

1 IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD

3 _____
4 MARVELL SEMICONDUCTOR, INC.,)
5 Petitioner,)
6 vs.)
7 CREDO TECHNOLOGY GROUP, LTD.,)
8 Patent Owner.)
9 _____
10

Case No.
IPR2025-01219
U. S. Patent No.
11, 012, 252

11 The virtual video-recorded deposition of
12 MICHAEL S. CHEN, Ph.D., called by the Patent Owner
13 for examination, pursuant to Notice, and pursuant to
14 the applicable rules, taken stenographically by
15 Sandra L. Rocca, CSR, CRR, via Zoom, on the 5th of
16 May, 2026, at the hour of 11:00 a.m.

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25 Certification No. 084-003435, 1245

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20 * * * * *

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I N D E X

2

WITNESS

PAGE

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MICHAEL S. CHEN, Ph.D.

4

EXAMINED BY

5

Mr. McMahon

4

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8

E X H I B I T S

NUMBER

PRESENTED

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Exhibit 1001 U. S. Patent No. 11,012,252 4

10

Exhibit 1002 Prosecution history,
parts 1-3
U. S. Patent No. 11, 012,252 70

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Exhibit 1003 M. Chen declaration 42

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Exhibit 1004 U. S. Patent No. 9,882,706 101

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Exhibit 1005 U. S. Patent No. 7,445,389 108

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Exhibit 1006 U. S. Patent No. 8,516,238 87

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Exhibit 1007 S. Samaan article "High-speed
Serial Bus Repeater Primer" 101

17

18

Exhibit 1019 website pages 10G SFP+
to SFP+ DAC Direct Attach
Copper Cable 45

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20

Exhibit 2021 U. S. Patent No. 9,337,993 60

21

Exhibit 2022 U. S. Patent No. 7,401,985 63

22

Exhibit 2023 U. S. Patent Application
Publication 2007/0237464 64

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04:45:01 1 CERTIFIED STENOGRAPHER: We're here for the
10:59:33 2 case of Marvell versus Credo Technology
10:59:37 3 IPR2025-01219. And, counsel, will you identify
10:59:45 4 yourselves, please.

10:59:49 5 MR. MCMAHON: Good morning, Dr. Chen.
10:59:51 6 Charles McMahon and Mircea Tipescu here from the
10:59:56 7 Benesch firm for Patent Owner Credo.

10:59:58 8 MR. LIANG: Jeffrey Liang from Sheppard
11:00:01 9 Mullin for Petitioner, Marvell.

11:00:01 10 (Document marked previously as
11:00:11 11 Exhibit 1001 was presented.)

11:00:11 12 MICHAEL S. CHEN, Ph.D.,
11:00:11 13 having been first duly sworn, was examined and
11:00:11 14 testified as follows:

11:00:13 15 CROSS EXAMINATION

11:00:13 16 BY MR. MCMAHON:

11:00:17 17 Q Thank you. Again, good morning, Dr. Chen.
11:00:19 18 Thank you for being here.

11:00:20 19 A Sure.

11:00:21 20 Q I know you have been deposed at least once
11:00:25 21 just recently. But can you remind me, how many
11:00:29 22 times have you been deposed before total?

11:00:32 23 A It's a few times, I think, in the past two
11:00:37 24 years. That's where I can remember a little bit
11:00:40 25 better. I think maybe two, three; could be a little

11:00:45 1 bit more, you know, but something around that range.
11:00:49 2 The one that is most recent that I remember clearly,
11:00:51 3 right, so a few weeks ago. Yeah, so for sure there
11:00:55 4 was one.

11:00:55 5 Q Okay. Well, so you have some experience and
11:00:59 6 are probably familiar with the process which is
11:01:03 7 largely the same from deposition to deposition. But
11:01:05 8 if you don't mind, I'll just go over the process a
11:01:09 9 little bit. Is that okay?

11:01:11 10 A That sounds good.

11:01:12 11 Q So I will ask questions and I will try to be
11:01:16 12 clear in my questions. If any question I ask is
11:01:21 13 unclear, please feel free to ask me for
11:01:25 14 clarification. Okay?

11:01:26 15 A Makes sense.

11:01:26 16 Q Otherwise I will understand that you have
11:01:28 17 understood the question when you ask it. Okay?

11:01:31 18 A Okay.

11:01:32 19 Q Sorry. Let me say that again. Otherwise I
11:01:36 20 will understand that you understood the question
11:01:40 21 that I asked.

11:01:41 22 A Okay.

11:01:41 23 Q So far we're doing a good job at this.
11:01:44 24 Hopefully we can keep that up. You and I cannot
11:01:47 25 talk at the same time, otherwise our court reporter,

11:01:48 1 Sandra, will have a hard time writing it all down.
11:01:52 2 So I'll try not to talk over you and I ask that you
11:01:54 3 do the same for me. Okay?
11:01:55 4 A Makes sense.
11:01:57 5 Q Is there any reason that you can't provide
11:02:01 6 competent testimony today?
11:02:02 7 A No.
11:02:04 8 Q Okay. And you understand that we are here
11:02:11 9 for your testimony in connection with an
11:02:14 10 inter partes review proceeding?
11:02:19 11 A I understand.
11:02:20 12 Q And that is for U.S. Patent Number
11:02:24 13 11,012,252, correct?
11:02:29 14 A That is correct.
11:02:31 15 Q Okay. And I'll refer to that as the '252
11:02:34 16 patent. Okay?
11:02:35 17 A Sure.
11:02:37 18 Q And do you have any materials there with you
11:02:42 19 in the room?
11:02:43 20 A I do have the binders that come with the
11:02:52 21 material that, you know, related to my declaration
11:02:55 22 report, including my declaration report itself.
11:02:58 23 Q And I just want to make sure I'm clear about
11:03:01 24 what's in those binders. So you mentioned the
11:03:03 25 declaration. I'm guessing perhaps the exhibits are

11:03:07 1 also in that binder?

11:03:11 2 A That is correct, some exhibits.

11:03:15 3 Q Okay. How many binders?

11:03:19 4 A I have a total of two binders.

11:03:22 5 Q Okay. And so let's start with the first
11:03:26 6 one. Does that contain your declaration?

11:03:29 7 A The first one, it does contain my
11:03:33 8 declaration report, correct.

11:03:34 9 Q Anything else in that first binder?

11:03:39 10 A Yes. The first one is Exhibit 1001. I
11:03:46 11 think this is the '252 patent.

11:03:50 12 Q Okay.

11:03:51 13 A The second one --

11:03:52 14 Q Sorry. Go ahead.

11:03:53 15 A The second one is Exhibit 1003, which is my
11:04:01 16 declaration report. The third one is Exhibit 1004.
11:04:06 17 This one is Lugthart prior art. The fourth one is
11:04:14 18 Exhibit 1005. This is Aronson prior art. Number 5
11:04:23 19 is Exhibit 1006. This is Cornelius prior art.
11:04:30 20 Number 6 is Exhibit 1007, this Samaan prior art.
11:04:38 21 And that's all in binder 1.

11:04:41 22 Q Thank you. That's helpful. Can you tell me
11:04:45 23 similarly what's in binder two?

11:04:48 24 A Sure. Binder 2, the first one is
11:05:01 25 Exhibit 1002. This is file history excerpts for

11:05:09 1 patent '252. Number 2 is Exhibit 1008. This is a
11:05:20 2 document by Ars Technica, "Why Thunderbolt Cables
11:05:28 3 Will Be Expensive Until 2013."
11:05:31 4 Number 3 is Exhibit 1009. It's a data sheet
11:05:36 5 from Intersil. Number 4 is Exhibit 1010. This is a
11:05:47 6 patent by Kobayashi. Number 5 is Exhibit 1011.
11:05:57 7 This is by TE Connectivity, SFP+ high speed copper
11:06:04 8 cable assemblies. Number 6 is Exhibit 1012, this is
11:06:13 9 a data sheet from Cisco. Number 7 is Exhibit 1013.
11:06:23 10 This is a document Apple Insider: Intel details
11:06:28 11 Thunderbolt, says Apple has full year head start.
11:06:34 12 Number 8 is Exhibit 1014. This is another
11:06:42 13 document Intel: Apple transferring Thunderbolt
11:06:47 14 trademark to us -- or U.S., sorry. Number 9 is
11:06:52 15 Exhibit 1016. This is Ars Technica, "The Technology
11:07:04 16 Inside Apple's \$50 Thunderbolt Cable."
11:07:07 17 Number 10 is Exhibit 1017 by Gasca is on
11:07:17 18 "CMOS Continuous-Time Adaptive Equalizers for
11:07:21 19 High-Speed Serial Link." Number 11 is Exhibit 1018.
11:07:25 20 It's an excerpt from Munford's declaration.
11:07:33 21 Number 12 is Exhibit 1019. This is excerpts from
11:07:41 22 10G SFP+ video. Number 13 is Exhibit 1020. This is
11:07:51 23 excerpts from Stauffer. Number 14, which is the
11:07:56 24 last one, Exhibit 1021, this is the patent by
11:08:04 25 Gorecki.

11:08:06 1 Q Thank you, Dr. Chen. If I understood that
11:08:09 2 list correctly, everything in those two binders is a
11:08:14 3 document that Marvell filed publicly in this
11:08:20 4 inter partes review proceeding, is that correct?

11:08:23 5 A They are all exhibits, yes. So they are all
11:08:27 6 filed, you know, yes, in this proceeding.

11:08:30 7 Q So there's nothing confidential in those
11:08:33 8 binders, correct?

11:08:36 9 A Not that I'm aware of.

11:08:38 10 Q Okay. Do the binders contain any attorney
11:08:42 11 notes?

