this -- in the Court's construction there is actually two alternatives. There's a second alternative that we don't need to highlight, but it says N* doping down below. Right?

A. Yes it does.

Q. That's only for a P-channel MOSFET. Right?

A. Yes.

Q. And in this case we are just talking about N-channel MOSFETs.

A. Yes, that's correct.

Q. So we can just focus on the P* part.

A. Yes.

Q. And that P* doping is a necessary requirement of this claim. Correct?

A. Absolutely. The Court has construed this, so it is a necessary component.

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Q. If there's no P* doping, then there's no infringement. Right?
A. That's correct.
Q. And Force MOS bears the burden of proving that there is P* doping. Correct?
A. Yes.
Q. Which means that Force MOS bears the burden of proving that the seven accused MOSFETs include a lateral contact layer with this P* doping. Right?
A. Right. Yes, sir.
03:47 Q. You testified that the accused MOSFETs meet that requirement based on your reading of Mr. -- based in part on your reading of Mr. Diep's -- sorry. Let me clarify what SEMs means.
By SEM I mean by scanning electron microscope image. Do you understand that phrase, sir?
A. Yes, based in part on those.
Q. And let me repeat the question to be clear. You
03:47 testified that your opinion of infringement is based in part on Mr. Diep's SEMs of the accused MOSFETs. Correct?
A. Yes.
Q. Mr. Diep, again, is the SEM guy back at Microtech.
A. Yes, he is.
Q. Okay. And you claim that Mr. Diep's SEMs tell you that the accused MOSFETs have a lateral contact layer with P*

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doping. Correct?
A. Not standing on their own I didn't.
Q. Not standing on their own.
A. No.
03:47 Q. Okay. Because an SEM by itself cannot tell you a doping concentration. Right?
A. No. It can give you information that can be combined with other information to determine what the doping is, but standing on its own it doesn't show that.
Q. Okay. I want to be very clear about this. An SEM image by itself cannot give you a doping concentration. Correct?
A. So -- I'm sorry. I'm trying to think -- there are some
03:48 more exotic situations, but, in general, I don't -- I would agree that an SEM will not tell you specific values for doping concentration.
Q. Can we agree that -- setting aside -- none of the exotic examples are involved in this case. Right?
A. That is correct.
Q. So can we agree that for purposes of this case and the SEMs that we're considering here, an SEM by itself cannot tell
03:48 you a doping concentration?
A. I would agree.
Q. Okay. And we actually heard that same testimony from Mr. Diep. Right?
A. I don't recall exactly what he said, but that wouldn't

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surprise me.
Q. Okay. Now, you also talked about ion implanatation. Correct?
A. Yes, I did.
Q. And you talked about the fact that each of the accused
03:49 MOSFETs is fabricated using only a vertical ion implanatation step. Correct?
A. That is my understanding.
Q. Okay. Have you ever seen any of the accused MOSFETs being fabricated?
A. No, I have not.
Q. Have you seen any technical literature surrounding the fabrication techniques?
A. For the accused products?
Q. Yes.
A. No, I have not.
Q. Do you know anything about the masking that is used in those fabrication techniques?
A. I do not.
03:49 Q. When implanting ions in a semiconductor, there's a place that you want to put the ions. Right? That's -- can I call that the target?
A. If you wish.
Q. And it's generally bad to implant ions in places where you don't want them to go. Right?

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A. That's true.
Q. So, for example, if you had N-type material nearby and you accidentally implanted some P-type dopants into that
03:50 N-type material, that would be a problem for the device. Right?
A. No, not necessarily.
Q. Well, if it was intentional it might be good, but if you didn't mean to do it, that would be a problem. Right?
A. No, not necessarily.
Q. Okay. Can we agree that when fabricators implant ions into semiconductors, they are careful about where they put them?
A. I would agree with that.
Q. And precise about where they put them?
A. Within the limits of the instrumentation and the design of the device, yes.
03:50 Q. And what are some of the tools that a fabricator can use to limit where they're placing those ions?
A. Well, ion implanatation is what's called a blanket process, so there are masking layers either added or already present as part of the structure to keep the ions, not out but place them where they don't matter.
Q. And by masking, you mean sort of a cover with a hole in it to allow the ions to go where you want them and block the ions where you don't want them.

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A. Well, it may be a separate mask. It may be the structure shape in and of itself that provides that.

Q. Either way, you could use masking to block ions from going where you don't want them to go.

A. A mask will also be implanted, but that region is one where you don't care if they're implanted, so you place them where you want them, and where they go otherwise they just don't matter.

Q. Sir, you might have gone beyond my question. I don't know what you meant by 'that region'.

A. I'm sorry. Could you repeat your question? I'm sure I didn't answer it.

Q. Well, you referred to 'that region'. What did you mean by 'that region'?

A. Well, I thought you were referring to putting ions some place where you wanted them and masking them to keep them from other regions?

Q. Yes. That's correct. Just generically, hypothetically;

A. So now I don't remember exactly what I said in my answer. But there would be two regions. There would be a region where you wanted the ions to be implanted and serve some function; there would be other regions where the ions will still be implanted but they provide no function there.

Q. Okay.

A. That might be called the masking region.

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Q. So by controlling the shape and location of the mask, a
03:52 fabricator can target ions where they want them to be and stop them the ions from going where they don't want them to be. Right?
A. In general terms, yes.
Q. Okay. What do you know about the masking procedures, if any, that the accused MOSFET manufacturers used?
A. Well, I've seen the trenches and the trenches and the layers above would serve as a mask.
Q. I'm sorry, sir. That's not really answering my question. My question is what do you know about the masking procedures --
THE COURT: Counsel, if you believe the witness is
03:53 non-responsive, don't tell him he didn't answer your question; raise it with the Court. Okay?
MR. McMAHON: My apologies, Your Honor. I move to strike that last answer as non-responsive.
THE COURT: I'll sustain. It's non-responsive. Either re-ask your question or move on.
MR. McMAHON: Thank you, sir. My apologies.
Q. (BY MR. McMAHON) Dr. Neikirk, you don't know anything about the masking procedures used by the manufacturers of the accused MOSFETs. Correct?
A. I do not have a process flow from the manufacturers that show those masks. That's correct.

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Q. And to be more specific, you don't know anything about the masking procedures used by the manufacturers of the accused MOSFETs. Right?
A. Well, I know what I can infer from the images, but I have no information from the manufacturers.
MR. McMAHON: Your Honor, I'm sorry. I need to move to strike that as non-responsive.
THE COURT: Restate the question one more time.
MR. McMAHON: Thank you, sir.
Q. (BY MR. McMAHON) Dr. Neikirk, you don't know anything about the masking procedures, if any, that the manufacturers of the accused MOSFETs used in making these accused MOSFETs. Correct?
A. I don't think I agree that I don't know anything.
Q. Have you ever spoken to anyone with knowledge about those?
A. I have not.
Q. Have you ever seen any technical literature that would tell you how they work?
A. I have not.
Q. Have you ever been present when any of the accused MOSFETs were fabricated?
A. I have not.
Q. Have you ever seen the machinery used to fabricate them?
A. No, I have not.

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Q. Have you ever been on-site when they've been fabricated?
A. No.
Q. Okay. Thank you, sir.
03:55 We talked a few minutes ago about SEMs. They do not on their own give you doping concentrations. Correct?
A. SEMs on their own cannot give you a specific doping concentration number, no.
Q. There's another image type that you showed during your
03:56 direct examination called EDS. Correct?
A. I did.
Q. And EDS on its own also cannot give you a doping concentration. Correct?
A. That's correct.
Q. And EDS in combination with an SEM cannot give you a doping concentration. Correct?
A. Those two alone -- together, but only those two, no, they can't.
Q. Okay. You previously told me that you looked at the '634
03:56 Patent, quote, holistically, end quote, and based your conclusion on the totality of the evidence. Correct?
A. Yes.
Q. And your holistic approach, as you told me at the time, required both SEM imaging and SCM imaging. Right, sir?
A. At the time, yes, I did testify to that.
Q. And SCM is different from SEM. Right?

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A. It is.
03:56 Q. SEM stands for scanning electron microscope. Correct?
A. Yes.
Q. SCM stands for scanning capacitance microscope. Right?
A. Yes.
Q. Different instrument?
A. Yes.
Q. Different type of imaging?
A. Yes.
Q. And at the time you told me that you relied on both types of images to determine the doping concentration in the accused MOSFETs. Do you recall that?
A. Yes.
Q. And you told me that you used one type of image to interpret the other type of image. Right?
A. I did.
03:57 Q. So you needed the SEM to interpret the SCM. Correct?
A. I'm not sure which direction I was discussing it. These were junction stained SEMs.
Q. Fair enough.
A. So I was combining both.
Q. Fair enough.
Without the combination of both types of images, at the time you said you were unable to arrive at the doping concentration.

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A. So if we're discussing a specific number for doping concentration, yes, that is correct.

Q. And in your testimony today, sir, you have not shown the jury any SCM imaging. Correct?

A. That's correct. I have not.

Q. You have not shown us a single scanning capacitance microscope image.

A. No, I have not.

Q. Do you remember Mr. Diep's testimony about aggressive staining?

A. I do.

Q. And let's clarify. Staining in that context means using a chemical to -- let me start that over.

Applying a chemical to a sample before you image it in order to change the way that sample looks in the image. Is that fair?

A. I think that's a reasonable way to describe the process, yes.

Q. And the chemical is like an acid. Right?

A. Some are acid; some are bases.

Q. Okay. So it's a chemical that kind of eats at the material. Right?

A. Yes.

Q. Okay. And aggressive staining is when you've done that too much and you've eaten so much of the sample that you've

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lost some of the sample. Right?
A. I think the way Mr. Diep was describing it--I hate to characterize what he said--but there are times when it may
03:59 remove much or all of some structure, and he views that -- I'm sorry. I should stop. I don't want to characterize his testimony. I shouldn't do that. I'm sorry.
Q. Fair enough.
He referred to some black squares in his testimony. Right?
A. He did.
Q. And if I understood his testimony correctly, he was saying that in those black squares the material had been so much removed that there was nothing there to see anymore.
A. I believe that is what he said, yes.
Q. Okay.
MR. McMAHON: Can we --
04:00 Q. (BY MR. McMAHON) And Mr. Diep described that as bad. Right?
A. I think he did in the context of some people want to see what was there.
Q. And I -- correct me if I'm wrong, sir, but I thought I heard you agree with him this morning. You used a different word. You said 'spoiled'. Am I right?
A. Spoiled. I'm sorry. I don't recall using the word 'spoiled'.

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Q. You don't recall saying that it would -- that aggressive staining results in a spoiled image?

04:00 A. I just don't recall using that phrase.

Q. Okay. Do you agree that aggressive staining can render an image unusable?

A. It can. It does not necessarily.

Q. Okay. Let's --

MR. McMAHON: Mr. Buck, can you please bring up PDX 3.2?

Q. (BY MR. McMAHON) Dr. Neikirk, this is one of the

04:01 demonstrative exhibits that you used with your testimony earlier. Correct?

A. Yes, it is.

Q. And I believe you said that you selected the colors that this -- the color had been painted over the image. Am I right?

A. That is correct.

Q. So am I also right that the image on the right-hand side appears to me to be entirely covered over. Correct?

A. No, not every place.

04:01 Q. Well, mostly. Right?

A. Mostly, yes.

Q. It's hard to see much of the underlying SEM image at this point. Right?

A. Well, these colors are semi-transparent, but I would

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agree you can't see a lot of what's underneath it.
Q. And what's underneath it is the SEM. Right?
A. Yes.
MR. McMAHON: Okay. Can we go, Mr. Buck, I think it's back a slide or forward a slide so we can see the underlying SEM. Pardon me.
You know what, Your Honor, there were two different versions of this. I think Mr. Buck might be working -- there we go. Thank you.
Q. (BY MR. McMAHON) Dr. Neikirk, is this the image -- the underlying SEM image that was under the colors we saw a moment ago?
A. Yes, it is.
Q. Okay. And in --
MR. McMAHON: Mr. Buck, if you could zoom into the middle of -- zoom into the middle.
Q. (BY MR. McMAHON) Here we see black squares. Do you see that, Dr. Neikirk?
A. I do.
Q. That's the type of thing Mr. Diep was talking about. Right?
A. I think that was one of the examples that was given, yes, but it doesn't -- in this case it doesn't render this image bad or unusable.
MR. McMAHON: Your Honor, I move to strike --

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THE COURT: Sustained. You need to limit your answers to the scope of the question that's asked, Dr. Neikirk.

04:02 THE WITNESS: I'm sorry, Your Honor. I will.

THE COURT: Mr. Hanba's going to get a chance to go back and ask follow-up questions of anything that you don't talk about that he thinks you should talk about, and it's his job to decide what you need to talk about, not your job. So answer the questions as asked by counsel. All right?

THE WITNESS: Yes, sir.

THE COURT: Let's continue.

Q. (BY MR. McMAHON) Dr. Neikirk, in those black areas, material has been removed by the staining. Right?

A. Yes.

04:03 Q. And this is the type of image that Mr. Diep described as aggressive staining. Correct?

A. It may have been. I honestly don't know how -- I don't know what the bounds on what he was describing of being aggressive.

Q. He referred to the black squares. Right?

A. He did.

Q. Or the black spots. They're not necessarily squares, but there are black spots here. Right?

A. Those black spots don't have anything to do with the etching.

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Q. You're saying that the black spots that we see around the white column do not result from aggressive etching?
A. I'm sorry, sir. I misunderstood what you meant by 'black spots'. I thought we were calling those sort of like squares -- is that the region you are referring to?
Q. They come in a variety of shapes, so I was trying to be more generic.
They're black. Right?
A. Yes.
Q. And what that means is that the material that was there is not there anymore because it's been removed by a chemical etchant?
A. That is correct.
Q. An acid?
A. Or a base, yes.
Q. Or a base. Thank you.
And this is the type of image that Mr. Diep said is bad. Right?
A. I don't know whether he was referring to this image or not.
Q. Okay. Is this the type of image that you would call spoiled?
A. I would not.
Q. Okay. Even though the black spots are there and the material has been removed?

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A. For the purposes of my analysis, that's simply telling -- it is not spoiled.

04:04 Q. But the material that we would be looking at where those black shapes are, that material is gone. Right?