11:08:43 12 A No, they do not.

11:08:46 13 Q Other than what's in the binders -- I'm
11:08:50 14 sorry.

11:08:50 15 Do the binders include any communications
11:08:53 16 from attorneys other than the exhibits and your
11:08:58 17 declaration that you've already described?

11:09:00 18 A There's none, yeah. They are basically just
11:09:04 19 a white copy of those documents.

11:09:05 20 Q Thank you. Other than those two binders, do
11:09:08 21 you have any other paper materials in the room with
11:09:11 22 you?

11:09:11 23 A No, I do not.

11:09:14 24 Q Okay. Is there anyone else there in the
11:09:16 25 room with you?

11:09:17 1 A No. Actually I'm alone in the room.

11:09:20 2 Q Okay. And do you -- do you expect to be
11:09:31 3 communicating with anybody other than me and the
11:09:33 4 people on this Zoom call during the deposition?

11:09:36 5 A No, I do not.

11:09:37 6 Q Okay. Will you let me know if anyone else
11:09:41 7 communicates with you during the deposition other
11:09:43 8 than in the context of the Zoom call?

11:09:45 9 A I can.

11:09:47 10 Q Okay. Thank you. So I'm happy to hear that
11:09:54 11 you have all those materials there with you,
11:09:55 12 Dr. Chen. Feel free to refer to them as needed when
11:09:59 13 answering my questions. Okay?

11:10:00 14 A Okay.

11:10:01 15 Q I will also -- in case it's more convenient
11:10:06 16 for you, I will send copies of the exhibits that I
11:10:10 17 ask about by copying the PDF files into the chat of
11:10:15 18 this Zoom call. Okay?

11:10:17 19 A Okay.

11:10:20 20 Q So you can download those PDF files as I
11:10:22 21 include them in the chat and you can refer either to
11:10:27 22 those files or to the hard copies that you have in
11:10:30 23 front of you.

11:10:33 24 A Okay.

11:10:33 25 Q There may be a few documents that we'll talk

11:10:38 1 about today that are not in those two binders. So
11:10:42 2 for those, I will also send you the PDFs. Okay?

11:10:47 3 A Okay.

11:10:47 4 Q And then you'll be able to download them and
11:10:50 5 review those documents on the computer as I ask
11:10:53 6 questions. Okay?

11:10:54 7 A Okay.

11:10:55 8 Q All right, thank you. I'd like to start
11:11:02 9 with your background and just some really simple
11:11:06 10 questions to begin.

11:11:07 11 First of all, I think you said in your
11:11:09 12 declaration you are not an attorney, correct?

11:11:11 13 A Correct, I'm not attorney.

11:11:15 14 Q And you are not a patent agent, correct?

11:11:20 15 A I'm not a patent agent, correct.

11:11:22 16 Q Okay. Are you familiar with the Manual of
11:11:33 17 Patent Examining Procedure?

11:11:33 18 A Can you please repeat that, manual --

11:11:36 19 Q Sure. Are you familiar with the Manual of
11:11:42 20 Patent Examining Procedure?

11:11:42 21 A Since I'm not an attorney, I'm sure that I'm
11:11:46 22 not familiar with this.

11:11:48 23 Q Okay. Are you named as an inventor on any
11:11:53 24 patents?

11:11:55 25 A Counsel, are you asking am I inventor named

11:11:58 1 on any of these patents I cite in my report?

11:12:01 2 Q No. On any patents — sorry. Let me ask
11:12:05 3 again.

11:12:06 4 Putting aside the patents and documents
11:12:08 5 involved in this case, are you named as an inventor
11:12:11 6 on any U.S. patents?

11:12:13 7 A I did.

11:12:14 8 Q How many?

11:12:15 9 A A few. I don't recall how many, but I think
11:12:31 10 it's not a large number. It could be less than ten,
11:12:38 11 if not less than five, something like that. Yeah,
11:12:43 12 sorry, I don't recall the exact number.

11:12:45 13 Q That's fine. But you have some experience
11:12:47 14 interacting with the U.S. Patent and Trademark
11:12:50 15 Office as an inventor, correct?

11:12:54 16 A Let me clarify, right. So for example,
11:12:59 17 there are some patent we issue from university
11:13:02 18 research, right, I mean, the university professors.
11:13:07 19 So we have our legal office from the university. So
11:13:14 20 usually what we do is that we communicate with those
11:13:17 21 legal entities and they deal with logistics and all
11:13:22 22 that, right. So I don't have personal direct
11:13:25 23 experience, you know, with that — whatever office
11:13:29 24 that you just mentioned.

11:13:30 25 Q Okay. Thank you for clarifying. I do want

11:13:33 1 to confirm, when I say the U.S. Patent and Trademark
11:13:37 2 Office, you know what that is, right?

11:13:38 3 A That sounds like a Patent Office by the
11:13:43 4 government.

11:13:44 5 Q Correct. Correct. Okay, thank you.

11:13:48 6 And so if I understood correctly, your
11:13:51 7 interactions with the Patent Office as an inventor
11:13:53 8 have been through attorneys acting on behalf of you
11:13:58 9 or your university?

11:14:00 10 A Yeah, I would say university people, yeah.

11:14:03 11 Q Okay. Have you ever designed an active
11:14:16 12 ethernet cable?

11:14:20 13 A So active ethernet cable belong to the
11:14:25 14 whole, you know, high-speed communication link. So
11:14:28 15 in the past, you know, because I'm a university
11:14:31 16 professor, you know, I did a lot of research, you
11:14:34 17 know, on various components contend in the
11:14:38 18 high-speed communications. And also because of my
11:14:44 19 job, you know, I attend conferences. I review
11:14:47 20 papers. So I'm familiar with what is on the market,
11:14:52 21 you know, in this field including the ones that you
11:14:55 22 just mentioned about active ethernet cable.
11:14:59 23 However, I did not directly work on this ethernet
11:15:03 24 cable product. Again, I'm a university professor.
11:15:07 25 We usually don't do that directly in my position.

11:15:13 1 Q Okay. So just to confirm, you have not
11:15:16 2 designed an active ethernet cable, correct?

11:15:19 3 A Counsel, I think I would answer that
11:15:23 4 question, you know, I do not directly design for the
11:15:26 5 product, you know, for the active ethernet cable.
11:15:29 6 Yeah, I think that answer your question.

11:15:31 7 Q And have you ever designed an ethernet cable
11:15:35 8 at all of any type?

11:15:40 9 A Counsel, also as I explained earlier, a lot
11:15:44 10 of those common -- the comments are shared in those,
11:15:49 11 you know, high-speed communication link. So
11:15:53 12 whatever that, you know, we research on, we work on
11:15:56 13 can be used in those -- this product type. You
11:16:02 14 know, it is definitely, you know, possible within
11:16:07 15 the reach. But again, I do not directly work on the
11:16:10 16 product of the ethernet cable.

11:16:13 17 Q So again, you're kind of answering a
11:16:16 18 different question than the one I'm asking. I just
11:16:18 19 want to be clear. You have not personally designed
11:16:22 20 an ethernet cable, correct?

11:16:25 21 A I think I answered that question. I
11:16:30 22 designed the components, you know, that's related,
11:16:33 23 you know, to -- including that, you know, ethernet
11:16:36 24 cables. You know, the components again are fairly
11:16:39 25 common, you know, in our field, but I do not

11:16:43 1 directly design the product of the ethernet cable.

11:16:47 2 Q Have you ever designed a component that was
11:16:56 3 actually used in an active ethernet cable?

11:17:01 4 A Counsel, you know, as you can imagine, I'm a
11:17:05 5 researcher, right. So oftentimes we disseminate our
11:17:11 6 techniques, you know, through publications. And
11:17:14 7 these publication can be conference papers, can be
11:17:17 8 journal papers. So oftentimes what happen is that,
11:17:22 9 you know, some engineers in the industry, they pick
11:17:25 10 up those ideas, right. So that's usually how that
11:17:28 11 works. So you know, it's possible that, you know,
11:17:33 12 engineers in the industry pick up what we have
11:17:36 13 produced, the ideas that we have research on, and
11:17:40 14 they put that in the product, right. So this is —
11:17:43 15 I'm sure it's not just by myself. I think in
11:17:47 16 general it's true in our research community.

11:17:49 17 Q So to be clear, Dr. Chen, I'm not asking
11:17:52 18 what's possible. I'm asking for your knowledge,
11:17:56 19 what you know so that the Board can understand your
11:18:00 20 experience. So let me ask that again.

11:18:03 21 Have you ever designed a component that you
11:18:05 22 know was used in an active ethernet cable?

11:18:11 23 A Counsel, I think that still go back to the
11:18:14 24 possibility, the reason is because I interact a lot
11:18:17 25 with those industry that work on — including the

11:18:24 1 cable that you talk about, in general high-speed
11:18:26 2 link, right. In fact, you know, they recruit a lot
11:18:29 3 of my former students. Okay. So it is actually
11:18:33 4 very likely they use the product -- sorry, let me
11:18:37 5 clarify.

11:18:38 6 Here when I say product, it means the
11:18:40 7 research product, our research ideas, the techniques
11:18:43 8 that we have research on, we developed. It's very
11:18:46 9 likely they actually use it. Okay. So I think
11:18:50 10 that's -- you know, again, I believe this is a
11:18:55 11 common practice, you know. This is how it works.
11:18:58 12 But again, you know, I am not an employee of those
11:19:04 13 companies. I do not work on that product under the
11:19:08 14 position of those companies. Okay. So I just want
11:19:11 15 to clarify that.

11:19:13 16 Q So you mentioned possibilities and
11:19:16 17 likelihoods. I'd like to know, can you identify any
11:19:20 18 specific component that you have designed that has
11:19:24 19 been used in an active ethernet cable?

11:19:27 20 A So, counsel, most of the time -- and by the
11:19:34 21 way, this is common practice. When the company or
11:19:37 22 engineer that actually use our ideas or what we have
11:19:42 23 revealed in the publications, they don't tell you
11:19:47 24 typically for many good reasons. So but the fact
11:19:53 25 that -- you know, so here's what I think it is. The

11:19:56 1 fact that, you know, he -- they continue to interact
11:20:00 2 with you, talk to you, recruit your students, that
11:20:07 3 says a lot, you know, in my opinion. That prove
11:20:11 4 that, you know, whatever that we are producing, we
11:20:16 5 are researching as a researcher, provides value to
11:20:22 6 those companies.

11:20:25 7 Q Dr. Chen, I've asked this question I think
11:20:29 8 three times now and so far you've -- in your three
11:20:33 9 answers, you have not yet identified any specific
11:20:36 10 component you have designed that has been used in an
11:20:40 11 active ethernet cable. So I'd like to ask if there
11:20:44 12 is such a component, now is your chance to identify
11:20:46 13 that for the Board.

11:20:48 14 Have you designed any component that has
11:20:52 15 actually been used in an active ethernet cable?

11:20:55 16 A Counsel, as I mentioned, the information is
11:21:02 17 nearly one-way traffic. I am not aware of this in
11:21:05 18 my capacity to know that when some engineer in the
11:21:10 19 industry use our ideas and components and then come
11:21:18 20 and tell me, oh, by the way, we use exactly this
11:21:23 21 idea from that paper. I believe it is not a common
11:21:27 22 practice. This is how generally our community are
11:21:33 23 constructed and, therefore, it would cause imitation
11:21:40 24 for me sitting here to tell you, oh, that exactly
11:21:43 25 this go to that, okay, because of the asymmetric

11:21:48 1 information.

11:21:49 2 But again, I do want to emphasize if the
11:21:52 3 industry consider that you are irrelevant to what
11:21:57 4 they are doing, in general, in my experience -- and
11:22:00 5 I'm almost certain for many faculties' experience --
11:22:05 6 that those companies would not even reach out to you
11:22:07 7 and interact with you or even hire your student. So
11:22:15 8 I think, you know, hopefully that's sufficient, you
11:22:18 9 know, information.

11:22:19 10 Q So you don't know if you have ever designed
11:22:23 11 a component that was actually used in an active
11:22:25 12 ethernet cable, is that correct?

11:22:30 13 A Counsel, so that's what I said earlier.
11:22:34 14 It's very likely, right. Those ideas, you know --
11:22:38 15 because, you know, we work on circuits, right. A
11:22:41 16 lot of those circuits, those components are shared,
11:22:45 17 you know, between different, you know, can be
11:22:47 18 product lines, you know, it can be different -- even
11:22:50 19 on the conceptual level. So it can be used. And I
11:22:53 20 wouldn't be surprised at all they actually use some
11:22:56 21 of them.

11:22:57 22 But because of the industry common practice
11:23:02 23 and, you know, for the reason I just explained,
11:23:05 24 that's why, you know -- that's why in general, you
11:23:11 25 know, if you ask really a professor, that would be

11:23:14 1 the constrain that we are having. But then again,
11:23:19 2 there is strong evidence that, you know, they have
11:23:22 3 strong interest in what my group is doing and even
11:23:27 4 recruiting the students and that to me says a lot.

11:23:30 5 Q So I understand, Dr. Chen, that you're
11:23:34 6 speaking about your experience as a professor. My
11:23:36 7 question should be able to be answered with either
11:23:41 8 yes, no, or I don't know.

11:23:43 9 So have you designed a component that has
11:23:48 10 been used in an active ethernet cable? Yes, no or I
11:23:54 11 don't know?

11:23:54 12 A Counsel, I also believe I answered that
11:23:56 13 question. I did not design those active ethernet
11:24:03 14 cable in the capacity of an employee of those
11:24:06 15 companies. That's not what I did before. I have
11:24:11 16 not done that and I think that answered the
11:24:15 17 question.

11:24:15 18 Q So you limited your answer to you have not
11:24:21 19 designed such a component as an employee of a
11:24:24 20 company. I'm asking more broadly.

11:24:26 21 Have you designed a specific component that
11:24:28 22 has actually been used in an active ethernet cable
11:24:31 23 in any capacity?

11:24:34 24 A Counsel, you know, as I explained, you know,
11:24:39 25 because of those asymmetric informations, right --

11:24:43 1 and that's why, you know, from my perspective,
11:24:46 2 right, it's very likely, you know, some of those
11:24:49 3 ideas actually go into those products. But because
11:24:53 4 of the constraints, this is what the answer that I
11:24:56 5 feel comfortable to answer sitting here today.

11:24:58 6 Q Dr. Chen, have you ever seen an active
11:25:02 7 ethernet cable in person?

11:25:06 8 A So, counsel, active ethernet cable, for
11:25:10 9 example, are commonly used in the servers. My lab
11:25:18 10 uses servers. We have those servers in the server
11:25:21 11 room in our university facility. Yeah, so I have
11:25:26 12 seen those, you know, when they set up, you know,
11:25:30 13 those server in those environments. And so that's
11:25:33 14 one.

11:25:34 15 Another thing I might have mentioned
11:25:36 16 already, I interact with companies. We have a lot
11:25:42 17 of interactions, you know, including some that they
11:25:47 18 would come to campus and they show me what they're
11:25:52 19 working on. They show what -- the product that they
11:25:54 20 are working on. So, you know, yeah, so that's --
11:25:59 21 you know, we have seen that, you know, because of my
11:26:03 22 profession, yes.

11:26:04 23 Q Which companies have come to you and shown
11:26:07 24 you active ethernet cables that they were working
11:26:09 25 on?

11:26:09 1 A Marvell is one. I interact a lot. And also
11:26:21 2 one more thing I want to mention is that we go to
11:26:24 3 conferences. In the conferences, you know, usually
11:26:28 4 there are exhibitions. So what they do is they want
11:26:33 5 to come and show off their product. So even from
11:26:37 6 that, you know, there are numerous companies. You
11:26:39 7 know, I usually like to walk around and talk to
11:26:43 8 people there and see what they are producing, right,
11:26:47 9 the product, so that I get updated, you know, what's
11:26:53 10 the latest. So yeah, so I'm sure that I've seen,
11:26:57 11 you know, a few of those especially in those
11:27:01 12 conferences, you know, exhibitions, things like
11:27:09 13 that.

11:27:10 14 Q So you mentioned Marvell. Does Marvell make
11:27:12 15 an active ethernet cable?

11:27:16 16 A That's one of the things that they made, you
11:27:21 17 know. I think there's a company before called Inphi
11:27:27 18 and they acquired. So my understanding is that, you
11:27:31 19 know, they work on those cables, active cables, you
11:27:35 20 know, in that direction.

11:27:37 21 Q So I want to be clear. Is it your testimony
11:27:40 22 to the Board that Marvell has made and sold an
11:27:44 23 active ethernet cable?

11:27:47 24 A Counsel, I'm not attached to their business
11:27:50 25 team at all. I have no insight of those company —

11:27:56 1 Marvell or any other company that you may want to
11:27:59 2 mention whether they sold any product to any
11:28:03 3 customer. I simply do not have the insight of
11:28:06 4 those. Okay. I'm technical person. So typically
11:28:10 5 when we discuss, interact with those people, we stay
11:28:15 6 at technical level.

11:28:16 7 Q So I asked you earlier which companies have
11:28:20 8 shown you an active ethernet cable and the only
11:28:24 9 company you identified was Marvell, right?

11:28:28 10 A Counsel, that was one of the company. And
11:28:33 11 again, you know, Inphi is another entity they later
11:28:36 12 on acquired, right. So that's two.

11:28:39 13 One thing that clearly can pop in my mind
11:28:44 14 just because I interact a lot with them, there could
11:28:47 15 be other companies. As I mentioned, whenever I go
11:28:51 16 to exhibitions, you know, there would be a lot of
11:28:56 17 things going on there. So very likely I've seen
11:28:59 18 those in those situations.

11:29:02 19 Q Well, Dr. Chen, we're here to talk about a
11:29:06 20 specific technology and you have provided testimony
11:29:08 21 to the Board based on your experience, your
11:29:10 22 knowledge, and your expertise. So I'm here to ask
11:29:13 23 you about that knowledge. I'm not looking for
11:29:16 24 what's likely or what's possible. I'd like to know
11:29:19 25 what you know sitting here today.

11:29:22 1 So based on what you know sitting here
11:29:25 2 today, can you tell me if Marvell has ever shown you
11:29:29 3 an active ethernet cable?

11:29:34 4 A Counsel, I thought I already answered that
11:29:36 5 question. You know, Marvell, you know, or Inphi, I
11:29:40 6 kind of see them as the same because now they get
11:29:42 7 acquired. They did come to campus and show me the
11:29:46 8 components, what they were doing. And like I said,
11:29:53 9 you know, if you go to conferences, you know, you
11:29:57 10 look at those exhibitions, there were a lot of
11:30:02 11 companies showing their products, you know, doing
11:30:03 12 the demos. So I think that's -- that's what I have
11:30:07 13 provide, you know, sitting here today and that's
11:30:10 14 what I remember. And that's why, you know -- that's
11:30:14 15 the information I provide here.

11:30:16 16 Q Is it your testimony to the Board that
11:30:18 17 Marvell or Inphi came to campus and showed you an
11:30:22 18 active ethernet cable?