A. That's correct.

Q. Entirely gone.

A. Well, no, I doubt very seriously it's entirely gone.

Q. Within the focal plane of the SEM machine it's gone.

A. You can't see deep enough to see it. So in focal point, yes, it's gone.

MR. McMAHON: Okay. Mr. Buck, can we go on to

04:05 PDX 3.3? And to -- thank you. To the black and white.

Q. (BY MR. McMAHON) This is the original SEM in PDX 3.3. Right?

A. It is.

Q. We see the same black shapes here. Right?

A. We do.

MR. McMAHON: Mr. Buck, can we go to 3.4?

Q. (BY MR. McMAHON) And here we also have some black. Right?

A. Yes, we do.

MR. McMAHON: Okay. Mr. Buck, can we go to 3.5?

Q. (BY MR. McMAHON) And here we also have some very dark

04:06 gray.

A. Very dark gray. Yes. I'm seeing black on my monitor.

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I'm sorry.

Q. Okay. I'll agree with you on that.

MR. McMAHON: Let's go to 3.6.

Q. (BY MR. McMAHON) And here we see more black. Correct?

A. Yes.

MR. McMAHON: Okay. 3.7, please.

Q. (BY MR. McMAHON) And here we see more black. Correct?

A. Yes.

04:06 MR. McMAHON: Okay. You can bring that down. Thank you.

Q. (BY MR. McMAHON) I'd like to talk briefly about the '409 Patent.

MR. McMAHON: Could we bring up figure 3 of the '409 Patent, please?

Q. (BY MR. McMAHON) Dr. Neikirk, you testified about this figure earlier. Correct?

A. I did.

Q. And here we see what the patent describes as an example

04:06 of the substantially square shape with rounded corners. Correct?

A. Yes.

Q. And if I understood correctly, the purpose of rounding the corners is to make the distance labeled A here closer to the -- well, let me rephrase that.

To make the distance labeled B closer to the distance

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labeled A, because having those two distances closer together makes the device more robust. Correct?

A. In the patent's description of its function, yes, I believe that's what it said.

Q. Okay. And you need top view images to be able to identify this in a device. Correct?

A. Certainly that's the easiest way to do it.

Q. And you testified about some images. Correct?

A. I did.

Q. Okay.

MR. McMAHON: You can put that down.

Let's go to PDX 3.1, please.

Q. (BY MR. McMAHON) Dr. Neikirk, these are the original SEMs without the color painting on top. Right?

A. I believe they are, yes.

Q. Okay. I'd like to focus your attention on the top -- on the image on the left. You see that one?

A. I do.

Q. The top right corner of the image on the left, you see that shape?

A. Sorry. Which shape?

Q. The biggest one. The biggest shape on the image on the left.

A. I do see that.

Q. And how many rounded corners does that shape have?

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A. Well, that shape, in looking at it, appears to me to have four rounded corners.
Q. Really?
A. Yes.
Q. It's your testimony that that shape has four rounded corners.
A. So it clearly has three rounded corners. The upper right-hand corner is the arc of the circle.
Q. So the upper right-hand corner is not rounded?
A. No, I would -- that's why I said four. I would call that rounded.
Q. That one's rounded, but you think all four of them are rounded?
A. Yes.
Q. Okay. The black here is the same situation we saw before where material has been removed. Correct?
A. That is why that shows up black.
MR. McMAHON: Okay. Let's zoom -- you can zoom back out, Mr. Buck.
Q. (BY MR. McMAHON) And so, to be clear --
THE COURT: Wait a minute. "That is why it shows up black" is not 'yes' or 'no'. He asked you a yes or no question, Dr. Neikirk. You're going to have to answer within the scope of the questions asked. Every question is not a chance for you to offer an explanation. Okay?

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THE WITNESS: I'm sorry, Your Honor. Yes.

THE COURT: Let's proceed.

Q. (BY MR. McMAHON) This -- actually -- yeah. This -- what we're looking at is deep inside the accused component. Right?

A. No. I'm sorry. Could you ask the question again?

Q. Poorly phrased. I apologize.

What we're looking at is inside the packaging and the device of the accused component. Right?

A. Yes.

04:10 Q. If I hand you a MOSFET you can't see this.

A. Yes, that's correct.

Q. And what I'm getting at is you have to tear it apart to see what's inside. Right?

A. Yes.

Q. And the process of tearing it apart is destructive. Right?

A. It is.

Q. It alters the device. Right?

A. It removes -- yes, it does alter it.

Q. For example, we see some debris or remnants shown in white here. Right?

A. Yes.

04:10 Q. That's part of an upper layer that remains here where other parts of that upper layer have been removed. Right?

A. I believe it is, yes.

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Q. Probably removed by hot acid. Right?
A. I don't know whether it was done with hot acid.
Q. Okay. Probably removed by acid.
A. Not necessarily an acid.
Q. You don't know.
A. I don't.
Q. Because you weren't there when Mr. Diep tore the device down. Right?
A. That's correct.
04:10 Q. Okay. But we can agree that where we see black lines, the material that was there before is not there at the time this image was captured. Correct?
A. No.
Q. Stop me if I'm misunderstanding, but I thought we agreed just a moment ago that where we see those black lines, that material has been removed. Correct?
04:11 A. No.
Q. So it's your position that that black represents material that's still present there?
A. There -- no.
Q. Dr. Neikirk, I'm having a hard time tracking. Is there material -- where we see black, is there material there or not? Yes or no.
A. Below the surface, yes, there is most likely material.
Q. Now I understand our disconnect. The SEM machine is

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taking an image at a certain plane, a focal plane. Correct?
A. Yes.
Q. And so we see what exists at that plane. Right?
A. Yes.
Q. There might be material below it that we can't see. Right?
A. Correct.
Q. Okay. Now I'll limit my question to within that focal plane. The layer that we're looking at where we see black, the material that was there has been removed. Correct?
A. Yes.
Q. Okay. Now I'm going to change to a completely different area and ask you, are you familiar with woodworking? Do you do any woodworking, sir?
A. I do.
Q. Okay. Imagine you're filing wood. And here's my question. It's a lot easier to file the corner of wood than to file the flats. Right?
A. Depends on what kind of file you use.
Q. Fair enough. But when you -- if you have a given file, you can remove more material at the corner with the same amount of effort than you can from the flats. Can we agree on that?
A. Again, not necessarily. Depends on the shape of the file.

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Q. Okay. Have you ever had the experience of using any file that would remove more material from the corner of a board than from the flats?
A. I have used some that will.
Q. And that's because the corner is sort of more vulnerable to being removed. Right?
A. For certain types of files, yes.
Q. And what we're looking at here in this image is a series of corners that have been attacked by acid. Right, sir?
A. No.
04:13 Q. Didn't we just agree a few moments ago that acid was used to remove the materials so that we could see this layer?
A. Yes.
Q. And that acid was what removed the material that used to be in the black areas?
A. Yes; in the black areas.
Q. And so acid was used to remove material here. And my question, sir, is would you agree that acid's going to attack those corners more than it's going to attack the flats?
A. The corn -- no.
Q. You wouldn't agree with that?
A. No.
04:13 Q. Okay. Dr. Neikirk, are you familiar --

MR. McMAHON: You can take that down, Mr. Buck.

Q. (BY MR. McMAHON) Are you familiar with a phenomenon

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called charging?
A. I am.
Q. And in an SEM imaging context, charging is a phenomenon where charging -- where an electrical charge builds up on the surface of the sample. Correct?
A. Yes.
Q. When that happens, it can alter the image. Correct?
A. Yes.
Q. And it can cause things like warping. Right?
A. It can.
Q. Or bubbling of the image?
04:14 A. Of the image, yes.
Q. It can make straight -- what would otherwise be a straight line seem curved. Correct?
A. It could.
Q. And to protect against charging, you need to use careful preparation of the sample. Right?
A. In some circumstances, yes.
Q. And careful monitoring of the image when you're capturing it. Right?
A. Yes.
Q. Okay. You weren't present when Mr. Diep did any of this imaging. Right?
A. I was not.
Q. So you don't know what he did to protect -- if anything,

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to protect against charging. Right?

04:15 A. Well, he described using an iridium coating this morning.

Q. In his testimony?

A. In his testimony.

Q. Did you see him do that?

A. No, I did not.

Q. Did you see if he checked for charging and, if he found, it redid the image?

A. No, I didn't see him do that.

Q. We don't know.

A. I'm sorry. Can I -- he testified to that this morning. 04:15 Based on his testimony I know, but I wasn't there.

THE WITNESS: Excuse me, Your Honor.

Q. (BY MR. McMAHON) So we don't know if there was charging involved in the images or not. Correct, sir?

A. I personally do not know.

Q. Okay. Thank you.

04:16 You have a whole lot of images. Correct, sir? That you considered as part of this case? Correct?

A. Yes.

Q. Hundreds?

A. It's certainly several -- many hundreds, yes.

Q. Thousands?

A. No, I don't think it was thousands.

Q. Okay. And your first report that you gave to us was more

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than 500 pages. Correct?
A. That sounds about right.
Q. And you presented all of your infringement opinions in that report. Correct?
A. I did.
Q. And you included a lot of SEM images in that report. Right?
A. I did.
Q. And you copied the SEM images right into the report so they were with the text when we read the report. Right?
A. I'm sorry. Which text?
Q. In your report. You included the images right into the report. Right, sir?
A. Yes, I did.
Q. And actually I should say Force MOS's lawyers included the images. Right?
A. Well, these were assembled under my direction, I selected the images, and I had assistance in actually copying -- getting them copied and pasted into the final document.
MR. McMAHON: Your Honor --
THE COURT: What's your objection, counsel?
MR. McMAHON: Move to strike that as non-responsive.
THE COURT: Sustained. It's very non-responsive.
Q. (BY MR. McMAHON) Dr. Neikirk, it was Force MOS's lawyers who put the images into your report. Correct, sir?

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A. Yes.
Q. With your report we talked about the fact that you provided a list of materials considered. Right?
A. I did.
Q. And that list of materials considered identified all of the images. Right?
A. I believe it did.
Q. But you didn't put all of the images into your report. Right, sir?
A. No, I did not.
Q. You just put the most important images into your report. Right, sir?
A. I think -- yes, that's a reasonable characterization.
Q. And you showed us the most important images because that was the best evidence you would have of your opinion. Correct?
A. Yes.
Q. During your direct examination, you showed us a number of demonstratives, the ones that you colored over with the paint. You recall those?
A. I do.
Q. And I believe, if I counted correctly, there were 13 of those images. Right?
A. I don't recall how many there were. I wouldn't dispute that number.

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Q. Would you agree that 10 of those images never appeared in your report?
A. I don't know. It's possible.
Q. So it's possible that 10 of the images that you chose to show to the jury here today didn't make the cut to appear in your 500-page report?
MR. HANBA: Your Honor, may I approach?
THE COURT: Approach the bench.
(The following was had outside the hearing of the jury.)
THE COURT: Do you have an objection, Mr. Hanba?
MR. HANBA: I do, Your Honor. It's regarding the stipulated motion in limine. A lot of those images are now allowed to be shown because of a stipulated motion in limine. That's why I approached, Your Honor. It's because -- so if Mr. McMahon is going to ask why he didn't show it, well, it's because it had been limined out and there was an agreement stipulated. So I think he's opening the door to those, quote unquote Matech images. And so on redirect if Mr. McMahon is asking why he's not showing those images, I'm going to go up and I think I have a right under the motion in limine to then ask why not.
THE COURT: Well, you have to get leave from me before you ask --
MR. HANBA: Exactly. Exactly, Your Honor.

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THE COURT: -- Whether you think you have a right to or not.

What's your response to this objection?

MR. McMAHON: I would be happy to rephrase the question and limit it to Microtech images.

THE COURT: I think that would be a good solution. Let's do that and let's move along.

How much more have you got?

MR. McMAHON: Very little.

THE COURT: You are about 30 minutes over your estimate.

04:19 MR. McMAHON I have had to deal with a lot more images than I expected to, Your Honor.

THE COURT: All right. Let's move on.

(The following was had in the presence and hearing of the jury.)

THE COURT: Restate your question, counsel.

MR. McMAHON: Thank you, sir.

Q. (BY MR. McMAHON) Dr. Neikirk, the images that you analyzed and that you presented to the jury came from Microtech. Correct?

A. They did.

Q. And I want to be clear. When I asked earlier about the hundreds of images, I was referring to the Microtech images. Right?

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A. That's what I assumed, and my answer was based on Microtech images.

04:20 Q. Okay. So of the 13 images that you chose to show to the jury here in court today, 10 of them -- 10 of those Microtech images didn't make the cut in your original report. Correct?

A. I don't know the exact numbers, but that wouldn't surprise me, no.

Q. Wouldn't surprise you.

A. It would not.

Q. That the images that you thought were most important for the jury didn't make the cut in your original report?

A. That's correct.

04:20 Q. Okay. Dr. Neikirk, you agree that Force MOS bears the burden of proving infringement. Correct?

A. I do.

Q. And ASUSTek does not have to prove non-infringement. Right?

A. Yes.

Q. Okay. ASUSTek doesn't -- sorry.

04:21 Next up to testify will be Mr. Fu, our corporate representative. You would agree with me, Mr. Fu does not bear any burden to prove non-infringement. Correct?

A. That's correct, yes.

Q. And Dr. Shanfield, we'll hear from him later, he doesn't bear any burden to prove non-infringement. Correct?

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A. No, he does not.
Q. It's only Force MOS that bears that burden to prove infringement.
A. Yes, that's my understanding.
Q. Dr. Neikirk, I'd like to return to those tables that we looked at earlier. We don't need to bring them up, but just a few questions to clarify.
Your table addressed five different categories of products. Right?
A. It did. I'm trying to remember whether there was five. But yes, I think that's right.
Q. And for each category, your table represented your conservative estimate for that category. Right?
A. It did.
Q. Your conservative estimate of the numbers of accused components one would expect to find in that category of products?
A. Yes.
Q. And for graphics you estimated 12, whereas Mr. Diep counted only nine.
A. That's correct.
Q. And for motherboards you estimated 107, whereas Mr. Diep only counted 70 in one motherboard and 27 in the other motherboard. Right?
A. As best I recall Mr. Diep's numbers, yes.

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Q. And for laptops you estimated 65, whereas Mr. Diep counted only 58 in one laptop. Right?
A. And again, as I best recall Mr. Diep's numbers, yes, that's correct.
Q. And he counted only 28 in another laptop. Right?
A. I don't remember the precise number, but that sounds right, yes.
04:22 Q. And he counted only two accused MOSFETs in that third laptop. Correct?
A. Yes.
Q. And I think we can agree--two is far less than 65.
A. Certainly it is.
Q. And you stand by your position that those estimates are conservative?
A. I do.
Q. My last question for you, sir, is who made the decision to inflate the numbers? Was it you or was it Force MOS's lawyers?
04:23 A. I don't agree with the characterization of them as being inflated because that suggests that a number was taken and raised because of only that original number. That wasn't the basis of my estimates.
Q. Who made the decision on those numbers?
A. Ultimately the numbers that went in that table are my numbers. I did.

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Q. Okay. Thank you, sir.

MR. McMAHON: Pass the witness, Your Honor.

THE COURT: All right. Is there redirect?

MR. HANBA: Yes, Your Honor.

04:23 THE COURT: Let's proceed with redirect examination. Proceed when you're ready Mr. Hanba?

04:24 MR. HANBA: Mr. Doyle, would you please put back up PDX, I believe it's 3.11?

REDIRECT EXAMINATION

BY MR. HANBA:

Q. Dr. Neikirk, do you recall counsel asking you some questions about the estimated MOSFET counts on this slide?

A. I do.

Q. And do you remember counsel asked you questions about whether those counts were consistent with Microtech's results?

A. I believe I recall that question, yes.

Q. Dr. Neikirk, just to be clear, have you ever said that this data was based exclusively on what Microtech gave you?

04:25 A. No, I've never said that.

Q. Why did you use other data in Microtech's -- excuse me. Why did you use other data in addition to Microtech's data to get your part count estimates?

A. Microtech's data sampled I believe five specific models, and I was trying to get something that would represent a broader cross section of models.

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Q. So Microtech didn't do the counts, if you will, for thousands of ASUS products.
A. No, they did not.
Q. Did you do anything to check the reasonableness of your estimated MOSFET counts?
A. I did.
Q. And what did you do?
A. I looked at information from ASUS that indicated numbers of MOSFETs in certain -- in many products, and looked through that to try to see whether these numbers were reasonable compared to those.
Q. And if we look on this demonstrative, the ASUS notebook column, we see 65 MOSFETs. Do you see that?
A. I do.
Q. And how do you -- how did that compare to some of ASUS's spreadsheets you reviewed?
A. I'm -- I believe I've seen entries where the component -- the MOSFET count was well over a hundred. I don't remember whether I saw anything over 150 or 200, but certainly well over my number of 65.
Q. And we talked about some of the spreadsheets you looked at this morning. Right?
A. Yes.
Q. One produced--provided; excuse me--one provided by ASUS early in the case and another one provided more recently.

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A. Yes.

MR. HANBA: And so, Mr. Doyle, if we may, could we please pull up the native version of DX 23 part 2, an ASUS spreadsheet?

Q. (BY MR. HANBA) And Dr. Neikirk, have you reviewed this spreadsheet?

A. I have.

MR. HANBA: Mr. Doyle, while keeping the top two rows of the screen, can we go down to row 272 and show columns A, B, and Z?

Q. (BY MR. HANBA) And Dr. Neikirk, --

MR. HANBA: Can we go down to row 272? There we go.

Q. (BY MR. HANBA) And, sir, what is -- what do we see here?

A. There is a product line and a model number, the first two columns, and that column Z is labeled "counts per unit."

Q. And Dr. Neikirk, how does this compare to the number of the notebooks in your estimated counts chart?

A. Well, this number says 104, and I think--now I've forgotten--I've put 65.

Q. And so there are some numbers that are much higher and some that are lower. Is that fair?

A. Yes.

MR. HANBA: So Mr. Doyle, can we go to row 1284 now and columns A, B, and Z?

Q. (BY MR. HANBA) Dr. Neikirk, what do we see here?

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A. That particular row is 69.
Q. And again, how does this compare to the number for notebooks in your estimated count chart?
A. That number is quite similar. 65 is what I put?
MR. HANBA: And so let's go back to that PDX with the counts.
Q. (BY MR. HANBA) And so what does it show for the ASUS
04:28 servers of the count number?
A. For the ASUS servers it says 119.
MR. HANBA: So Mr. Doyle, let's switch back to the native for DX 23 part 2, and can we go to row 1641 now?
Q. (BY MR. HANBA) So Dr. Neikirk, what do we see here?
04:29 A. The number for that server is 224.
Q. And so how does this number on Defendant's Exhibit 23 part 2 compare to your number for servers in your estimate?
A. I believe it's significantly larger.
MR. HANBA: And so, Mr. Doyle, could we please go to row 1612?
Q. (BY MR. HANBA) And Dr. Neikirk, what do we see here?
A. There it lists component count of 417.
04:29 Q. And how does that compare to the numbers for servers in your estimated chart?
A. I think it's over three times larger; close to four times larger.
MR. HANBA: So now let's go back to, if you would,

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Mr. Doyle, PDX 311.

Q. (BY MR. HANBA) And what does your estimated count chart show for motherboards?

A. For motherboards I have 107.

MR. HANBA: Mr. Doyle, let's switch back to Defendant's Exhibit 23 part 2. Can we please go to row 760 now?

Q. (BY MR. HANBA) And Dr. Neikirk, what do we see here?

A. It's listed as a motherboard with a part -- counts per unit of 177.

Q. And how does that compare for the motherboards in your estimated count?

A. I think it's significantly larger than my count of 107 -- or my estimate of 107. Excuse me.

Q. And Dr. Neikirk, if we would look, what does your estimated count show for the graphics card on this demonstrative?

A. I used 12.

MR. HANBA: And so now, if you would, Mr. Doyle, switch back to Defendant's Exhibit 23 part 2. Can we please go to row 2063?

Q. (BY MR. HANBA) And what does that show, Dr. Neikirk?

A. Sorry. That indicates product line and model. Those are graphics cards, and it shows 13.

Q. And so how does that compare with your demonstrative

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exhibit?
A. It's somewhat higher than my number.
Q. And so is it fair to say that some of them -- some of the count numbers in the document in the Defendant's exhibit provided by Defendant are higher and some of them might be lower?
A. Yes, I think that's fair.
Q. Is that fair to say that's why you were talking about an average, if you will?
04:32 A. That's why -- and I used that word, but that's why I was trying to arrive at what I believe was a reasonably conservative estimate.
Q. And just to be clear, again, you did not --
MR. HANBA: If we could go back to that demonstrative.
Q. (BY MR. HANBA) These are not the numbers from Mr. Diep's five samples. Right?
A. No, they're not.
Q. Okay. Thank you.
And so do you remember this morning that we talked about your interaction with Microtech?
04:32 A. I do.
Q. And do you remember counsel asked you some questions about that interaction?
A. I do recall that.

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Q. Is there any -- I believe this morning we also talked about your interaction between Dickinson Wright--the law firm here--yourself, and Microtech. Did we talk about that?
A. I believe we did, yes.
Q. And so is there any indication whatsoever that Dickinson Wright did not instruct Microtech in accordance with your directions?
04:32 A. No, there is not.
Q. Is there any indication that you didn't receive everything from Microtech?
A. No, there is not.
Q. As a matter of fact, didn't you face time with some of the attorneys at Dickinson Wright?
A. I most assuredly did.
Q. And what did you do during some --
THE COURT: Just a minute.
MR. McMAHON: Leading, Your Honor.
THE COURT: Sustained as to leading. This is redirect.
04:33 Q. (BY MR. HANBA) And what types of communications did you have with the attorneys from Dickinson Wright regarding the tear-down process?
A. Certainly there were numerous emails, there were telephone calls, and there were video conferences.
Q. And what did you do during those video conferences?

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A. So in the video conferences there were some photographs and images were being sent to me live, and I was looking at those to try to explain yes, that's what I need to see, or no, it is not.

Q. And what did you do with regards to the tear-down process during those video calls?

A. With respect to the tear-down process, I had results from Microtech; was reviewing those to try to determine whether they were as I would expect them to look and whether they covered the regions of the device that I needed to see.

Q. And how would you know whether an image is a quality SEM image?

A. Well, I've been taking and staring at SEMs for 40 years now and I'm used to what they look like. I know when one looks bad and one that needs to be redone and one that looks like it should.

Q. About how many SEMs have you looked at in your lifetime?

A. Oh, I'm sure it's many thousands by now.

Q. And how would you know whether an image is a reliable EDS?

A. Well, EDS is a pretty straightforward measurement. If it's not working properly, the spectrum you see will have peaks that just don't -- they don't get labeled. Then you know that there's something wrong with the instrument. But looking at the spectrum, those peaks are -- they're handbook

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values essentially that says that peak is this material. If you see something that doesn't correspond to any material, you know it's not right.

Q. And sir, what did you see, if anything, that made you question the integrity or quality of the materials that you received from Microtech?

A. I didn't see anything that made me question the integrity of their work product.

04:35 Q. Dr. Neikirk, do you remember Mr. McMahon asked you a few questions about whether you worked with trench MOSFETs? Do you remember that?

A. I do.

Q. Do you recall he also asked you a few questions about whether you made any trenched MOSFETs?

A. Yes, I recall that.

Q. What field would you consider trenched MOSFETs to be in?

A. They are a semiconductor device.

Q. And how many years have you been in the semiconductor field?

A. Over 40 years now.

04:36 Q. And as a matter of fact, when I moved to qualify you as an expert, was there any objection?

A. No, there was not.

Q. Dr. Neikirk, do you remember counsel asked you a few questions about the asus.com website?

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A. I do.
Q. When you went through the process for ordering a product from the asus.com website, did you see any mention of any ASUS company other than the Defendant?
A. I did not.
Q. Okay. Dr. Neikirk, will you remind the jury about the categories of materials that you relied on for your infringement analysis?
A. I relied on scanning electron microscopy images, stained samples for SEM analysis, EDS results, the specification sheets for the devices themselves; again, deposition testimony, ASUS documents.
Q. Did you -- excuse me. Go ahead?
A. Well, and I believe there were some interrogatory responses where some of the question and answers were relevant to the devices in the accused products.
Q. And did you review those materials for every accused MOSFET?
A. I did.
Q. Did you see anything that caused you to question your opinions?
A. No, I did not.
Q. Did counsel show you other evidence that made you question your opinions?
A. No.

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MR. HANBA: So if we could go to, Mr. Doyle, PDX 3.2.

04:39 Q. (BY MR. HANBA) And this is one of the demonstrative exhibits that you talked about today. Right?

A. Yes, it is.

Q. And what is this demonstrative exhibit showing?

A. Well, on the right-hand side it's trying to illustrate the structures that make up this trenched MOSFET. I've used the colors to try to make it easier to see. On the

04:39 left--again, a top view--again I'm trying to use the colors so that it's easier to tell what the structures are that make up this device.

Q. So this is just a demonstrative to show the attorney--excuse me--to show the jury?

A. It is.

MR. HANBA: And so if we could go back to the native image of this, Mr. Doyle.

Q. (BY MR. HANBA) I believe Mr. McMahon showed you this image. Do you recall that?

A. I do.

04:39 Q. Did you use this image at all to prove infringement?

A. So yes, I did. I mean, I look at the original images when I'm trying to determine whether the structures are actually there.

Q. And maybe -- let me -- maybe I'm a little bit confusing.

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THE COURT: No need to make statements, counsel. Ask questions.

MR. HANBA: Mr. Doyle, could you please bring up 27.2? Plaintiff's Exhibit 27.2.

Q. (BY MR. HANBA) And is -- Mr. Neikirk--excuse me; Dr. Neikirk--is this the same MOSFET as was -- that we just showed in the demonstrative?

A. Yes, I believe it is.

Q. And isn't this the image that you used for the side view to show for the -- was that the two -- the Panjit 2K?

MR. McMAHON: Objection; leading.

THE COURT: Sustained.

Q. (BY MR. HANBA) Dr. Neikirk, how did you use this image differently than the demonstrative that I just showed you?

A. Well, this is an image very similar to the previous one, and as I said, I analyzed these images to identify the component -- the parts where they are relative to one another. In many cases I don't have to get exact sizes. So this is how I do my analysis. This is by looking at these kind of images.

Q. And this is different -- just so we're clear, this is different --

MR. HANBA: If you would put the side-by-sides. I don't know if we can.

Q. (BY MR. HANBA) This is different than the PDX that we previously showed. Right?

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A. It's certainly different than the colored PDX. Yes. I mean, I don't know what the number was, but...

04:41 Q. And so do you recall Mr. McMahon --

MR. HANBA: If you can take that down, please, Mr. Doyle.

Q. (BY MR. HANBA) Do you recall Mr. McMahon asked you about your estimates of the counts and about the low-end products?

04:42 A. I do.

Q. And does ASUS sell low-end products?

A. They do.

Q. And what other types of products do they sell?

A. They sell low-end products, they sell what somebody might characterize as mid-range products, and higher-end products.

Q. And we saw that in the count sheet. Right?

A. We did.

Q. And so does ASUS sell -- excuse me. Strike that.

Do you recall having a conversation with Mr. LaMotta

04:42 about the impact of the high-end products of your estimates?

A. That I recall, yes.

04:43 Q. Okay.

MR. HANBA: And if we may -- may I put the board up, Your Honor?

THE COURT: You may.

Q. (BY MR. HANBA) And so I believe you talked a little bit about the lateral contact layer with Mr. McMahon. Is that

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right?
A. I believe so, yes.
Q. And do you remember when counsel asked you questions regarding whether you're relying on evidence other than Microtech's SEMs to show that lateral contact layer?
A. I do recall that.
Q. And so what evidence did you rely on in reaching your conclusion regarding the presence of the lateral contact layer in the accused products, but like Mr. McMahon -- with regard, say, to the Microtech we can just use that imaging (verbatim)?
A. Well, from the Microtech images, it would be those stained SEMs, but I didn't rely only on the Microtech images.
Q. And so what else did you rely on?
A. Well, in particular, my knowledge that the dopants are introduced using ion implanatation and the characteristics of ion implanatation, the physics of it is something that, again, I've taught for close to 40 years.
Q. What ASUS documentation or admissions did you rely on for this element?
A. Well, ASUS -- Dr. Shanfield, I believe, explained that ion implanatation is used putting the dopants into the accused products, so I relied on that.
Q. And so did -- in this case did ASUS get some information from its suppliers regarding the design of the accused MOSFETs?