11:30:27 19 A They -- what they do is that they do come
11:30:33 20 here and then show me some of the -- those active
11:30:40 21 circuitry, you know, the connectors. And, you know,
11:30:44 22 we have numerous discussions there. And I say,
11:30:48 23 okay, what is that application for. They say it's
11:30:51 24 for data center, okay.

11:30:53 25 So yeah, so I think active ethernet cable is

11:30:56 1 part -- is one of the -- probably the most common
11:31:01 2 way that people use to connect up those servers, as
11:31:06 3 I just mentioned before. So it is under that
11:31:10 4 scenario that, you know, I explain, you know, how
11:31:14 5 that has occurred.

11:31:15 6 Q Do you remember Marvell or Inphi coming to
11:31:23 7 campus and showing you an assembled active ethernet
11:31:27 8 cable?

11:31:32 9 A Counsel, as I said, that was a few years
11:31:36 10 ago, right. So I do remember they showed me those
11:31:41 11 components, you know, those connectors, you know,
11:31:43 12 and all that. You know, and whether that's a full
11:31:47 13 product, they say, you know what, is the actual
11:31:51 14 product we are selling to this A company, B company,
11:31:54 15 I'm not sure, okay. So as I said, I have no
11:31:57 16 attachment or interaction in general with the
11:32:01 17 business of any of those company. And I wouldn't
11:32:05 18 know whether that's a full, official, assembled
11:32:12 19 active cable that is a product they're going to sell
11:32:16 20 to this company, that company. That I do not know.
11:32:19 21 Okay.

11:32:20 22 Again, our interaction almost always is just
11:32:24 23 on the technical aspect, what are the challenges
11:32:29 24 when you do the link, you know; what should we pay
11:32:33 25 attention, you know. What -- even sometimes we

11:32:37 1 discuss what research that my group -- sometimes
11:32:40 2 they do give me some suggestions, right. So what
11:32:43 3 they think that, okay, Professor Chen, what you
11:32:46 4 might want to consider, you know, to address these
11:32:51 5 issues, right.

11:32:52 6 So that is the scenario that we interact and
11:33:00 7 that we like to stay technical. We like to stay --
11:33:04 8 talk about the techniques, circuits that may address
11:33:08 9 some of the issues, right, in that general direction
11:33:13 10 including like what you said, you know, active
11:33:19 11 ethernet cables, are you connected with a data
11:33:21 12 center, you know, things of that nature.

11:33:23 13 Q Dr. Chen, you seem to be speaking in the
11:33:26 14 hypothetical about what would happen or could
11:33:28 15 happen. I'd like to know very specifically if
11:33:31 16 you're talking about a particular event.

11:33:34 17 Are you talking about a particular event
11:33:36 18 when Marvell showed you something?

11:33:38 19 A Oh, counsel, it's actually a series of
11:33:42 20 event, I would say, right. So it's not a
11:33:45 21 conference, you know, go there all of a sudden one
11:33:49 22 day you show up, okay, Dr. Chen, would you like to
11:33:53 23 meet up on this date, this time, do that. What I'm
11:33:57 24 talking about is more continuous interaction, okay.
11:34:01 25 They visit me. In fact, I also went there, give a

11:34:05 1 talk; seminars, you know, things in that nature.
11:34:11 2 Yeah, so it's a series of interaction.
11:34:13 3 They show me the lab. Okay. They show me
11:34:17 4 the lab. So there are a lot of things that they do
11:34:20 5 there. And I get the privilege of, you know, seeing
11:34:24 6 those and ask questions, you know, and understand
11:34:29 7 what are the challenges, you know, especially
11:34:32 8 technical challenges, things in that nature, yeah.
11:34:36 9 So I don't recall specifically exactly what event.
11:34:40 10 There are multiple event. What I describe here is
11:34:44 11 that, you know, through that process, you know, as
11:34:47 12 you can imagine, you know, they show me the lab.
11:34:52 13 You're saying that I don't see any cable, I think
11:34:53 14 that's to me just very unlikely, right.
11:34:57 15 Q So you're saying -- your testimony is that
11:35:02 16 it's unlikely that Marvell has not shown you an
11:35:06 17 active ethernet cable. Did I understand that
11:35:08 18 correctly?
11:35:11 19 A Counsel, that's one -- again, when I say
11:35:14 20 unlikely, you know, it was related to, for example,
11:35:16 21 when they give me a tour, right. When they give a
11:35:20 22 tour, okay, Professor Chen, would you like to look
11:35:25 23 at our lab, see some of our latest and coolest
11:35:28 24 things that they are developing. Again, whether
11:35:31 25 they are already in the product, do they sell to

11:35:35 1 customer A, B, C, again I do not know for the reason
11:35:41 2 I mentioned. I have no personal connection with any
11:35:44 3 of the business unit. As you can imagine, the
11:35:50 4 company has sophisticated logic to determine what
11:35:53 5 eventually will go to product, what to sell, and
11:35:57 6 things in that nature. I do not involve in any of
11:36:00 7 those. Okay.

11:36:01 8 So again, they are -- sometimes they are not
11:36:05 9 -- actually a lot of times they are probably not
11:36:08 10 even technical, right. So yeah, so I think that's
11:36:11 11 the situation that I have gone through that I
11:36:19 12 remember sitting here today. And I try my best to
11:36:23 13 explain to you, you know, under those situation what
11:36:28 14 is very likely, what is the unlikely, yeah.

11:36:32 15 Q So I understand that you'd like to talk
11:36:35 16 about what's likely and unlikely. I'd like to ask
11:36:40 17 you about what you know. The Board's entitled to
11:36:43 18 understand what you know. So that's what I'm asking
11:36:45 19 about, not what's likely or unlikely, but what you
11:36:51 20 know.

11:36:52 21 Can you identify a specific instance in
11:36:55 22 which Marvell has ever shown to you an active
11:36:57 23 ethernet cable?

11:36:58 24 A Counsel, I have answered that question.
11:37:01 25 There are a series of meetings and whether that's a

11:37:04 1 few years ago, for sure this is not last month. If
11:37:07 2 it is last month I remember it, I'll let you know
11:37:11 3 right away similar to the question you asked me
11:37:15 4 earlier. Something that, you know, is longer time,
11:37:23 5 you know, let's say more than a month ago or two
11:37:25 6 months ago, you know, I do apologize, you know, I do
11:37:30 7 not keep track everything in my mind. And I can
11:37:32 8 speed up and, oh, yeah, I know by the way this day,
11:37:36 9 this time, at what location I do what. So that I,
11:37:40 10 unfortunately, I don't keep that kind of details in
11:37:42 11 my mind. But I remember the high level, right. So
11:37:46 12 and hence, I provide that information that I know
11:37:49 13 for sure has happened. And that's -- that's in the
11:37:56 14 information that I sitting here share with you or
11:37:59 15 the Board.

11:38:00 16 Q Did you know that Marvell does not actually
11:38:02 17 sell active ethernet cables?

11:38:07 18 A Again, that's business level. So I do not
11:38:11 19 -- as I explained before, I do not later on go there
11:38:15 20 and ask them, oh, actually -- did you actually sell
11:38:18 21 that. Did you sell this to particular customer.
11:38:22 22 And in fact, you know, I personally do not feel
11:38:25 23 comfortable to do that, you know. Anything as you
11:38:28 24 can imagine -- excuse me -- related to business
11:38:32 25 side, we generally understand that's confidential.

11:38:39 1 Q So I understand -- I think I understand what
11:38:45 2 you said earlier about memory and naturally, nobody
11:38:48 3 -- well, most people I know, I certainly do not have
11:38:51 4 a perfect memory. I understand that your memory may
11:38:54 5 not be perfect either.

11:38:55 6 But to the extent that you do remember, am I
11:38:57 7 correct in understanding that you don't recall any
11:39:00 8 specific instance in which Marvell showed you an
11:39:04 9 active ethernet cable?

11:39:07 10 A Counsel, I already explained, you know,
11:39:12 11 those scenario that I do remember, right, including
11:39:17 12 when I went there to give seminar, they show me the
11:39:21 13 lab, including the one they actually came to our
11:39:25 14 university. They bring their power. They show that
11:39:32 15 to me. They appear very proud of what they have
11:39:35 16 produced, you know, those connectors, active
11:39:40 17 circuits. So that's -- are the specific level of
11:39:47 18 information I do remember. Whether that's already
11:39:51 19 as you went into the product, whether they sold it
11:39:56 20 to or are going to sell into particular customer, I
11:40:01 21 do not know as I have explained the reason earlier.

11:40:08 22 Q So you mentioned that you remember Marvell
11:40:10 23 showing you hardware and circuits and connectors.
11:40:14 24 Do you remember Marvell showing you an active
11:40:16 25 ethernet cable?

11:40:20 1 A Counsel, again, active ethernet cable is a
11:40:27 2 product type. Okay. You know, whether they
11:40:32 3 actually packaged the whole thing and sell that as a
11:40:36 4 product type as active ethernet cable, that again is
11:40:44 5 not something that I would know at that time, right.
11:40:49 6 And I do not ask them, oh, did you -- or are you
11:40:53 7 going to sell this to some customer, okay, for the
11:40:57 8 reason I already explained.

11:41:00 9 Q So I want to be clear, you said Marvell
11:41:03 10 showed you hardware and circuits and connectors. My
11:41:08 11 question is did Marvell show you an active ethernet
11:41:12 12 cable?