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A. That was my understanding, yes; as reported by Dr. Shanfield, I believe.

Q. So that was your understanding as reported by ASUS's expert Dr. Shanfield?

A. Yes, I believe it was in his -- one of his reports.

Q. And so how did that inform your analysis as to the lateral contact layer, element 1[g]?

04:45 A. Well, the shape of that trench I can see from the SEMs. I can see where the body region is. The characteristics of ion implanatation tell me that the base, the bottom will be heavily -- more heavily doped than the sides. And so it's -- the knowledge that it's an ion implant I believe went so far as to state that it was at normal incidence and the shape of those trenches.

04:46 Q. And based on that information and -- why wasn't it necessary that you show the jury an SCM today?

A. Well, the stained SEMs and knowing that it is -- ion implanatation is sufficient for me to render my opinion, that tells me what that doping will be in that lateral contact layer.

04:47 Q. Dr. Neikirk, you heard -- strike that.

Dr. Neikirk, Mr. McMahon asked you some questions about 60 volt MOSFETs and 70 volt--excuse me--60 volt MOSFETs and 30 volt MOSFETs for the accused devices. Right?

A. Yes, he did.

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Q. And also, if I recall, did he also say that the ASUS products don't operate above 20 volts?
A. I don't recall. He gave a number for they don't operate above, and I don't honestly recall whether it was 20 volts or not.
Q. More than 10, though.
A. Yes, it was more than 10, and I believe less than 30.
Q. Do the patents address such an issue as to the voltage requirements?
A. Well, the claims certainly do not, and even the specification doesn't really talk about the voltages at the terminals of the device.
Q. And so do the patent claims, specifically the '409, talk about problems over any specific voltage?
A. No, they do not.
Q. Anywhere in the specification?
A. The specification refers to some internal voltages but not the voltage across the terminals of the device.
Q. And so what's the difference between the two?
A. Well, the voltage between that lead on the plastic package, that voltage, which is what the specifications refer to, doesn't tell you about voltages inside the semiconductor, and that's really the issue that the '409 was trying to address.
MR. HANBA: Mr. Doyle, would you please bring up the

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'634 Patent, which is JX 2?

04:48 Q. (BY MR. HANBA) Do you recall Mr. McMahon asked you some questions regarding figures 3A and 3B?

A. I do.

Q. And I believe these are ways within the patent that teach ion implanatation?

A. I believe that it was discussing these as illustrations of an ion implanatation and what it might do, yes.

Q. Those are ways to teach ion implanatation. Is that right?

04:49 A. Well, it would teach one of ordinary skill to use that processing technique.

Q. So were you here -- you were here when His Honor gave his jury instructions?

A. I was.

Q. Did you hear him say that it's the claims that define the bounds of the invention?

A. I do recall that.

Q. Does any of claim 1, claim 2, or claim 3 require a

04:49 specific way for ion implanatation?

A. For the '634 Patent, the Court's construction requires an ion implanatation be used, but otherwise there's no reference to ion --

Q. But do they require any specific technique for ion implanatation be used?

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A. It certainly doesn't require anything about the angles or the doses, no.

Q. All right. So it doesn't matter whether it's -- excuse me. Does it matter whether it's figure A or figure B as to the claims?

A. No, it does not.

MR. HANBA: No further questions, Your Honor. I pass the witness.

THE COURT: All right. Is there further cross examination by the Defendant?

MR. McMAHON: Yes, sir.

THE COURT: All right. Take your board down, please, counsel.

All right, Mr. McMahon, continue with cross examination.

MR. McMAHON: Thank you, Your Honor.

RECROSS EXAMINATION

BY MR. McMAHON:

Q. Dr. Neikirk, you referred on redirect to additional data beyond Mr. Diep's data that you considered in arriving at your estimates. Correct?

A. Yes.

Q. And that was ASUSTek's data. Right?

A. Yes.

Q. You relied on it. Right?

A. I certainly considered it, yes.

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Q. Okay. Did you find any inconsistencies between Mr. Diep's counts and the ASUSTek maximum slot count data?
A. Well, there were certainly some products worth many more; some with less. I don't recall what the numbers were for the precise products that Mr. Diep looked at.
Q. Did you find any inconsistencies -- any place where the ASUSTek data was inconsistent with Mr. Diep's count?
A. Well, where it, for instance, said that there were a hundred, that would be inconsistent with Mr. Diep's count for some product.
Q. And let's be clear about what the ASUSTek data represents, sir. It represents the number of slots. Right? Not necessarily the number of accused MOSFETs. Correct?
A. Yes, I do understand that.
Q. And the number of slots is a maximum; it's a ceiling on the number of accused MOSFETs. Correct?
A. I don't know whether -- I thought it referred to the number of locations on an -- in an actual product, in which case it would be a real number. I'm not aware that it says that some products have fewer slots. I'm sorry.
Q. But you can't put more MOSFETs in a product than you have slots. Correct?
A. That's true.
Q. Just like you can't put more tees in the Cracker Barrel board than you have slots. Right?

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A. That's true.
Q. Did you find any instance where Mr. Diep's numbers exceeded the ASUSTek data?
04:52 A. Well, there were certainly some products that had fewer components -- fewer slots than the components that he counted.
Q. Let me be a little more clear with my question. Did you find any one product that Mr. Diep counted for which the ASUSTek data was lower than Mr. Diep's count?
A. I don't recall the numbers. I don't recall finding that, no.
Q. You don't have any recollection of that?
A. Not for those specific products, I don't as I sit here now.
Q. As far as you know sitting here today, every ASUSTek
04:53 number was equal to or higher than Mr. Diep's number?
A. I simply don't know.
Q. Fair enough.
You referred on redirect to a conversation you now recall having with Mr. LaMotta. Correct?
A. Yes.
Q. And you talked about I think you said the impact of high-end products.
A. Yes. We talked about differences between low-end and high-end products.
Q. Did -- have you -- has your testimony changed? Did you

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tell Mr. LaMotta anything that wasn't in your original report?
A. I believe my original report pointed out that there are high-end products that they would have likely have more, so no, I don't think I told him anything that I didn't say there.
Q. Did you provide Mr. LaMotta with a high-end estimate?
A. I honestly don't recall.
Q. Okay. No recollection of that at all sitting here today.
A. I do not recall.
Q. That -- is it fair to say that if it were important you would recall it?
A. Well, I've looked at a lot of numbers from the ASUS spreadsheets, and I don't recall whether I quoted any of those numbers in that conversation. I just don't recall.
Q. Okay. So sitting here today you do not recall giving Mr. LaMotta any specific numbers for a high-end estimate.
A. As I sit here right now, I really do not remember.
Q. Fair. Fair enough.

Here's a question for you. If I have a laptop that sells for a thousand dollars and it contains accused MOSFETs that were bought for 25 cents -- do you understand the hypothetical so far?
A. I do.
Q. Okay. The '634 Patent and the '409 Patent, do they contribute a hundred percent of that 25 cents?

MR. HANBA: Objection, Your Honor.

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THE COURT: What's your objection?

04:55 MR. HANBA: Outside the scope of redirect.

THE COURT: Overruled.

THE WITNESS: Well, I believe that the patents contribute to having a useful -- a MOSFET that is used in circuit boards. I'm sorry. Could you repeat the question?

Q. (BY MR. McMAHON) Sure I'll rephrase it. I'll clarify. Mosfets were around long before the '634 Patent; long

04:55 before the '409 Patent. Right?

A. They were.

Q. So trenched MOSFETs today are not solely because of the '409 Patent and the '634 Patent. Right?

A. I think that's probably true, yes.

Q. The '409 Patent and the '634 Patent do not represent 100 percent of the value of a trench MOSFET today. Right?

A. I haven't tried to assess -- I don't know. I simply don't know how that assessment is done.

04:56 Q. You didn't provide any assessment on apportioning the value of the technology?

A. That I did do.

Q. Okay. And did you assess that the '409 Patent and the '634 Patent are responsible for 100 percent of the value of an accused MOSFET?

A. So I don't recall how it was phrased, but it wasn't a hundred percent, no.

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Q. Can't be a hundred percent. Right?
A. Well, in the way I did the technical assessment, no, it wasn't a hundred percent.
Q. And -- sorry, sir. Go ahead.
A. No. I agree.
04:56 THE COURT: Ask your next question, counsel.
Q. (BY MR. McMAHON) It wouldn't make sense for -- to attribute 100 percent of the value of a product that's been around for 40 years to two patents that came out in 2006 and 2008. Right?
A. I'm -- the way I did my technical assessment, it would not be a hundred percent.
Q. Can't be a hundred percent.
A. Again, for the patents in the way I did the assessment, no, it couldn't be a hundred percent.
Q. Thank you.
04:57 MR. McMAHON: Can we bring up, Mr. Buck, PX 27-02?
Q. (BY MR. McMAHON) Dr. Neikirk, you saw this image on redirect and I just want to point out in this image we also see the black shapes. Right?
A. We certainly do.
Q. This is the type of image that Mr. Diep called bad. Right?
A. I'm not sure that this is what he meant by 'bad'. I don't know precisely which images he referred to as being bad.

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Q. Okay. But he referred to the black shapes as being bad, did he not?
04:57 A. He certainly referred to that as potentially indicating it was bad.
Q. Okay. On redirect you talked about the doping concentration and the evidence that you have considered in concluding that the accused MOSFETs have P* doping for lateral contact layer. Do you recall that?
A. I do.
04:58 Q. You do not have any direct evidence that the accused MOSFETs contain P* doping. Right?
A. I'm not sure I understand what you mean by 'direct evidence'. I don't think I'd agree with that.
Q. You don't have any measurement of the doping concentration in any accused MOSFET. Correct?
A. I don't have a number measurement, no.
Q. And what you -- okay. So you have not relied on any
04:58 testing to directly measure the doping concentration in the accused MOSFETs.
A. That's correct.
MR. McMAHON: Pass the witness, Your Honor.
THE COURT: Anything further, Mr. Hanba, by way of additional direct?
MR. HANBA: No, Your Honor.
THE COURT: Then you may step down, Dr. Neikirk.

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THE WITNESS: Thank you, Your Honor.

THE COURT: Counsel, approach the bench, please.

(The following was had outside the hearing of the jury.)

04:59 THE COURT: Well, since lead counsel blew their time estimate by over an hour, how close are you two on your time estimates? We may have to do the direct tonight and the cross tomorrow.

Can you keep it to an hour, Mr. Thane?

MR. THANE: I can, Your Honor.

THE COURT: Let's go.

(The following was had in the presence and hearing of the jury.)

05:00 THE COURT: Plaintiff, call your next witness.

MR. THANE: Your Honor, Plaintiffs call Max Fu, ASUS's corporate representative, adversely.

THE COURT: All right, Mr. Fu. If you'll come forward and be sworn.

Also, ladies and gentlemen, let me explain to you two things here.

There is an interpreter to assist Mr. Fu. Mr. Fu speaks some English, but he is not a native English speaker, so there

05:00 is an interpreter here in case he gets a question that is beyond his ability to handle in English, in which case he'll turn to the interpreter. But if he answers in English, it's

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because he understands the question and feels comfortable answering it in English. So I want you to understand that. And.

He may or may not go back and forth between the English and his native Chinese. Don't take anything from that if it happens; it's just a matter of how the particular questions that he gets, which he doesn't know in advance, fit with his familiarity and comfort answering in English.

Also, the interpreter has previously been sworn by the Court and will be at the witness stand to assist the witness if the witness needs that interpreting assistance.

Second thing, the Plaintiffs are calling this witness adversely. He is the corporate representative of the Defendant. That means they get the right to examine him on direct examination as if it were cross examination. They can properly ask leading questions on direct examination. And Defense counsel on cross examination doesn't get to cross examine their own witness; they get to examine him as if it were a direct examination. So those roles are reversed in the situation where the witness is called adversely, and I want to make that clear to you.

I've sustained several objections to leading questions so far. Plaintiff will get to lead the witness and it will not be appropriate to object to the same kind of leading questions in this context as it was with a non-leading witness. So I

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hope that's helpful to you as we go forward with this witness.

And given that. I'll ask our Courtroom Deputy to administer the oath to Mr. Fu at this time.

(Whereupon, the oath was administered by the Clerk.)

05:02 THE COURT: Please come around; have a seat on the witness stand.

I trust there's nothing to distribute with this witness, Mr. Thane?

MR. THANE: There is, Your Honor.

05:02 THE COURT: Let's get that done.

All right, Mr. Thane. You may proceed with direct examination of the witness adversely.

MR. THANE: Thank you, Your Honor.

MAX FU,

having been first duly sworn, testified under oath as follows:

DIRECT EXAMINATION

BY MR. THANE:

05:03 Q. Good afternoon, Mr. Fu.

A. Good afternoon.

Q. How are you today?

A. I'm good.

Q. Thank you for being here.

A. You're welcome.

Q. Mr. Fu, you're the product manager for laptops for the Defendant in this case ASUSTek Computers, Incorporated.

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Correct?
A. Correct.
Q. And you've worked for ASUSTek for 13 years. Is that correct?
A. Correct.
Q. And you're ASUSTek's corporate representative for this trial. Right?
A. Correct.
Q. You've been here through all of the testimony through
05:03 openings. Is that correct?
A. Correct.
Q. And Mr. Fu, you're prepared to testify today--right?--about what ASUSTek did whenever it was notified by Force MOS that it was infringing the '409 and the '634 Patents. Correct?
A. Correct.
Q. You're not an expert in MOSFET design. Is that correct?
A. Correct. I'm not an expert.
Q. In fact, you don't have any education in MOSFETs. Correct?
A. Correct.
Q. And you don't have any education in semiconductors. Correct?
A. Correct.
05:04 Q. And Mr. Fu, you're not going to be providing any

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testimony today regarding infringement or validity. Correct?
A. Correct.
Q. Thank you, sir.
Now, you were in the courtroom today when Dr. Neikirk testified, weren't you, sir?
A. I'm here.
MR. THANE: Mr. Doyle, could you please bring up PDX 3.10?
Q. (BY MR. THANE) Mr. Fu, you heard Dr. Neikirk explain that these are the representative products that ASUS is accused of infringing in this case. Correct?
A. Correct.
Q. Now, ASUS Computer International, or ACI, imports all of these products into the United States for ASUSTek. Correct?
A. Correct.
MR. UNDERWOOD: Objection, Your Honor. May we approach?
THE COURT: Approach the bench, counsel.
(The following was had outside the hearing of the jury.)
THE COURT: What's the objection?
MR. UNDERWOOD: It relates to one of the Court's prior orders, Your Honor. Just a few days ago, I think it was the day before trial, the Court put out an order on the Plaintiff's motion for summary judgment where they were

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seeking collateral estoppel on the alter ego issue. In response to that, we raised that it had never been pled, and the Court found that alter ego was out of the case. I think this questioning is going into that alter ego issue despite the Court's ruling that it is not in the case.

THE COURT: Mr. Thane?

MR. THANE: Your Honor, this goes directly to direct infringement. What I need to be able to prove is that ASUSTek understood and knew when sales were being made on these websites that they would be coming into the United States. I'm not going to discuss anything about their control or the alter ego theory.

THE COURT: Okay. The Court's opinion in that summary judgment matter made it clear that the issue of whether the Defendant sells into the United States by way of its websites is still a live issue and is subject to factual questions that have to be determined during this trial. To that extent that's perfectly proper, Mr. Thane, but I have excluded and I'm directing you not to go into traditional alter ego theories of control or commonality of corporate structures or any of those things.

MR. THANE: Understood, Your Honor.

THE COURT: I think you both understand my order and I'll expect you to abide by it.

MR. THANE: I do, Your Honor.

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THE COURT: Let's continue.

MR. UNDERWOOD: Thank you, Your Honor.

(The following was had in the presence and hearing of the jury.)

THE COURT: All right. Continue, please, counsel.

05:07 Q. (BY MR. THANE) Now, Mr. Fu, ASUSTek knows that ACI is going to import ASUSTek's products into the United States whenever they are sold via ASUS's website. Right?

A. What kind of ASUS website?

Q. The asus.com website. ASUSTek knows that ACI is going to import ASUSTek products into the United States when they're purchased on ASUS's U.S. website. Correct?

05:07 A. ASUS's U.S. website, yes. Correct.

Q. Thank you, sir.

Were you here Friday, and I believe you were, when your lawyers repeatedly said, and I think it's been said today, that words matter? Right?

A. Correct.

Q. And you agree with that, don't you, sir--that words really do matter?

A. I agree.

MR. THANE: Mr. Doyle, could you please pull up

05:08 JX 68?

Q. (BY MR. THANE) Now, Mr. Fu, will you agree with me that ASUSTek sells its products in the United States?

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A. Is that talking about the TUF gaming product?

MR. THANE: Mr. Doyle, can you take down JX 68, please?

Q. (BY MR. THANE) Mr. Fu, will you agree with me that ASUSTek sells its products in the United States?

A. No, it's not.

05:08 Q. You agree with me, don't you, sir, that words matter? Right?

A. I agree.

MR. THANE: Mr. Doyle, can you bring back up JX 68, please? And could you go to JX 68.333? And can we scroll down -- actually let's look at the top of the page.

Q. (BY MR. THANE) Mr. Fu, do you see JX 68 on the screen?

A. Yes, I do.

05:09 Q. Is this is a printout from the ASUS website. Right?

A. I think it's from asus.com/us.

Q. Understood. Correct.

Do you see here that on this website it says that -- the ROG Strix Z790. Do you see that?

A. Yes.

Q. And do you see up in the left-hand corner it has the ASUS logo? Do you see that, sir?

A. Yes.

MR. THANE: And can we scroll down, Mr. Doyle, to the bottom of this page, please?

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Q. (BY MR. THANE) Mr. Fu, do you see in the right-hand corner it has "add to cart"?
A. Oh, yeah; "add to cart," yes.
Q. And you see that this motherboard is priced at $429.99, and you can add it to the cart right there. Do you see that, sir?
A. Yes.
Q. And then do you see, sir, in the document title -- so just below the gray line that this is the ASUS eShop in the USA. Correct?
A. Oh, yes.
Q. And do you see that the website for this page is shop.asus.com/usa? Do you see that, sir?
A. Yes.
Q. And ASUSTek owns the ASUS website. Right?
A. ASUSTek own asus.com.
Q. ASUSTek also owns the ASUS website that's available in the U.S., doesn't it, sir?
A. No, we don't.
Q. Does ASUSTek own asus.com?
A. ASUSTek own asus.com.
Q. So it's your testimony that ASUSTek does not own asus.com/usa. Is that correct?
A. Correct.
Q. Okay.

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MR. THANE: Mr. Doyle, if you could, go to JX 68-338. And if you could, zoom in on the "add to cart" and the $429.

Q. (BY MR. THANE) Mr. Fu, do you see here the same "add to cart" and the same "$429.99"? Do you see that, sir?

A. Yes.

MR. THANE: And if you can, Mr. Doyle, could you zoom in on the left where it says "ASUSTek Computer Inc., All rights reserved"?

Q. (BY MR. THANE) Do you see that, sir?

A. Yes.

Q. You agree with me, sir, that words do matter. Right?

A. Yes.

MR. THANE: And could you zoom in, Mr. Doyle, there is a chat box above the "add to cart."

Q. (BY MR. THANE) Do you see that?

A. Yes.

Q. Do you see that, sir, Mr. Fu?

A. Yes.

Q. And it says "United Sta." Do you see that?

A. I see "United, yes, "Sta."

Q. And then underneath that chat box it actually says United States. Correct?

A. Underneath the chat box it said United and S T. I think it's states, yes.

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Q. We know that it says United States. Right?
A. I'm sorry?
Q. We know that it says United States under that chat box, don't we, sir?
A. I think so.
Q. And this is a webpage where a customer in the U.S. could buy the ROG Strix 290-F motherboard. Correct?
A. The product you showed just before? Yes.
05:12 Q. Yes. Do you see, sir, beside the "ASUSTek Computer, Inc., all rights reserved," it says terms of use notice? Do you see that, sir?
A. Yes.
05:13 MR. THANE: Mr. Doyle, if you could go to JX 68-388.
Q. (BY MR. THANE) And Mr. Fu, this is the terms of use for the asus.com/us website. Do you see that, sir?
A. I see the terms of use notice.
Q. And do you see where it says all, "Products and services provided by ASUSTek Computer Incorporated"--the Defendant in
05:13 this case. Right?--"are subject to the terms of use notice"? Do you see that, sir?
A. Yes.
Q. And so, Mr. Fu, the whole purpose of the asus.com/us website is to generate sales in the U.S. of ASUSTek's products. Correct?
A. Correct.

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Q. And because ASUS sells its products in the U.S., it also has to register trademarks here. Isn't that correct, sir?

05:14 A. I'm not a legal person, but I believe so.

MR. THANE: Mr. Doyle, if you could please go to PX 13, Plaintiff's Exhibit 13-002.

Q. (BY MR. THANE) Mr. Fu, have you ever seen this trademark before?

A. Yes.

Q. This is ASUS's trademark. Right?

A. Correct.

Q. The same trademark that we saw on the website earlier. Correct?

A. Correct.

Q. And this trademark is owned by the Defendant in this

05:14 case, ASUSTek Computer, Incorporated, the Taiwan corporation. Isn't that right, sir?

A. Correct.

Q. And do you know that the reason that ASUS has to have a trademark in the U.S. is because that trademark is being used in the U.S.? Do you know that, sir?

A. Yes.

Q. And do you know when the ASUS trademark was first used in the U.S.?

A. I don't know.

MR. THANE: Mr. Doyle, if you could highlight the

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last sentence on the very far right.
Q. (BY MR. THANE) We see the first use was in 1990 and then
05:15 it was used first in commerce in 1993. Do you see that, sir?
A. Yes.
Q. Again, ASUSTek is the Defendant in this case. Right?
A. Correct.
Q. And this is its trademark. Right?
A. Yes.
Q. In the U.S. for products that are sold into the U.S.
Right?
A. I'm sorry. The last sentence? Sorry.
Q. The ASUS trademark is for products -- to protect products
that are sold into the U.S. Correct?
A. Correct.
05:15 Q. Are you aware that ASUSTek swore to the United States
Patent and Trademark Office that it was using the ASUS
trademark in commerce in the United States?
THE INTERPRETER: Counsel, could you repeat?
Q. (BY MR. THANE) Yes. Are you aware, Mr. Fu, that ASUSTek
swore to the United States Patent and Trademark Office that it
was using its trademark in commerce in the United States?
05:16 A. I believe so.
MR. THANE: Mr. Doyle, if you could please pull up
PX 14.
Q. (BY MR. THANE) Do you recognize this document, Mr. Fu?

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A. I don't know what's that.
Q. Mr. Fu, this is a declaration of use. You see that at the top? "Combined Declaration of Use"?
A. Yes.
Q. And you see that the mark there, the trademark is ASUS Zenbook. Right?
A. Yes.
Q. And the ASUS Zenbook is one of the accused products in this case. Right? One of the representative products?
A. Correct.
MR. THANE: Mr. Doyle, if you could zoom out. And then zoom in on -- actually let's go to PX 14-003.
Q. (BY MR. THANE) ASUS Corporation in Taiwan is the owner of the ASUS Zenbook trademarks. Right?
A. Yes.
MR. THANE: Mr. Doyle, if we could go to PX 14-007. And if you could, zoom in right under the declaration, the first sentence under the declaration.
Q. (BY MR. THANE) Mr. Fu, do you see that ASUSTek, the Defendant in this case, declared that it was using the ASUS Zenbook trademark in the U.S.? Do you see that, sir?
A. Yes.
Q. Now, Mr. Fu, in your role as the product manager, you participated in product manufacturing and the processes for ASUS's laptops. Isn't that right, sir?

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A. I involved in the strategy and create the specification of the ASUS laptop products part of manufacturing.

05:18 Q. You're aware, aren't you, Mr. Fu, that ASUS produced sales data in this case? Right?

A. Yes.

Q. And you're familiar with that data. Right?

A. I've seen that data before.

MR. THANE: Mr. Doyle, can you please pull up JX 7?

Q. (BY MR. THANE) Mr. Fu, you've seen this data before. Right?

A. Correct.

Q. This is data that ASUS's lawyers in Taiwan created for

05:19 this case. Right?

A. To my knowledge, they combined data and create this, yes.

Q. ASUS's lawyers in Taiwan created and combined this data that was provided in this case. Correct, sir?

A. The combined different data to create this file, yes.

Q. So you know that ASUS's lawyers created this sales data. Right?

05:19 A. The sales data is row data. My colleague combined different row data to become this data, so they didn't create data.

Q. ASUS's lawyers combined certain data into JX 7; the sales data provided in this case. Correct?

A. Correct.

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Q. ASUS's lawyers did that. Right?
A. Yes.
Q. Now, Mr. Fu, you don't know exactly how this data was created, do you, sir?
05:20 A. I know they combined different row datas and created this one, but I don't know the detail.
Q. But you don't know if it was created using an accounting system or if just certain spreadsheets were thrown together, do you, sir?
A. I don't know detail.
Q. And you didn't personally verify this data, did you?
A. I don't.
Q. And you don't know if anybody verified that data, do you, sir?
A. I don't know.
Q. Mr. Fu, ASUS sells monitors. Right?
05:21 A. To where? Yes, globally we sell -- we got ASUS logo on the monitor, yes.
Q. ASUSTek sells monitors. Correct?
A. We don't -- ASUSTek don't sell monitor.
Q. ASUS sells monitors. Correct?
A. ASUS -- you mean the logo?
Q. ASUS has monitors that they sell. Like I could purchase an ASUS monitor. Correct?
05:21 A. Yes, you can purchase an ASUS monitor.

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Q. And I can purchase an ASUS keyboard. Right?
A. Yes.
Q. And I could purchase an ASUS headset. Right?
A. Yes.
Q. And I could purchase an ASUS adapter. Right?
A. Yes.
Q. And I could purchase an ASUS replacement battery. Right?
A. Replacement battery? Yes.
Q. Mr. Fu, were you in the courtroom when Mr. Hung's testimony was played for the jury?
A. Yes.
05:21 Q. And you heard him testify that ASUS doesn't track the MOSFETs in those accessories. Right?
A. What do you mean doesn't track MOSFET.
Q. You heard his testimony. Right?
A. Yes, I heard.
Q. And Mr. Hung said that ASUS doesn't track the MOSFETs that are put into those devices. Right?
A. I heard that he say he -- we didn't track which kind of -- which vendors MOSFET was put in the -- in our product.
Q. ASUS doesn't track which MOSFETs are put into its products. Correct?
A. Correct.
05:22 Q. Now, Mr. Fu, do you know which products that Force MOS is accusing of infringement in this case, who makes those

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products?
A. You mean the specific ones? Because I thought seven products --
Q. Do you know who makes the semiconductors that are accused of infringement in this case?
05:22 A. Panjit.
Q. That's one.
A. UBIQ.
Q. UBIQ.
A. And LRC.
Q. LRC.
A. And I can't remember the others, the name.
Q. Excelliance?
A. Yes.
Q. Excelliance is the other one?
A. Yes.
Q. So one of the ASUSTek suppliers is Panjit. Right?
A. One of our suppliers is Panjit, yes.
05:23 Q. And Panjit was a supplier for ASUSTek at the same time that Force MOS was a supplier. Right?
A. Correct.
Q. And ASUSTek is still doing business with Panjit today. Right?
A. Correct.
Q. ASUS, in fact, they haven't stopped using any of the

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semiconductors that are accused of infringement in this case, have they?

A. To my knowledge, yes, we are still using their components right now.

Q. You're still using the components of Panjit, LRC, UBIQ, and Excelliance in ASUS products today. Right?

A. To my knowledge, yes.

Q. ASUSTek hasn't made any attempts to remove those products?

A. For now, no.

MR. THANE: Mr. Doyle, can you please pull up JX 55?

Q. (BY MR. THANE) Now, Mr. Fu, you've seen this letter before, haven't you?

A. Yes, I do.

Q. And you recall seeing this letter and a couple of other notice letters during Mr. Chung's deposition, don't you, sir?

A. Yes.

Q. And these letters were sent to ASUSTek in Taiwan and ASUSTek in the U.S. Correct?

A. Yes.

Q. And they were to notify ASUSTek of potential patent infringement. Right?

A. Yes.

MR. THANE: Mr. Doyle, could you please pull up JX 57?

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Q. (BY MR. THANE) And this is --

MR. THANE: Thank you, sir.

05:24 Q. (BY MR. THANE) This is another one of those letters, isn't it, Mr. Fu?