11:41:15 13 A Counsel, because I do not know from their
11:41:21 14 business side whether they are going to actually
11:41:24 15 package and ship it as a product to particular
11:41:30 16 customers and hence, you know, I have shared, you
11:41:37 17 know, what I know, what I do not know, right. So I
11:41:40 18 do not know whether the hardware they actually show
11:41:43 19 me actually went into the product, you know, as an
11:41:47 20 active, you know, ethernet cable for the reason I
11:41:50 21 just mentioned. But I do see those hardware, you
11:41:57 22 know, connectors, components. And that's what they
11:42:01 23 feel very proud, they show and we discuss
11:42:05 24 techniques, things in that nature.

11:42:08 25 Q So to be clear, Professor Chen, I'm not

11:42:11 1 asking about products. I'm asking about what
11:42:14 2 Marvell showed you. If you have a specific memory
11:42:17 3 of Marvell showing you something, you should tell
11:42:19 4 the Board about that. That's what I'm asking you.

11:42:23 5 Do you recall Marvell showed you an active
11:42:25 6 ethernet cable?

11:42:27 7 A Counsel, I think I already answered that
11:42:34 8 question. What I do remember here sitting here
11:42:38 9 today is that they do show me -- they did show me
11:42:40 10 the hardware, okay. Those components, passed that
11:42:45 11 around. You know, there might be some of my
11:42:47 12 students sitting there also, you know. We just pass
11:42:50 13 it around and kind of admire the techniques, the
11:42:53 14 circuit they have produced. That's I know for sure.
11:42:58 15 And that's what I share here.

11:43:00 16 Again, counsel, if your question is that
11:43:03 17 whether that's an active ethernet cable, again, that
11:43:07 18 to me that's a product type. It is a product.
11:43:11 19 Okay. So because the reason I provided, you know, I
11:43:15 20 have no connection with their business. I have no
11:43:18 21 interest, to be honest, to understand their
11:43:21 22 business, whether this actually go into certain or
11:43:25 23 particular product models. So that part I do not
11:43:30 24 know.

11:43:31 25 Q Dr. Chen, do you recall being in the

11:43:37 1 presence of any Marvell employee who held up for you
11:43:41 2 a cable that was an active ethernet cable with a
11:43:45 3 connector on each end and conductors connecting them
11:43:48 4 together? Have you ever seen that?

11:43:52 5 A Counsel, you know, for you to connect that
11:43:56 6 cable and then show that certain functionality,
11:44:01 7 typically you need a whole setup. From what I
11:44:06 8 remember, I don't recall they bring the whole setup
11:44:08 9 to my lab. Okay. You can imagine there can be some
11:44:11 10 heavy-duty equipment you actually need to do the
11:44:14 11 full testing.

11:44:15 12 And, counsel, that goes to what I said in
11:44:18 13 another scenario, there are conferences. There are
11:44:22 14 exhibition. You know, the company would bring those
11:44:27 15 more heavy-duty equipment, you know, tester, so in
11:44:32 16 that capacity, I might have seen, you know, some of
11:44:35 17 those demos to actually, you know, hook up in real
11:44:39 18 scenario, right. It's very likely, you know, I
11:44:42 19 should say, right. So I think that's the
11:44:47 20 information that I feel comfortable to provide that
11:44:49 21 I actually remember.

11:44:51 22 Q To be clear, I'm not asking about equipment
11:44:55 23 connected to a cable. I'm just asking about the
11:44:58 24 cable. Dr. Chen, this is a very straightforward
11:45:02 25 question and I'm struggling with why you can't

11:45:05 1 answer this yes, no, or I don't know.

11:45:08 2 Do you recall Marvell ever showing you a
11:45:10 3 physical active ethernet cable in assembled form
11:45:15 4 ever?

11:45:17 5 A Counsel, for the reason I would explain to
11:45:20 6 call something as an active ethernet cable in my
11:45:25 7 mind it is a product. Okay. So I want to basically
11:45:28 8 be very careful, right. So let's say they show me
11:45:34 9 some hardware and I saw those cables actually around
11:45:38 10 in the lab, but whether they are officially that
11:45:41 11 product as an active ethernet cable, that's I'm
11:45:47 12 trying to be -- distinguish here, okay, for the
11:45:51 13 reason I mentioned I guess a few times already -- I
11:45:55 14 don't know how many times -- because I do not know
11:46:01 15 on their business side whether that actually went
11:46:04 16 into this active ethernet cable product.

11:46:09 17 I cannot just say that, oh, everything that
11:46:14 18 I see in their lab is active ethernet cable. I just
11:46:17 19 don't feel comfortable to say that. Right. So I
11:46:21 20 think that's -- I'm just explaining the reason why,
11:46:25 21 you know, I have to give you the answer like this
11:46:28 22 because, you know, I need to, you know, make sure
11:46:31 23 that, you know, what I do remember, right, what I
11:46:35 24 have done is and in some scenario that, you know,
11:46:37 25 very likely I've seen those in those scenario.

11:46:42 1 Q Pretty likely, you say?

11:46:46 2 A Very likely. You know, for example, for the
11:46:50 3 scenario I just mentioned, so like I go exhibition
11:46:54 4 in the conferences, people are showing their
11:46:57 5 product, right. So in that case, you know,
11:46:59 6 typically they do show the product.

11:47:02 7 Q You mentioned that you gave a seminar at
11:47:09 8 Marvell. When was that?

11:47:11 9 A That was a few -- quite a few years ago.
11:47:17 10 Unfortunately, I do not recall specific year. And
11:47:20 11 that was Inphi actually. Right. So again, I said
11:47:24 12 that was before Marvell acquired Inphi.

11:47:29 13 Q So you've never given a seminar at Marvell?

11:47:34 14 A Let me think. It's common that I give a lot
11:47:48 15 of seminars, you know, and sometimes in the
11:47:51 16 companies. What I do remember is that I did not
11:47:57 17 give a seminar at the headquarter of Marvell in
11:48:04 18 their lab.

11:48:04 19 Q You mentioned that Marvell has come to meet
11:48:07 20 with you on campus. When was that?

11:48:09 21 A Again, I don't recall specific dates or even
11:48:14 22 years, right. So but I know it's a few -- it's a
11:48:19 23 long time ago and that's how we started. Then, you
11:48:24 24 know, we constantly interact with each other. And
11:48:29 25 they would come to the lab from time to time. So

11:48:34 1 that's the -- that's kind of state of -- that we've
11:48:37 2 been interacting.

11:48:39 3 Q You're familiar with active optical cables,
11:48:43 4 right?

11:48:48 5 A There's -- the medium can be optical. That
11:48:52 6 is correct.

11:48:52 7 Q And so are you familiar with a cable called
11:48:57 8 an active optical cable?

11:49:01 9 A I've heard another product type is active
11:49:07 10 optical cable.

11:49:08 11 Q Have you seen an active optical cable?

11:49:14 12 A Counsel, that would be similar to what I
11:49:16 13 just said earlier, right. So very likely I've seen
11:49:21 14 those in those exhibitions or lab tour, in that kind
11:49:25 15 of scenario.

11:49:26 16 Q Can you say definitively?

11:49:31 17 A Counsel, I do not remember specific event or
11:49:35 18 date that I see that particular active optical
11:49:42 19 cable.

11:49:42 20 Q Active optical cables have been used in data
11:49:45 21 centers for many years, right?

11:49:49 22 A Counsel, it is a common product that used in
11:49:53 23 the data center.

11:49:54 24 Q For many years, right?

11:49:55 25 A For many years, that is correct.

11:49:58 1 Q Going back to 2010?

11:50:03 2 A Very likely.

11:50:06 3 Q Or 2008 even?

11:50:07 4 A Again, I did not keep track of a specific
11:50:13 5 date.

11:50:16 6 Q Okay. And an active optical cable is not
11:50:20 7 the same thing as an active ethernet cable, correct?

11:50:25 8 A The components, a lot of those are shared.
11:50:29 9 You know, they are common. The issue they were
11:50:31 10 trying to solve are common, right, challenges. And
11:50:35 11 again is what I said earlier is the medium that are
11:50:40 12 different.

11:50:40 13 Q But the circuitry is different too, right?

11:50:42 14 A Counsel, what do you mean by circuitry
11:50:51 15 because circuitry is a very broad term that we
11:50:54 16 usually say circuitry.

11:50:56 17 Q Sure. An active optical cable uses light to
11:51:01 18 transmit the data and it needs circuitry to convert
11:51:05 19 electrical signals into that light, correct?

11:51:08 20 A So, counsel, if you talking about optical
11:51:13 21 and people -- we call that fiber, right. So you
11:51:17 22 have this medium. It is correct, you know, you need
11:51:24 23 photons, you know, to convert in that medium. So
11:51:27 24 there will be some circuits, not just to do
11:51:32 25 amplification, equalizations, you know, you would

11:51:36 1 also need additional circuitry to convert into
11:51:40 2 photons from electrons.

11:51:42 3 Q And that type of circuitry was used in those
11:51:45 4 active optical cables, again like we said dating
11:51:48 5 back to 2010 or 2008 even, right?

11:51:50 6 A Counsel, again, I don't remember the
11:51:53 7 specific years. But yeah, for the optical -- active
11:51:59 8 optical cable, you would need that conversion from
11:52:02 9 electron to photons.

11:52:04 10 Q Active optical cables are expensive, right?

11:52:11 11 A Counsel, I don't personally keep track of
11:52:15 12 this marketing and pricing. Yeah. So I'm afraid
11:52:18 13 that I don't particularly come to my mind, you know,
11:52:22 14 what may be the pricing, what the price range and
11:52:25 15 things in that nature.

11:52:27 16 Q Well, the circuitry that you need to convert
11:52:29 17 the electrical signals to light uses a laser, right?

11:52:34 18 A Counsel, yeah, that's usually how people
11:52:41 19 create those photons, right, to add a light source
11:52:45 20 and then you modulate that.