A. Yes, that's the one sent to ASUS USA, which is not quite correct.

Q. And Force MOS notified ASUSTek in Taiwan and ASUSTek in the U.S. that it believed it was infringing the '409 and the '634 Patents. Right?

A. Yes. That's what these two letters describe.

Q. When ASUSTek received these letters, did it conduct any

05:25 test at ASUSTek of the Panjit semiconductors that were accused of infringement in those letters?

A. We didn't test any MOSFET from Panjit.

05:25 Q. ASUS didn't take any of its own images from the Panjit semiconductors, did it?

A. We contact with our vendors and search for their opinions about that.

MR. THANE: Objection, Your Honor. Move to strike as non-responsive.

THE COURT: Sustained. Re-ask the question or move on.

Q. (BY MR. THANE) Mr. Fu, ASUSTek didn't take any of its

05:26 own images, any of its own SEM images of the Panjit products that are accused of infringement in this case, did it?

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A. We cannot. We don't have the equipment.
Q. And ASUSTek didn't create its own or have a third party create any SEM images of any of the accused products in this case, did it?
A. No, we don't. We think the -- no, we don't.
Q. So I want to be clear about this. The jury in this case
05:26 is not going to see a single SEM image that ASUSTek created to show why it thought those products didn't infringe Force MOS's patents. Is that right, sir?
A. Correct.
Q. One of ASUSTek's suppliers that we've talked about is UBIQ. Right?
A. Correct.
Q. Are you familiar with UBIQ?
05:27 A. Actually no.
Q. Was UBIQ a supplier at the same time that Force MOS was?
A. I don't know.
Q. Is UBIQ currently a supplier?
A. Yes.
Q. Do you understand that ASUS's co-chief executive officer, its chief technology officer, its chief financial officer, and its global vice president are all sitting on UBIQ's board? Did you know that, sir?
05:27 A. I heard about that, but I don't know the detail.
Q. You just don't know. Is that right?

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A. Yes.
Q. Mr. Fu, ASUS and Force MOS had a business relationship, didn't they?
A. Yeah we did.
Q. And that started back in 2017. Right?
A. I believe so.
Q. And as part of that relationship, Force MOS supplied MOSFETs to ASUS. Right?
A. Correct.
05:28 Q. And they also supplied other transistors to ASUS. Isn't that right, sir?
A. Correct.
Q. Force MOS wasn't ASUS's only MOSFET supplier at the time, were they?
A. They're not -- they were not.
Q. They never were ASUS's only supplier, were they?
A. Correct.
Q. ASUSTek ended that relationship with Force MOS in 2021. Right?
A. We stopped buying their component.
05:29 Q. ASUS stopped buying Force MOS's components in 2021. Right?
A. Correct.
Q. And is that because of a quality issue or a price issue or you just didn't like them? What's the reason?

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A. It's about quality issue.
Q. A quality issue. We're not going to see a letter, an email, anything in writing to Force MOS that says, We're ending our relationship because of a quality issue, are we?
A. No, we don't.
05:29 Q. No. ASUSTek never told Force MOS, never sent them a letter that said, We're stopping this relationship because of a quality issue, did they?
A. No, it isn't.
Q. Mr. Fu, just one final question for you. Are you aware
05:29 that ASUSTek began an assessment to banning Force MOS's semiconductors in the industry? Are you aware of that?
A. Yes.
Q. You were aware of that?
A. Aware of the assessment in the opening--I'm sorry--like last Friday, and I see the video played and I saw that we have asked a better team -- better vendor to make assessment.
Q. ASUS started an assessment to banning Force MOS's
05:30 products. Isn't that right, sir?
A. We're making assessment about what happened if banning this component from Force MOS.
Q. Thank you, sir.
MR. THANE: Pass the witness, Your Honor.
THE COURT: All right. Cross examination by the Defendant.

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Do you have cross examination binders, Mr. Underwood?

05:30 MR. UNDERWOOD: I don't, Your Honor. Is that okay?

THE COURT: You either have them or you don't. I'm just asking.

MR. UNDERWOOD: Well, I don't.

THE COURT: All right. Then let's go forward with cross examination.

MR. UNDERWOOD: Thank you, Your Honor. May it please the Court.

CROSS EXAMINATION

BY MR. UNDERWOOD:

Q. Good evening, Mr. Fu.

A. Good evening.

Q. How are you doing?

A. I'm good.

Q. Is it okay if I first give you an opportunity to introduce yourself a little more to the jury?

A. Okay.

Q. Where are you from, Mr. Fu?

A. [redacted]

Q. And how long have you lived there?

05:31 A. [redacted]

Q. Is English your native language?

A. No, it's not.

Q. When did you learn English?

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A. From my elementary school.
Q. And did you ask this interpreter to be here with you today?
A. Yes, I do.
Q. Why did you ask for this interpreter to be present?
A. Because I'm here for the trial, and English is not my native language, so when I want to make sure that I understand
05:32 every questions, and I can express what I want to express correctly, so I asked interpreter here in case I don't know any words or sentence.
Q. [redacted]
A. [redacted]
Q. [redacted]
A. [redacted]
Q. [redacted]
A. [redacted]
Q. [redacted]
A. [redacted]
05:32 Q. [redacted]
A. [redacted]
Q. Can we talk a little bit about your educational background, Mr. Fu?
A. Yes.
Q. Did you attend college?
A. Yes, I did.

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Q. Did you obtain any degrees?
A. I got a Master degree and a Bachelor degree.
Q. What's your Bachelor's degree in?
A. It's about life science.
Q. And what about your Master's degree?
A. It's about management of technology.
Q. And what did you do after graduating with your degrees?
05:32 A. I joined the Army to do my military service.
Q. And how long did you serve in the military?
A. It's about 11 months.
Q. And was that in Taiwan?
A. Yes.
Q. What was your rank when you were in the military?
A. I think the word is corporal.
Q. And what did you do after your military service?
A. I joined ASUSTek.
Q. ASUSTek, the Defendant in this lawsuit?
A. Yes.
05:33 Q. How did you go from getting a degree in life sciences to joining a computer company?
A. Because life science we study DNA and proteins. That's -- people do experiments, a lot of experiments in the lab, but I don't like to be in the lab; I want to be -- deal with people and we want -- I want to talk with people and solve
05:33 questions with people, so I joined a management technology in

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greater school, and then I joined ASUSTek to be a project manager.

Q. How long have you been with ASUSTek now?

A. More than 13 years.

Q. And remind the jury, please, of your role at ASUSTek.

A. I am a project manager for consumer laptops.

Q. And what are your duties and responsibilities as the product manager of consumer laptops?

A. We collect information from sales team and market and we make strategy and plan based on that information and to create a new product for our customers.

Q. Do you work with a lot of different features in computers as the product manager?

A. Yes.

Q. Do you have a favorite that you've worked with over the years?

A. You mean a feature favorite.

Q. A favorite feature you've worked with over the years.

A. I would say bigger panel size and a longer battery life.

Q. [redacted]

A. [redacted]

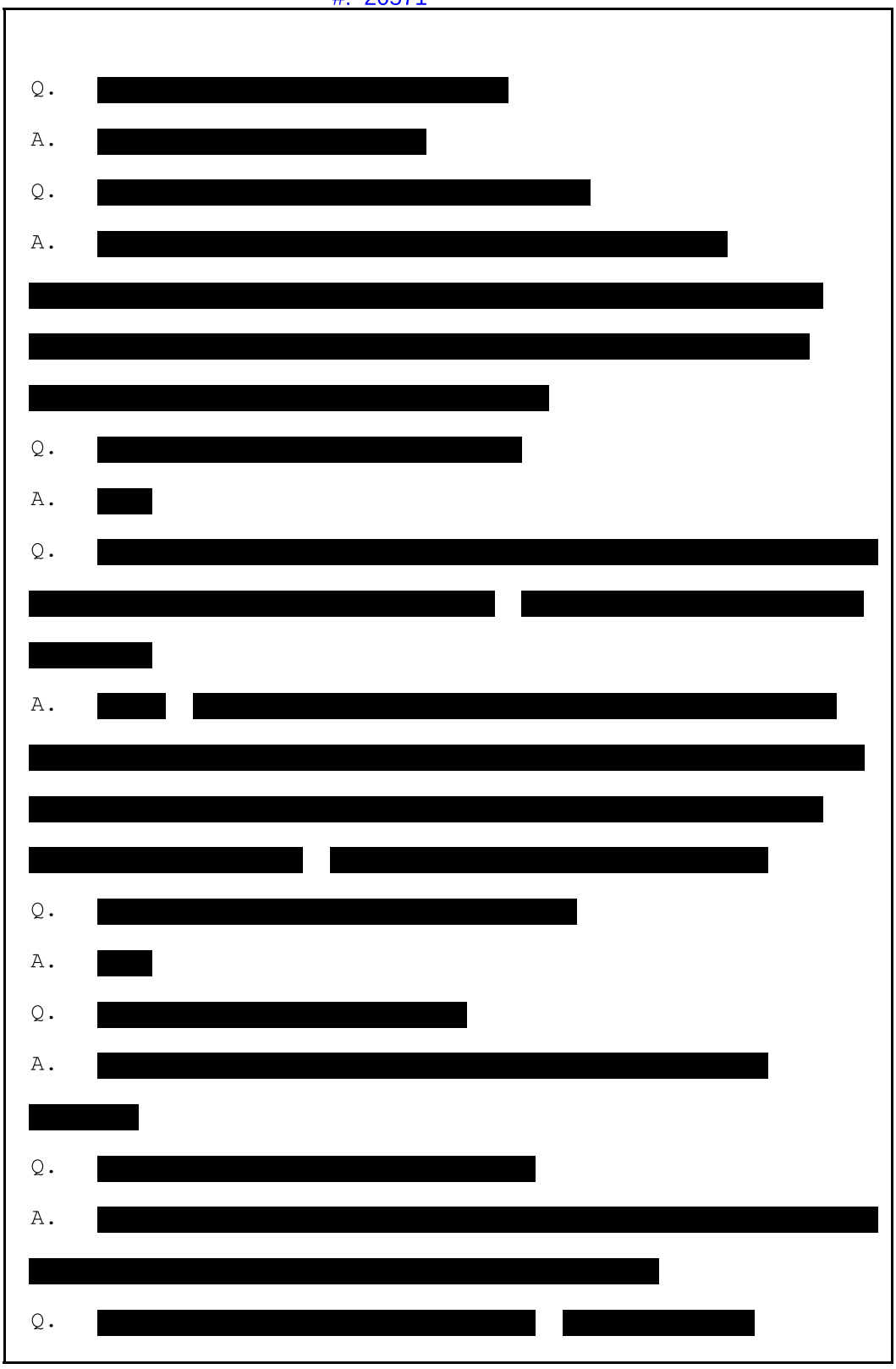
Q. [redacted]

A. [redacted]

Q. And when was that?

A. It's in 2020 to 2022.

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05:35
05:35
05:36

Shawn M. McRoberts, RMR, CRR
Federal Official Court Reporter

A. [redacted]

Q. About how long does it take you to travel from [redacted]

[redacted]

A. It's around 24 hours.

Q. So why did you travel 24 hours to be here for this case?

A. I want to be the corporate representative here and to protect and defense our company.

Q. Is this an important case for ASUSTek?

A. Yes, it is.

Q. Why?

A. Because we're -- Force MOS say that we have infringed their patents, but we think we don't, and we think the reputation is really important for us, so that's why I'm here to defense for ourselves.

Q. Mr. Fu, what type of work does ASUSTek do?

A. What type of work?

Q. Yes. What type of products?

A. Oh, I'm sorry. We design laptops, desktops, and monitor and cell phone and servers; a lot of electronic devices.

Q. And when was ASUSTek formed?

A. We formed in 1989.

Q. And who formed ASUSTek?

A. There were four young engineers and they gathering in a coffee shop in Taipei and they decides to create a company that design the electronic products.

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Q. And where did the name ASUSTek come from?
A. It's from Pegasus. It's an animal in Greek fairy tale.
Q. Why a Pegasus?
05:38 A. Because Pegasus is representative of perfection and purity, so we want our product to be like that, give people good experience, and help like make them like us.
Q. What types of customers does ASUSTek sell its products to?
A. Pardon me?
Q. What types of customers does ASUSTek sell its products to?
05:38 A. Oh, basically we sell to everybody here, like gamers and old people, young students; everyone that need electronic devices.
Q. And how does ASUSTek view the importance of the ASUS brand?
A. Because it's really -- the brand is that -- how people
05:39 feel about us, and if the brand is strong and is reliable, I think the customer will like us more.
Q. Mr. Fu, as Mr. Thane pointed out, you've been here throughout this whole case. Right?
A. Correct.
Q. And do you recall during opening statements there being some mention of a laptop from ASUSTek going up into space?
A. Oh, yes.

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Q. Can you tell the jury a little bit about that?
A. Yeah. In 1997, ASUSTek made our first laptop called
05:39 P6300, and the next day in 1998 we sent it to the space
station in the air -- in the space, and it worked functionally
-- normally around 600 days.
Q. Was that an important achievement for ASUSTek?
A. Oh, yeah, of course it is.
Q. Why was it important?
A. Because we think outer space is kind of extreme
05:40 environment for electronic devices, so if our product worked
normally around -- normally there around 600 days, that would
be very good achievement for us.
Q. Did ASUSTek recently release a laptop commemorating the
use of that laptop in space?
A. Yes, we did.
Q. And is there a video that ASUSTek put out about that
release?
A. Yes.
Q. Do you have that video here to show to the jury?
A. I believe so.
05:40 MR. UNDERWOOD: Mr. Buck, can you play the space
video?
(Whereupon, unidentified video was played in open
05:41 court.)
Q. (BY MR. UNDERWOOD) Mr. Fu, have ASUSTek laptops ever

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been sent into any other extreme environments?
A. Yes, we do.
Q. Where?
A. To the mountain -- to the top of mountain Everest.
Q. Does ASUSTek consider itself to be an innovator?
A. Yes, we do.
Q. Why is that?
A. Because if you notice that the end of the video shows that ASUS in search of incredible, and that's our goal to create and push ourself to create a better and a perfect product for our customer.
MR. UNDERWOOD: Mr. Buck, can we get the next demonstrative, please?
Q. (BY MR. UNDERWOOD) Mr. Fu, has ASUSTek received any industry recognition for its achievements?
A. Yes.
Q. Do any examples come to mind?
A. Yeah. We have got the world's most admired company in 2024, and that's the ninth time we have been.
Q. Does ASUSTek own any patents?
A. Yes, we do.
Q. About how many?
A. We got 2,700 in the U.S. and around 10,000 globally.
Q. Are patents important to ASUSTek?
A. Yes, it is.

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Q. Why is that?
A. Because patent, that help us to create more useful and better products, and we know that we need to pay a lot of
05:43 effort to get a patent and maintain the patent, so -- and we know the benefits from the patent. So that's important for us.
THE COURT: Counsel, approach the bench, please.
(The following was had outside the hearing of the jury.)
THE COURT: How is any of this relevant to the issues in this case and the direct examination that this witness gave? This is just raw bolstering of your client --
MR. UNDERWOOD: Your Honor --
05:43 THE COURT: -- as I see it.
MR. UNDERWOOD: Your Honor, so our intention is not to recall our client in our case in chief, and so what we did is last night we disclosed all of the exhibits and all of the demonstratives that we would use with Mr. Fu as if he were being called in our own case in chief. The Plaintiff did not object to that, and so we're just doing the examinations all at once of Mr. Fu.
THE COURT: Is that your understanding, Mr. Thane?
MR. THANE: Your Honor, I have no objection to the
05:44 video, but this has now gone on for about 10 minutes of bolstering the witness.

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THE COURT: Well, I brought you up here assuming that the Defendant would call him again in your case in chief. I did not understand the parties had not made me aware that this was the sole time the man was going to testify. So that does, in my mind, give you some additional latitude, Mr. Underwood, but what the number of patents this company owns and how wonderful their products are in space has nothing to do with the issues in the case. You need to get to the relevant issues pretty quick.

05:44

MR. UNDERWOOD: Your Honor's comments are very timely because I was moving on from this material and I was going to get directly to the website that was discussed and the party's relationship --

THE COURT: Then let's get there.

MR. UNDERWOOD: I will, Your Honor. Thank you.

(The following was had in the presence and hearing of the jury.)

THE COURT: All right. Let's proceed.

Q. (BY MR. UNDERWOOD) Mr. Fu, do you recall being asked some questions about a website called asus.com?

05:45

A. Yes.

Q. And do you recall also being asked some questions about a website called asus.com/us?

A. Yes.

Q. Who operates the website asus.com/us?

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A. ACI did.
Q. And who is ACI?
A. ACI is called ASUS Computer International, which is one
05:45 of the subsidiary of ASUS.
Q. And is ASUS Computer International the Defendant in this case?
A. No, it is not.
Q. Is ASUS Computer International the company that you work for?
A. No, it is not.
Q. Is ASUS Computer International the same company as ASUSTek?
A. No, it's not.
Q. Does ASUSTek make any sales in the United States via the asus.com/us website?
A. No, we don't.
05:46 MR. UNDERWOOD: Mr. Buck, can we get DX 22, please?
Q. (BY MR. UNDERWOOD) Mr. Fu, do you recognize this document?
A. Yes.
Q. And what is this document?
A. It's an entry summary.
Q. And which department from the United States government is this document from?
A. Department of Homeland Security.

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Q. And do you see in cell 26 right there?
A. Yes.
05:46 Q. Who is listed as the importer of record?
A. ASUS Computer International.
Q. Is ASUS Computer International the Defendant in this case?
A. No, it's not.
MR. UNDERWOOD: Thank you, Mr. Buck. We can pull that down.
Q. (BY MR. UNDERWOOD) Mr. Fu, have you heard all the evidence in this case about how the Plaintiff designs and sells products called MOSFETs?
A. Yes.
Q. Does ASUSTek consider the Plaintiff Force MOS to be a competitor?
A. No, we don't.
05:47 Q. Does ASUSTek design MOSFETs?
A. No, we don't.
Q. Does ASUSTek manufacture MOSFETs?
A. No, we don't.
Q. Does ASUSTek sell MOSFETs?
A. No, we don't.
Q. Where does ASUSTek get the MOSFETs that go into its products?
A. From our vendors.

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Q. And with respect to MOSFETs, is that something that ASUSTek advertises or markets as part of its sales efforts?
A. No, we don't.
Q. Why not?
05:48 A. First of all, users don't know what is MOSFET, and second, MOSFET is a basic component -- one of a tiny basic component on the motherboard, so it's not a feature, function that we could highlight. So we don't advertise MOSFET and never before.
Q. And did the space video we just saw talk about MOSFETs?
A. No.
05:48 Q. What types of features does ASUSTek advertise?
A. We're talking about panel size, we're talking about panel resolution, and about a process, how powerful the processor is and how big the battery is and something like that is the key features that users -- customers will like to know.
Q. Does ASUSTek manufacture the computers that it sells?
A. I'm sorry. Pardon? Could you repeat that again?
05:48 Q. Absolutely. Does ASUSTek manufacture or build the computers that it sells?
A. No, we don't.
Q. Who does manufacture them?
A. We cooperate with other manufacturers that help us to build our product.
Q. And does ASUSTek provide any instructions to those

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manufacturers about how to build products?
A. Yes, we do. Yes, we do.
05:49 Q. And does ASUSTek have any requirements for which vendors or which components get used by the manufacturers in its products?
A. We ask the manufacturer to use the qualified components.
Q. And what is a qualified component?
A. A qualified component means that for every product we designed we will do a lot of tests to make sure the function
05:49 is ready and the product's reliable and all the components in the product need to be qualified. After the test, if they work well, and that means they are qualified; that's qualified components.
Q. When it comes to MOSFETs specifically, does ASUSTek qualify just one brand?
A. No, we don't.
Q. Why not?
A. Because we have to secure -- make sure the supply is
05:50 okay, and we cannot focus on only single vendor for MOSFET.
Q. About how many MOSFET brands are qualified by ASUSTek?
A. Multiple vendors list to.
MR. UNDERWOOD: Mr. Buck, can we go to the next demonstrative, please?
Q. (BY MR. UNDERWOOD) And do you recall seeing this slide in opening?

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A. Yes.
Q. And do you recall Mr. Thane asking you some questions just now about the various suppliers?
A. Yes.
Q. Are these ASUSTek's MOSFET suppliers?
A. Yes.
Q. What about Force MOS?
A. They used to be.
Q. Okay. We'll get to that in a moment.
Once a manufacturer has a list from ASUSTek of qualified MOSFET suppliers, who has the final decision for which MOSFET from which supplier gets put into ASUS-branded products?
A. The manufacturer got to decide which MOSFET they want to buy from which vendor and put it -- put them in the product.
Q. And why do manufacturers instead of ASUSTek have the final decision?
A. Because MOSFET is really tiny, and the cost is really cheap, so we gave -- we authorize the decision rights for -- to the manufacturer to decide what vendor they want to going to buy for the MOSFET.
Q. So if the manufacturers have the final decision, why would ASUSTek enter into a direct supply agreement with a company like Force MOS?
A. Because sometimes the electronic component supply got very tight and ASUSTek got our -- got better bargaining power

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for buying -- or buying the component and also got more better bargaining power about the price. So sometimes we'll buy directly from the vendor.

Q. And do manufacturers have to use MOSFETs that ASUSTek purchases from suppliers?

A. Yes, they can decide.

Q. Does ASUSTek track which MOSFETs are used in its products?

05:52 A. No, we don't track which MOSFET in the products.

Q. Why not?

A. If the manufacturer use the qualified components, we think that's okay.

MR. UNDERWOOD: Mr. Buck, I should have added you can pull that down.

Q. (BY MR. UNDERWOOD) Does ASUS track other components that are put into its computer products?

A. Yes, we do. We track more valuable component like panel,

05:53 battery, and the processor, which is got more value and more expensive.

Q. Are qualified MOSFETs viewed as being equal to one another by ASUSTek?

A. Yes.

Q. Mr. Fu, do you recall getting some questions about some -- a spreadsheet called JX 7?

A. Yes.

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MR. UNDERWOOD: Mr. Buck, can we get JX 7 up, please?

05:53 Q. (BY MR. UNDERWOOD) In this spreadsheet, does ASUSTek track which MOSFETs are used in its products?

A. No we don't.

Q. In this spreadsheet does ASUSTek track the slots for MOSFETs in its products?

A. Yes, we do.

Q. Do you recall in opening statement and just now with Mr. Thane there was some suggestion that lawyers had created this spreadsheet?

A. Yes.

Q. Did lawyers create the data that is in this spreadsheet?

A. No.

05:54 Q. Where does the data in this spreadsheet come from?

A. The data is combined bill of material that's come from the ASUSTek and also the data -- I think part of data is the sales data which is from ASUS Computer International.

Q. And is the data in this spreadsheet accurate?

A. Yes, I believe so.

Q. Is the data in this spreadsheet truthful?

A. Yes.

05:54 MR. UNDERWOOD: You can take that down. Thank you, Mr. Buck.

Q. (BY MR. UNDERWOOD) When we were looking at the slide of

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the MOSFET vendors -- do you recall doing that moments ago?
A. Yes.
Q. And you mentioned that Force MOS was one of the qualified vendors who had previously supplied MOSFETs. Correct?
A. Correct.
Q. And did ASUSTek have a direct agreement with Force MOS to supply MOSFETs?
A. Yes.
MR. UNDERWOOD: Mr. Buck, can we pull up JX 65?
Q. (BY MR. UNDERWOOD) Is this that agreement?
05:55 A. Yes, it is.
MR. UNDERWOOD: Mr. Buck, can we scroll down to where the translation begins? Thank you. And general provision 1.1, please.
Q. (BY MR. UNDERWOOD) Mr. Fu, what does this agreement govern?
A. Basically it say that the basic terms and conditions for the purchase and sales of materials between two parties.
05:55 Q. And does this agreement address what happens if Force MOS ever sells defective products to ASUSTek?
A. Yes.
Q. And do you know which section that's in?
A. I believe it's in 7.7.
MR. UNDERWOOD: Mr. Buck, can we go to section 7.7, please?

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Q. (BY MR. UNDERWOOD) And what does this section say about who bears responsibility if Force MOS sells defective products?

05:56 A. The Party B here, which is Force MOS, shall bear the responsibility for guaranteeing the defects of the materials provided to Party A, which is ASUSTek.

Q. And did ever Force MOS -- strike that.

Did Force MOS ever sell defective products to ASUSTek?

A. Yes, they did.

Q. And in what year did ASUSTek discover that Force MOS had sold it defective products?

05:57 A. It was in 2021.

Q. How did ASUSTek identify the defects?

A. We got a customer complaint from the -- our customer.

MR. UNDERWOOD: Mr. Buck, can you pull up DX 7; specifically the page 16208? Can you zoom in on that email, please?

Q. (BY MR. UNDERWOOD) Mr. Fu, does this email reference that customer complaint?

A. Yes.

Q. And what's the first sentence say?

05:57 A. "We have just received a complaint from the market regarding defective substrates."

Q. And were those defective products that had been sold to ASUSTek by the Plaintiff Force MOS?

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A. Yes.
Q. What did ASUSTek do once it received this complaint?
A. We collect the defection -- defective products from the customer, and our R&D start to analyze the products trying to
05:57 find out which components got defection.
Q. Did ASUSTek identify -- strike that. We've established that.
Did ASUSTek contact Force MOS about the complaints?
A. Yes. After we found out the defective components from Force MOS.
Q. And how did Force MOS respond?
A. They told us that they did a lot of tests and to find out if their component got defection, and then they told us that
05:58 there's no defection about their components.
Q. So after Force MOS said there were no defects, what did ASUSTek do next?
A. Because we do see the defection, so we try to analyze more about the component so we decap the component.
Q. And what did ASUSTek discover when it decapped the component?
A. We open the component that Force MOS sell to us and we
05:59 found out that's not a component that Force MOS supposed to sell to us, provide to us.
Q. Was it a qualified component?
A. No, that's not a qualified component. We never see that

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component before.
Q. And what was ASUSTek's reaction to discovering that Force MOS had been using non-qualified components?
05:59 A. We were upset and disappointed, so we try to not to buy the component from Force MOS.
Q. Had Force MOS ever told ASUSTek that it was using non-qualified components?
A. No, it didn't.
MR. UNDERWOOD: Mr. Buck, let's go to DX 12, please.
Q. (BY MR. UNDERWOOD) Mr. Fu, do you recognize this document?
A. Yes.
Q. And what is it?
A. It's a quality assurance agreement.
MR. UNDERWOOD: Mr. Buck, can you zoom in there on
05:59 that third paragraph?
Q. (BY MR. UNDERWOOD) First of all, Mr. Fu, what is this document?
A. It's a quality assurance agreement.
Q. And what did Force MOS agree to do in the quality assurance agreement?
A. They agreed to pay a discount of 127 hundred dollars to bear the responsibility for the quality defect risk.
06:00 Q. And I'm sorry, Mr. Fu, but what was the amount of money?
A. It's $157,000. Sorry.

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Q. And did this resolve the issue in ASUSTek's mind?
A. No, it isn't.
Q. Why not?
A. Because we think the problem is that Force MOS are
06:00 dishonest with us, they are not telling the truth to us, so we think the root cause is that they are not telling the truth, so we don't think this agreement are the resolution.
Q. Now, do you recall Mr. Chung on Friday saying that the product at issue in this agreement was not a MOSFET?
A. Yes.
Q. Did that matter to ASUSTek?
A. No, it didn't.
Q. Why not?
06:01 A. Because the component's from Force MOS, and now the problem is Force MOS, they are not honest with us, so we think the problem is Force MOS itself.
Q. Now, do you remember getting some questions from Mr. Thane about an assessment of a ban?
A. Yes.
Q. Was that assessment ever completed?
A. No, it never completed.
Q. What was being assessed?
06:02 A. We try -- ask the vendor to assess what happened if they don't use Force MOS MOSFET since that -- since then.
Q. Has ASUSTek ever put into place any ban on the sale of

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Force MOS products?
A. No, we never.
Q. How did Force MOS respond when ASUSTek quit buying from them?
06:02 A. We got a notice letter from Force MOS and say that we got an infringement of their patent.
Q. And when did that come?
A. I think it's in 2022, in May.
Q. So before May of 2022, had Force MOS ever accused ASUSTek of infringing its patents?
06:02 A. No.
MR. UNDERWOOD: Mr. Buck, can we get JX 55?
Q. (BY MR. UNDERWOOD) Is this that letter?
A. Yes.
Q. What did ASUSTek do after it received the letter?
A. We contact Force MOS to try to figure out what component they think we are infringed and what model they are talking about that contain the infringement component, because ASUS
06:03 N410E is not our product.
Q. And did Force MOS ever identify which products were at issue?
A. Yes. After we contact Force MOS twice and they say that the model should be E410M.
Q. Did they ever identify which MOSFET was at issue?
A. Yes, they identified it's the Panjit MOSFET.