11:52:47 21 Q And that's more expensive than just building
11:52:49 22 an electrical cable, right?

11:52:54 23 A Counsel, as I mentioned earlier, I don't
11:52:56 24 personally keep track of the pricing, you know, how
11:53:00 25 those business entity set the pricing. But what I

11:53:04 1 can say here, you know, it has that extra, you know,
11:53:07 2 circuit component that would convert from electrical
11:53:13 3 -- sorry, electrons to photons.

11:53:17 4 Q I want to turn back to active electrical
11:53:29 5 cables now. Am I right you did not see an active
11:53:34 6 electrical cable commercially available before 2019,
11:53:37 7 right?

11:53:40 8 A Counsel, let me check. Is it okay I access
11:53:59 9 my report because I do think that I have some
11:54:03 10 background sections.

11:54:04 11 Q So yes, you're welcome to look at your
11:54:06 12 report, but my question is not about the report.
11:54:10 13 It's about what you personally remember having seen.
11:54:14 14 The first time you saw an active ethernet cable,
11:54:18 15 that was not before 2019, correct?

11:54:21 16 A Counsel, as I said, you know, I don't keep
11:54:26 17 track of specific years and time, right. So it will
11:54:30 18 always come back to that when I say, okay, yeah,
11:54:33 19 under that scenario very likely I see this and that.
11:54:36 20 And hence, I was trying to reach out to my report to
11:54:41 21 see there. But you know, if you ask me
11:54:44 22 specifically, you know, specific years and what
11:54:48 23 event where I see that, you know, sitting here I do
11:54:52 24 not have that recollection.

11:54:53 25 Q So you don't recall the first time you saw

11:54:55 1 an active ethernet cable?

11:55:00 2 A So, counsel, yeah, I don't recall specific
11:55:03 3 time that I first time -- you know, that I have seen
11:55:06 4 those. That is correct.

11:55:07 5 Q Active ethernet cables were not commercially
11:55:15 6 available before 2019, right?

11:55:20 7 A Counsel, again, as I said, you know, I don't
11:55:23 8 keep track especially on the product. You know,
11:55:26 9 when they release those business aspect, you know, I
11:55:30 10 personally do not keep track. And as I've
11:55:35 11 explained, I have no interest to inquire, you know,
11:55:41 12 my colleagues in industry and things in the nature
11:55:43 13 for the reason I mentioned earlier. A lot of those
11:55:47 14 are confidential information, so I do not
11:55:51 15 personally, you know, like to keep track of those,
11:55:54 16 you know. The technical issues and challenges, I'm
11:55:58 17 -- I have a lot of interest, so that's -- that's the
11:56:03 18 sort of area that I, you know, mostly make myself
11:56:08 19 occupied with.

11:56:09 20 Q Sitting here today, you cannot recall having
11:56:12 21 seen an active ethernet cable before 2019, correct?

11:56:19 22 A Counsel, as I said, you know, I do not keep
11:56:22 23 track of the specific date. It doesn't matter 2019
11:56:25 24 or '18 or 2020 because I do not keep track of that
11:56:29 25 specific date, you know. So I don't feel

11:56:31 1 comfortable, you know, to make that assertion that,
11:56:36 2 oh, I must have seen this in that year, what venue,
11:56:43 3 things in that nature.

11:56:43 4 Q Okay. So I just want to be clear. If you
11:56:48 5 could recall a specific event, you would tell the
11:56:50 6 Board about it. But my understanding is sitting
11:56:54 7 here today, you cannot recall a specific instance of
11:56:56 8 having seen an active ethernet cable before 2019,
11:57:01 9 right?

11:57:01 10 A Counsel, sitting here today, I do not recall
11:57:08 11 a specific event, right, and what year, what venue I
11:57:12 12 have seen that, you know, particular product. But
11:57:15 13 what I would say is -- what I would say is that, you
11:57:19 14 know, I attend those conferences, you know,
11:57:20 15 regularly, right. Every year, in fact, there can be
11:57:25 16 multiple conferences every year. Because of my
11:57:27 17 profession, I go to those conferences. I also like
11:57:31 18 to take a look, you know in those exhibition, right.
11:57:35 19 So it's, again, very likely I have seen some of
11:57:39 20 those. It's just that sitting here today, I do not
11:57:43 21 recall specific date, year, what venue I have seen
11:57:49 22 that.

11:57:50 23 Q And you also in your declaration did not
11:57:54 24 tell the Board that you had ever seen an active
11:57:56 25 ethernet cable before 2019, correct?

11:57:58 1 A Sorry. I think someone was --

11:58:10 2 MR. LIANG: Yeah, objection to form.

11:58:13 3 BY MR. MCMAHON:

11:58:14 4 Q Let me clarify, Dr. Chen. In your
11:58:16 5 declaration, at no point did you testify to the
11:58:20 6 Board that prior to 2019 you had seen an active
11:58:25 7 ethernet cable, correct?

11:58:30 8 A Counsel, it's a long document, you know. I
11:58:38 9 can take a look, you know, to see whether I, you
11:58:42 10 know, specifically say that, you know, I see this at
11:58:44 11 that time or even what venue. If you like, you
11:58:47 12 know, I can take a look.

11:58:49 13 Q Sure. And let me just ask, would you agree
11:58:53 14 that if you had seen an active ethernet cable before
11:58:56 15 2019, that would be important? You'd want to tell
11:58:59 16 the Board about that, correct?

11:59:01 17 MR. LIANG: Objection to form.

11:59:03 18 A Yeah. Counsel, yeah, because I'm not an
11:59:08 19 attorney, I cannot judge whether that's important or
11:59:10 20 not, you know, to the Board or whatnot. But I'm
11:59:16 21 really trying to, you know, help and figure out, you
11:59:20 22 know, whether I have specifically say that in my
11:59:23 23 report because it's a long document. So what I
11:59:27 24 would need is that I actually need to flip through
11:59:28 25 the pages and see that and then maybe provide a

11:59:34 1 better answer to your question.

11:59:36 2 Q That's fine. Feel free to do that. As I
11:59:39 3 told you, I told you I would send copies of the
11:59:43 4 documents. So I am sending you a PDF of your
11:59:46 5 declaration right now. You should be able to
11:59:49 6 download that from within the Zoom window. Feel
11:59:52 7 free to do that or to look at the paper copy that
11:59:56 8 you have in the binder. And if you can find an
12:00:00 9 instance in your declaration where you testified to
12:00:03 10 the Board that you had seen an active ethernet cable
12:00:05 11 before 2019, please let me know.

12:00:09 12 A Sounds good.

12:00:09 13 (Document marked previously as
12:00:09 14 Exhibit 1003 was presented.)

12:07:15 15 A Counsel, are you there?

12:07:18 16 Q Yes. Go ahead.

12:07:19 17 A Sorry. So first, I apologize. You know,
12:07:23 18 I'm reading the hard copy. You know, I kind of
12:07:27 19 prefer to read the hard copy just as my personal
12:07:29 20 choice. And I was still flipping through, right.
12:07:33 21 But you know, a section that I actually had offered
12:07:38 22 some background review on the active cable is
12:07:42 23 starting from page 6 of my report. And I guess the
12:07:55 24 most relevant one I think to your questions, you
12:07:58 25 know, because you are specifically asking me like

12:08:01 1 the cable and for ethernet. So I think maybe
12:08:04 2 starting from paragraph 8 might be helpful, you
12:08:09 3 know, for this -- the information that you are
12:08:12 4 interested in.

12:08:13 5 So here I said that internet was a popular
12:08:18 6 networking standard going back to the '90s. By the
12:08:23 7 2010s, ethernet was widely used for high-speed
12:08:27 8 serial communication in enterprise and data center
12:08:31 9 networks, scaling from one gigabit ethernet in the
12:08:35 10 early 2000s to the widespread adoption of 10
12:08:40 11 gigabyte internet by 2010. To meet the industry
12:08:45 12 demand for higher speed and longer reach,
12:08:50 13 manufacturers introduced active ethernet cables
12:08:53 14 which integrated an electronics such as retimers
12:08:57 15 within the cable assembly. Active ethernet cables
12:09:02 16 have been available on the market from a variety of
12:09:05 17 vendors by at least 2014.

12:09:10 18 And, counsel, here, you know, there are
12:09:12 19 actually a couple exhibits that I attach as part of
12:09:16 20 my report. For example, Exhibit 1011, it's a data
12:09:23 21 sheet for 1/10 gigabyte ethernet TE SFP+ cables.
12:09:32 22 There's another one -- document in Exhibit 1012.
12:09:38 23 It's various 40 gigabit ethernet Cisco transceiver
12:09:44 24 and cable modules. And Marvell is the leading
12:09:49 25 supplier of transceiver chips for active ethernet

12:09:53 1 cables.

12:09:54 2 And go on, on paragraph 9, some active
12:09:58 3 ethernet cables shown below -- so there's a figure
12:10:04 4 right there -- use the SFP+ form factor with a
12:10:09 5 transceiver in the module at both ends. The video
12:10:16 6 description here says that 10 gig SFP+ direct attach
12:10:23 7 copper cable or 10 gig SFP+ DAC cable assembly. It
12:10:33 8 is a twinaxial cable assembly that has a length of
12:10:37 9 copper cable and terminates with SFP+ connector
12:10:43 10 modules on either end.

12:10:46 11 So that was, you know, a YouTube video. And
12:10:52 12 I think I should have captured some images attached
12:10:57 13 in the -- one of the exhibit, might have been 1019,
12:11:06 14 to show that, you know, here you can see the video.
12:11:14 15 You can see that, you know, starting from 2018. So
12:11:17 16 there's a date -- year -- sorry, because I know,
12:11:20 17 counsel, you have particular interest in the date
12:11:22 18 and years. Okay. So this one I don't need to read
12:11:26 19 it from memory.