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Q. And what did ASUSTek do after Force MOS identified that it was a Panjit MOSFET at issue?
A. We contact Panjit immediately.
Q. And what happened after ASUSTek contacted Panjit?
A. We contact Panjit to ask for their opinion, and they provide their vendor's analysis report to us, and they say to us that it's not infringement.
MR. UNDERWOOD: Mr. Buck, can we look at JX 42, please?
Q. (BY MR. UNDERWOOD) Mr. Fu, is this one of those letters?
A. Yes.
Q. And what is the title of this letter?
A. It's Non-infringement Analysis on U.S. Patent No. 7,812,400 -- 409.
Q. And is that one of the patents in this lawsuit?
A. Yes.
Q. What's the date of this letter?
A. It's June 22nd, 2022.
MR. UNDERWOOD: And if we go to the table of contents. One more.
Q. (BY MR. UNDERWOOD) About how many pages long is this letter?
A. It's more than 28 pages.
MR. UNDERWOOD: And Mr. Buck, if we go back up to the next page.

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Q. (BY MR. UNDERWOOD) Mr. Fu, what was the conclusion in this letter?
A. It says that the assessment shows that assessed objects 1 and 2, if made, used, offered for sale, sold in or imported into the U.S. before October 11th, 2018, would not infringe any claims of U.S. '409.
Q. And do you know who prepared this letter?
A. I believe it's Inergy.
Q. And who is Inergy?
A. Inergy is the vendor of Panjit.
Q. Who would know best about what type of technology is in MOSFETs--ASUSTek or Inergy?
A. Inergy.
Q. Did ASUSTek receive another letter from the Plaintiff about one of the patents in this lawsuit?
A. Yes, we did.
MR. UNDERWOOD: Mr. Buck, can we get JX 57?
Q. (BY MR. UNDERWOOD) And is this that letter?
A. Yes.
Q. And what's the date of this letter?
A. It's September 14th, 2022.
MR. UNDERWOOD: And if we scroll down.
Q. (BY MR. UNDERWOOD) What patent does it reference?
A. It's U.S. Patent No. 7,629,634.
Q. And what did ASUSTek do after it received this letter?

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A. We contact to our vendors.
Q. And how did the vendors respond?
A. They told me -- that he told us that there's no infringement.
Q. Did they provide a report?
A. Yes, they did.
MR. UNDERWOOD: Mr. Buck, can we get DX 16?
Q. (BY MR. UNDERWOOD) Is this that report?
A. Yes, it is.
06:07 Q. And which patent does this report pertain to?
A. The U.S. Patent No. 7,629,634.
MR. UNDERWOOD: And if we go to the next page, Mr. Buck, please?
Q. (BY MR. UNDERWOOD) What's the conclusion in this report?
A. The assessment shows that assessed object would not infringe any claims of U.S. '634.
06:07 Q. And did any of ASUSTek's vendors provide any further non-infringement reports?
A. Yes, they provide analysis report that shows how they -- why they think it is non-infringement.
MR. UNDERWOOD: Mr. Buck, can we get JX 40, please.
Q. (BY MR. UNDERWOOD) And is this another one of those reports?
A. Yes.
MR. UNDERWOOD: Can we get JX 46, please, Mr. Buck?

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Q. (BY MR. UNDERWOOD) And is this another one of those reports?

06:08 A. Yes.

MR. UNDERWOOD: JX 47, please, Mr. Buck. I'm sorry--48. My apologies.

Q. (BY MR. UNDERWOOD) Is this another one of the reports?

A. Yes, it is.

MR. UNDERWOOD: JX 49, please, Mr. Buck.

Q. (BY MR. UNDERWOOD) Is this another one of the reports?

A. Yes.

Q. Did Panjit do anything else in addition to sending these reports to provide ASUSTek with assurance that there was no infringement?

06:08 A. Panjit did provide us a warranty of non-infringement.

MR. UNDERWOOD: Mr. Buck, can we get JX 43, please?

Q. (BY MR. UNDERWOOD) Is this that warranty?

A. Yes, it is.

MR. UNDERWOOD: And if we go to the first paragraph.

Q. (BY MR. UNDERWOOD) What warranty and what guarantee is Panjit providing?

A. Panjit guarantees that the product provided to ASUS was,

06:08 is, and will not infringe the patent rights of others, including but not limited to Patent No. 7,629,634 registered by Force-MOS Technology.

Q. So what did ASUSTek believe about the patents in this

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lawsuit after receiving all of those non-infringement reports and after receiving this declaration of warranty of non-infringement?

A. We believe our product is non-infringing, non-infringement.

Q. Mr. Fu, why didn't ASUSTek do its own analysis?

A. Because we are not an expert about MOSFET, and our vendors are the experts.

Q. Thank you, Mr. Fu.

MR. UNDERWOOD: I pass the witness.

THE COURT: Counsel, approach the bench, please.

(The following was had outside the hearing of the jury.)

THE COURT: Had you gentleman bother to let me know you intended to put on the entirety of this witness in the Plaintiff's case in chief as an adverse witness, I might not have started the cross examination today. I need to know how far we are from getting this witness off the witness stand. It's 10 minutes after 6:00. You've noticed about an hour's examination. You went about 27 minutes. Are you telling me you've got the balance of that now?

MR. THANE: No.

THE COURT: How much longer do we need this witness today?

MR. THANE: Probably 10 to 15 minutes.

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THE COURT: Do you have any additional cross that you know of?

MR. UNDERWOOD: Your Honor, I don't, and I just --

THE COURT: Next time you need to let me know you have a side deal that you're going to put on the entirety of this witness in the Plaintiff's case; otherwise, I will assume he's going to be called in the Defendant's case, as is typical. And I can't manage the trial unless at least -- I can't manage the trial to my satisfaction if I don't know all the side deals lawyers are making with each other.

MR. UNDERWOOD: And that's what I thought, Your Honor.

THE COURT: All right. Let's get going.

MR. UNDERWOOD: Thank you.

(The following was had in the presence and hearing of the jury.)

THE COURT: All right. Additional direct adversely, Mr. Thane?

MR. THANE: Yes, Your Honor.

THE COURT: Let's proceed.

REDIRECT EXAMINATION

BY MR. THANE:

Q. Mr. Fu, let's pick up right where you just left off.

MR. THANE: Mr. Doyle, if you could bring up JX 42.

Q. (BY MR. THANE) Mr. Fu, this analysis wasn't done by

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Inergy; this was done by lawyers hired by Inergy. Right?
A. Yes, I believe so.
Q. That -- we see here that this was done by lawyers in Taiwan I guess on behalf of Inergy. Right?
A. Yes.
Q. Inergy is one of your customers. Right?
A. I don't know, but I know they are the vendor of Panjit.
Q. You're a customer of Inergy's. Right? You purchase
06:12 Panjit semiconductors?
A. We purchase Panjit semiconductors.
Q. A lot of Panjit semiconductors?
A. I don't know the quantity.
Q. ASUSTek didn't do any of its own analysis when it received this letter or this analysis from Inergy, did it?
A. You mean we don't do our own analysis? Only did we receive this one?
Q. ASUSTek didn't do any of its own analysis; you just took
06:12 Inergy's lawyers' words for it. Right?
A. Yes, because they are the expert.
MR. THANE: Can we look at DX 16, please, Mr. Doyle?
Q. (BY MR. THANE) Same is true for this. Right? This was just the lawyers providing the customers a non-infringement analysis. ASUSTek didn't do any of its own analysis, did they, sir?
A. We didn't.

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Q. The same is true for all of these non-infringement letters. Right? ASUSTek didn't do any of its own analysis. Right?

A. We believe our vendors. We didn't do analysis by our own selves.

Q. And these are just for the Panjit chips. Right?

A. Yes.

Q. You didn't show this jury and there's not any type of analysis from any lawyers for UBIQ. Right?

A. I don't believe --

Q. There's not any analysis from Excelliance. Right?

A. No.

Q. There's not any analysis from LRC. Right?

A. To my knowledge, no.

Q. ASUSTek can do its own analysis, though--right?--when it wants to?

A. No.

Q. Well, whenever a customer complains to ASUSTek about Force MOS's semiconductors, you performed your own analysis on that semiconductor, didn't you, sir?

A. Yeah, we found which component got problem.

Q. And ASUSTek has done no analysis on the semiconductors that Force MOS has accused of infringement in this case, have they, sir?

A. We don't know how, so we don't.

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Q. Whenever Force MOS had a problem with something, you did an analysis on it, didn't you, sir?
A. We did analysis about which component got defective, but we don't know why, so that's why we contact Force MOS.
Q. I understand, sir. ASUS still uses all of the accused MOSFETs in this case, don't they, sir?
06:14 A. Yes, we do.
Q. In fact, ASUS products can't work without the MOSFETs that are accused in this case, can they, sir?
A. I'm sorry. Could you please repeat again?
Q. Yes, sir. ASUS's products won't work without the semiconductors that are accused of infringement in this case, will they, sir?
A. ASUS product cannot work without any component inside our product.
06:14 Q. Whenever a product fails, customers contact ASUS about that failure; not Panjit, not LRC, not Excelliance, not UBIQ. Right?
A. Correct.
Q. They reach out to you when a failure happens. Right?
A. Yes. That's why our reputation is important.
Q. Now, you showed earlier and you talked with Mr. Underwood about Force MOS having to take responsibility if something happens. Right?
06:15 A. No.

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MR. THANE: Mr. Doyle, could you please pull up DX 12-002?

Q. (BY MR. THANE) In the Force MOS agreement with ASUS, if something went wrong with one of the transistors or semiconductors, Force MOS was responsible. Right?

A. Yes, in this agreement.

Q. Yeah. And Force MOS took responsibility for something that happened that was wrong, didn't they, sir?

06:15 A. They are willing to -- yes.

Q. You see in the second paragraph it says, Force MOS undertake to bear the quality responsibility of that product. Do you see that, sir?

A. Yes.

Q. In fact, they paid for it. Right? They took responsibility for the product that ASUSTek thought was defective. Right?

A. Yes, they did, after we found out they provide non-qualified component.

06:16 Q. Now, Mr. Fu, you took a lot of time to show this jury videos about an outer space computer and talked about the neat things that ASUSTek has come from -- come up with, but you never hired anyone to take an image, an SEM image of the accused products in this case, did you, sir?

A. No, we don't, because we don't know how.

Q. You don't know how to hire somebody to do that?

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A. No, we are not expert to do so.

Q. Thank you, sir.

MR. THANE: Pass the witness, Your Honor.

THE COURT: All right. Is there additional cross by the Defendant?

MR. UNDERWOOD: There is not, Your Honor.

THE COURT: Then you may step down, Mr. Fu.

THE WITNESS: Thank you, Your Honor.

THE COURT: You're welcome. Return to the Defendant's counsel table as their representative, please.

Ladies and gentlemen we're going to recess for the day at this time. If you will, take your notebooks to the jury room as you leave the courtroom, leave them closed on the table there.

Thank you for being timely and prompt this morning. I'm going to ask you to do the same thing for tomorrow.

Let me remind you again, as you might expect, be sure that you don't communicate with anybody about this case, including yourselves. Travel safely to your homes, and we'll plan to begin at 8:30 tomorrow morning.

With that, the jury's excused for the evening.

(Whereupon, the jury left the courtroom.)

THE COURT: Be seated, please.

Counsel, so that you'll know, the parties between them have expended 7 hours, 56 minutes, and 25 seconds of

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06:18 designated trial time today. The Plaintiff at present has 4 hours and 40 minutes remaining and the Defendant has 6 hours and 10 minutes remaining.

Also let me remind you, per my earlier instruction, I'll look for an email conveying in Word format a jointly resubmitted proposed final jury instruction and verdict form by 4:00 p.m. tomorrow afternoon. Hopefully it will narrow the previous version's disputes significantly.

Also I want to say this. Mr. Hanba, I'm not sure that you are aware of this, but when Dr. Neikirk was on the witness stand being examined by the other side, you moved your head up and down when he said what you wanted to hear, and that is totally unacceptable. I'm giving you the benefit of the doubt that it was unintentional. I was in a trial in this courtroom many years ago where my co-counsel did that, and I still get shivers down my spine when I think about what the then-presiding judge said to us. So consider yourself warned. Make sure you control those inadvertent and unintentional movements. All right?

MR. HANBA: Yes, sir.

THE COURT: Because if you don't, I'll presume it's intended non-verbal communication with the witness and that's a sanctionable offense.

All right. Does either side have anything they need to raise with the Court before we recess for the day?

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MR. THANE: Nothing for the Plaintiff, Your Honor.

MR. UNDERWOOD: Nothing for Defendant, Your Honor.

THE COURT: I will tell you one more time and on the record, if there are disputes overnight about expert witnesses and whether something is or isn't within the scope of their report, if I get a response that it's in the report, I will disregard that completely. I'm not going to play go fetch and look through these hundred-page reports to find what you think might support your position. You're going to have to give me specifics. You haven't done that up until now. I'm not going to let you do it any further.

Please continue your efforts to meet and confer effectively overnight. It would not disturb me at all if we didn't have any disputes to take up in the morning, but please keep them to what is an absolute minimum.

Unless -- given that there's not anything further, then we'll stand in recess until tomorrow evening--excuse me--tomorrow morning.

(The proceedings were concluded at 6:20 p.m.)

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I HEREBY CERTIFY THAT THE FOREGOING IS A CORRECT TRANSCRIPT FROM THE RECORD OF PROCEEDINGS IN THE ABOVE-ENTITLED MATTER. I FURTHER CERTIFY THAT THE TRANSCRIPT FEES FORMAT COMPLY WITH THOSE PRESCRIBED BY THE COURT AND THE JUDICIAL CONFERENCE OF THE UNITED STATES.

S/Shawn McRoberts 02/10/2025

_____DATE_____

SHAWN McROBERTS, RMR, CRR
FEDERAL OFFICIAL COURT REPORTER

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