12:11:27 20 So this exhibit does mention about
12:11:29 21 October 29th, 2018, they upload this particular
12:11:35 22 video. And it's an active cable. And this supports
12:11:39 23 ethernet, you know. Counsel, you may have a look at
12:11:45 24 the exhibit, you know. And I even circle the type
12:11:49 25 of the connection, you know, showing that it's

12:11:52 1 ethernet, right. So those are just a few, you know,
12:11:55 2 examples that I show, you know, in the report
12:11:59 3 specifically to address this as the product type
12:12:02 4 which is active, you know, ethernet cable, you know,
12:12:06 5 associated with a timeline.

12:12:09 6 Q Dr. Chen, DAC or D-A-C stands for direct
12:12:14 7 attached cable, correct?

12:12:17 8 A It is correct.

12:12:19 9 Q And a DAC is a passive cable, not an active
12:12:23 10 cable, correct?

12:12:26 11 A Counsel, if I can direct your attention to
12:12:32 12 this Exhibit -- let me just make sure the number is
12:12:37 13 correct -- 1019. Sorry, it is in my one of the
12:12:48 14 binders so that's I have -- I have the access. Do
12:12:51 15 you have the access to that particular document?

12:12:53 16 Q Hold on just a second.

12:12:56 17 A Sure.

12:13:15 18 Q Yes, I'm going to send you Exhibit 1019 in
12:13:18 19 the Zoom chat. Let me know if you receive that.

12:13:18 20 (Document marked previously as

12:13:28 21 Exhibit 1019 was presented.)

12:13:28 22 A I receive that, counsel. And, counsel, yep,
12:13:48 23 the document I received and I downloaded to my
12:13:50 24 desktop and take a look, they are the same as my
12:13:54 25 paper copy in my binder. So, counsel, do you see

12:14:02 1 the images in that exhibit?

12:14:05 2 Q I do.

12:14:07 3 A So you can see it has the connector module,
12:14:15 4 right. You see that SFP+ module, that's a very
12:14:21 5 common connector type for those, you know, cables,
12:14:27 6 right. And then this one is also using copper. So
12:14:33 7 you can see there's copper. And I have the active
12:14:38 8 circuits in that module, the form factor that I just
12:14:41 9 mentioned -- sorry, the connector type being as
12:14:46 10 SFP+. That's for the 10 gig ethernet.

12:14:52 11 If you can please go to -- actually, just --
12:14:58 12 let's just stay son the first page, right. Counsel,
12:15:00 13 do you see that date and time? And that was the
12:15:04 14 date and time that I quoted earlier with this
12:15:07 15 assistance I can obviously read. So I'm not
12:15:12 16 remembering this time.

12:15:15 17 And for the ethernet, you know, counsel, if
12:15:18 18 you can please go to the last page of this exhibit,
12:15:23 19 do you see -- sorry. You can probably see there's a
12:15:29 20 highlighted text. I circled in the red box, you
12:15:32 21 know, the link-level type is ethernet. So yeah,
12:15:39 22 that's just one of the example, right, specifically
12:15:44 23 for this product type, along with the other ones
12:15:49 24 that I just mention.

12:15:51 25 Q There are no retimers in the cable shown in

12:15:55 1 Exhibit 1019, correct?

12:15:58 2 A Counsel, let me just take a look, okay. So
12:16:08 3 look at the --

12:16:09 4 Q Sure. Take your time.

12:16:11 5 A Thank you. Counsel, if you can please go to
12:18:11 6 -- so I'll let you know what I do find. Okay. On
12:18:16 7 the first page you see those connectors, right. So
12:18:18 8 that's the one that we just talk about, you know.
12:18:21 9 That's where you house those active circuitry. If
12:18:25 10 you can please go to the second page of that
12:18:27 11 document, you see that, you know, underneath 10 gig
12:18:34 12 SFP+ plus to SFP+ DAC, you see underneath there are
12:18:40 13 two different flavors. You know, I call flavor. I
12:18:44 14 don't know, company may call option. If you do
12:18:48 15 passive and the thing that, counsel, you might have
12:18:50 16 mentioned a little bit as one of the options
12:18:52 17 earlier, yep. So passive, usually what happen is
12:18:58 18 that it show the distance. So you can see that
12:19:01 19 0.5 millimeter to 7 meter, right.

12:19:04 20 But the second line underneath, there's
12:19:07 21 active. So when you are in active mode, you know,
12:19:10 22 with those pluggable modules, you can see that
12:19:14 23 generally you can extend longer, you know, because
12:19:18 24 of the circuitry, the active circuitry that you
12:19:21 25 deployed in those connectors.

12:19:24 1 So specifically for this document, you know,
12:19:28 2 I have not seen a specific discussion on what
12:19:34 3 circuitry inside. I know, counsel, you asked me
12:19:37 4 earlier about what the circuitry inside, right,
12:19:39 5 whether it's a retimer or redriver, you know, things
12:19:43 6 like that. Specifically for this YouTube, you know,
12:19:47 7 link, they did not specifically talk about it. It
12:19:54 8 could be there. It could not be there. You know, I
12:19:58 9 think -- and I think this is actually I would say
12:20:04 10 typical, right, because, you know, this is a YouTube
12:20:09 11 video. The company want to show off or demonstrate
12:20:12 12 their product at the time, but they -- oftentimes
12:20:17 13 what company do is that they do not necessarily want
12:20:19 14 to reveal the detail of the circuitry, right. So
12:20:22 15 that could be, you know, one of the reasons, you
12:20:29 16 know, at least from this exhibit I do not see a
12:20:31 17 particular discussion on, you know, the actual
12:20:36 18 circuitry.

12:20:36 19 Q Dr. Chen, you mentioned retimers and
12:20:39 20 redrivers. Those are two different things, right?

12:20:43 21 A Actually, counsel, they share a lot of
12:20:48 22 common components. You know, you do equalizations,
12:20:53 23 you know, you generally compensate for the loss,
12:20:58 24 right, of the channel, you know, things in that
12:21:01 25 nature. However, a retimer does do something extra.

12:21:08 1 That's why you call it retimed. So they were
12:21:11 2 retimed, they would cover the clock. And now in
12:21:14 3 fact, you know, I think in some portion of my
12:21:18 4 report, you know, I also explained, you know, what
12:21:20 5 is the general intel and what a POSITA may want to
12:21:25 6 use a retimer just for that clock recovery -- sorry,
12:21:29 7 clock data recovery unit. Yep. But there are all
12:21:35 8 high-speed component active specifically, generally
12:21:41 9 you know, share the same passion or objective to
12:21:45 10 compensate for the general loss.

12:21:47 11 Q But a redriver does not include clock and
12:21:51 12 data recovery, correct?

12:21:54 13 A In fact, counsel, I recall one of the prior
12:22:00 14 art reference actually have some images and show
12:22:05 15 that. I think that's one of the things I actually
12:22:08 16 use also in my report. Let me just double-check. I
12:22:21 17 think it might be in that prior art reference by
12:22:25 18 Samaan. You know, he provides a good explanation on
12:22:32 19 how those can be used, what are the components are
12:22:35 20 shared actually between the redriver and retimers.

12:22:47 21 Q Are you finished, Dr. Chen?

12:22:49 22 A Yes, yes, I finish.

12:22:51 23 Q Do you personally -- go ahead.

12:22:54 24 MR. LIANG: Sorry, didn't mean to interrupt.

12:22:56 25 I just wanted to point out that we've been going

12:22:59 1 almost an hour and a half. But I think if you all
12:23:02 2 want to take a break at some point, you know, I just
12:23:05 3 wanted to point out the time.

12:23:08 4 MR. MCMAHON: Thank you. I appreciate that.

12:23:09 5 Q Dr. Chen, this is something I did not
12:23:11 6 mention at the beginning. If you need a break at
12:23:13 7 any time, just let me know. We can take a break in
12:23:16 8 a few minutes if that's okay.

12:23:19 9 A Sure. You know, I just realized that I
12:23:22 10 drink all the water in my cup so it's a good time
12:23:25 11 for me to refill it at least.

12:23:28 12 MR. MCMAHON: Let's go ahead and take a
12:23:29 13 break.

12:23:32 14 (Short recess.)

12:34:24 15 BY MR. MCMAHON:

12:34:30 16 Q Dr. Chen, welcome back.

12:34:32 17 A Thank you.

12:34:33 18 Q Before the break, we were talking about a
12:34:37 19 couple of the different exhibits that you attached
12:34:39 20 to your declaration. I'd like to go back to those.
12:34:43 21 First of all, you referenced the Samaan document.
12:34:48 22 That's Exhibit 1007, right?

12:34:54 23 A That is correct. Samaan is Exhibit 1007.

12:34:57 24 Q And you mentioned Samaan tells us that there
12:35:03 25 are two different things, redrivers and retimers,

12:35:07 1 correct?

12:35:13 2 A In that document, Samaan talk about both
12:35:18 3 components, right, both two different -- two
12:35:22 4 techniques and show that, you know, how some of
12:35:25 5 those components can be shared among the two.
12:35:31 6 That's what Samaan provide.

12:35:32 7 Q Samaan says that retimers are more complex
12:35:37 8 than redrivers, right?

12:35:40 9 A I don't recall he specifically point out
12:35:43 10 that it's more complex. But what it is is that the
12:35:47 11 retimer and redrivers, you know, as I mentioned
12:35:51 12 before, they are all trying to compensate for the
12:35:55 13 loss for the channel, right.

12:35:56 14 So the difference here is that the retimer
12:36:02 15 recover the clock, right. And then you recover that
12:36:05 16 data and then you do the retransmission. But both
12:36:12 17 techniques, they all use the equalization, you know,
12:36:15 18 because they share the same objective, you know, to
12:36:19 19 compensate for the loss of the channel.

12:36:21 20 Q Can you turn to page 4 of Exhibit 1007? Let
12:36:28 21 me know when you have that page.

12:36:45 22 Dr. Chen, do you have page 4?

12:36:46 23 A I have page 4 of this document. I do, yes.

12:36:49 24 Q And there is a Section 2.2, retimer. Do you
12:36:53 25 see that heading?

12:36:55 1 A I do see 2.2, retimer.

12:37:00 2 Q And then if you skip that first
12:37:02 3 paragraph and go to the second paragraph in that
12:37:05 4 section, I'm going to read the first sentence. Tell
12:37:07 5 me if I read it correctly. "Retimers are more
12:37:10 6 complex than redrivers, larger in die and package
12:37:15 7 size, are more expensive and as of this writing, are
12:37:20 8 offered by fewer vendors than redrivers."

12:37:23 9 Did I read that correctly?

12:37:24 10 A Counsel, I do see this sentence.

12:37:27 11 Q So Samaan does say that retimers are more
12:37:30 12 complex than redrivers, is that right?

12:37:32 13 A That's what Samaan says here, you know, when
12:37:35 14 he made the comment and that's probably because, you
12:37:38 15 know, that additional circuitry that we just talk
12:37:41 16 about.

12:37:42 17 Q And that additional circuitry that a retimer
12:37:46 18 has and a redriver does not have is for clock and
12:37:48 19 data recovery, correct?

12:37:50 20 A That is the component that retimer would
12:37:55 21 add, you know, to the architecture.

12:37:58 22 Q Before the break, you mentioned two other
12:38:02 23 exhibits that you said described active cables. One
12:38:07 24 of them was Exhibit 1011 and the other was
12:38:11 25 Exhibit 1019. Do you recall that?

12:38:17 1 A 1011. Sorry.

12:38:28 2 Q Sorry. Go ahead.

12:38:29 3 A Oh, I was going to say, counsel, I do see
12:38:33 4 Exhibit 1011.

12:38:35 5 Q Right. And you refer to Exhibit 1011 in
12:38:38 6 paragraph 8 of your declaration, correct?

12:38:41 7 A That is correct.

12:38:42 8 Q And you also refer to Exhibit 1019 in
12:38:48 9 paragraph 9 of your declaration, right?

12:38:49 10 A That is correct.

12:38:50 11 Q I'd like to take these one at a time. If we
12:38:54 12 start with Exhibit 1011, let me know when you have
12:38:57 13 that.

12:39:01 14 A Yep, I have it, counsel.

12:39:24 15 Q Exhibit 1011 does not mention clock or data
12:39:28 16 recovery, right?

12:39:30 17 A So, counsel, I briefly reviewed the document
12:42:52 18 of this exhibit. This is, you know, a table, right,
12:43:02 19 active table and also just like before, you know,
12:43:05 20 talk about some passive cable configurations. Here,
12:43:08 21 I think they mostly provide a specification and some
12:43:15 22 diagram you can see from that maybe third pages of
12:43:20 23 this exhibit. They do not show the circuits; unlike
12:43:27 24 Samaan, you know, he showed us detail of the, you
12:43:33 25 know, block diagrams. That's usually how a POSITA

12:43:35 1 would understand what has been entailed into this.

12:43:39 2 So it's, you know -- I was not able to find

12:43:45 3 information, you know, to say that, okay, what's

12:43:47 4 entailed in that circuitry and whether or not

12:43:50 5 there's a particular, as you said, block data

12:43:58 6 recovery.

12:43:58 7 Q So to be clear, Dr. Chen, my question was a

12:44:01 8 yes-or-no question and it's only about the content

12:44:03 9 of this document. Am I correct that Exhibit 1011

12:44:08 10 does not mention clock or data recovery? Yes or no?

12:44:14 11 A Counsel, because this document do not show

12:44:20 12 the block diagram to show what the circuit entail,

12:44:24 13 here I do not see the exact words as you mentioned

12:44:29 14 clock data recovery, these exact words. No, I do

12:44:33 15 not read -- that is, you know, with the minutes that

12:44:36 16 I spend there, I do not read the particular clock

12:44:39 17 data recovery, those three exact words. But as I

12:44:42 18 said, you know, because this document really do not

12:44:45 19 talk about or discuss the circuitry, right, you

12:44:49 20 know, some block diagram. And it's just not

12:44:54 21 possible for me to find out what's actually inside

12:44:57 22 that circuits.

12:44:58 23 Q And Exhibit 1011 also does not mention a

12:45:02 24 retimer, correct? Yes or no?

12:45:05 25 A So, counsel, I read the document again. You

12:46:57 1 know, now this time I search for this keyword
12:47:00 2 retimer because that's your question, right. So
12:47:03 3 here, you know, because I can probably assume the
12:47:10 4 reason, this document do not talk about the actual,
12:47:12 5 you know, circuitries, I do not find a specific word
12:47:16 6 called retimers in this document.

12:47:18 7 Q Okay. Same questions about Exhibit 1019, if
12:47:24 8 you could turn to that, please. First question,
12:47:27 9 Exhibit 1019 does not mention clock or data
12:47:30 10 recovery, right? Yes or no?

12:47:34 11 A Counsel, I'm just going to that binder.
12:48:29 12 Counsel, so I read those four -- I think it's four
12:48:34 13 pages, right, four pages of this document. And as I
12:48:37 14 mentioned earlier, because this is a YouTube video,
12:48:41 15 you know, they don't intend to show the details of
12:48:43 16 those circuitries, so actually, wouldn't be
12:48:47 17 surprised that, you know, at least in this captures,
12:48:50 18 you know, it's hard for us to find the discussion
12:48:53 19 particularly on those circuitries. And to answer
12:48:56 20 your question, just within these four pages, I do
12:48:59 21 not see the word "clock data recovery" nor do I see
12:49:04 22 the word "retimers" in these four pages of the
12:49:08 23 document.

12:49:09 24 Q Thank you. Dr. Chen, in your declaration,
12:49:13 25 you provided certain opinions regarding

12:49:16 1 patentability, right?

12:49:20 2 A Sorry. Can you please repeat? Patent —

12:49:23 3 Q Patentability.

12:49:25 4 A Oh, patentability.

12:49:30 5 Q Let me rephrase the question. You have
12:49:33 6 provided an opinion in this case that the claims of
12:49:39 7 Credo's '252 patent are not patentable, correct?

12:49:45 8 A Counsel, I think that's correct. You know,
12:49:50 9 that's why I provide the grounds and why, you know
12:49:53 10 — and I explained, you know, why each claim, you
12:49:55 11 know, is not patentable.

12:49:57 12 Q And you provided that opinion in three
12:50:00 13 different grounds, right, grounds one, two and
12:50:05 14 three?

12:50:05 15 A That sounds right, but let me just
12:50:09 16 double-check. Counsel, that is correct. There are
12:50:35 17 in total of three grounds.

12:50:37 18 Q And those three grounds rely on a
12:50:41 19 combination of four specific prior art references,
12:50:44 20 correct?

12:50:46 21 A Counsel, to answer that question, of course
12:51:00 22 not all the grounds here I rely all four, right. So
12:51:04 23 but in combination, I in total cite one, two, three,
12:51:10 24 four — four references.

12:51:13 25 Q Thank you. My question was not clear. Your

12:51:15 1 answer clarified it. I appreciate that.

12:51:19 2 Those four references that you rely on
12:51:21 3 across grounds one, two, and three are Exhibit --
12:51:28 4 I'll give you the exhibit numbers here -- they
12:51:31 5 include Exhibit 1004 which is Lugthart, right?

12:51:38 6 A 1004 Lugthart, that is correct, counsel.

12:51:40 7 Q 1005, Aronson?

12:51:44 8 A 1005, Aronson, that is correct, counsel.

12:51:48 9 Q 1006, Cornelius?

12:51:51 10 A 1006, Cornelius, that is correct.

12:51:57 11 Q And 1007, Samaan, right?

12:52:01 12 A 1007, Samaan, I think that is correct.

12:52:05 13 Q You did not include Exhibit 1011 as a
12:52:11 14 reference in any of your three grounds, right?

12:52:18 15 A In terms of the prior art base as a grounds,
12:52:26 16 that's not part of the grounds. However, I might
12:52:29 17 cite it just as a background, you know, somewhere,
12:52:32 18 you know, as I was going through the justification
12:52:37 19 or motivations.

12:52:38 20 Q And you also did not include Exhibit 1019 as
12:52:43 21 one of the four prior art references in your three
12:52:46 22 grounds, right?

12:52:49 23 A Counsel, I think that is correct. I said
12:52:58 24 that 1019 is not part of the four prior art
12:53:02 25 reference I use for those three grounds.

12:53:05 1 Q Why did you choose to use those four
12:53:09 2 specific references, Lugthart, Aronson, Cornelius,
12:53:12 3 and Samaan?

12:53:16 4 A Counsel, I think I provide motivations, you
12:53:29 5 know, for each of the references, you know, whenever
12:53:32 6 I cited. Counsel, are you interested in any
12:53:36 7 particular one or you want all four of them? I'll
12:53:40 8 be happy to go over all four of them.

12:53:43 9 Q I'm just curious why you chose those four
12:53:46 10 and not other references?

12:53:48 11 A So on a high level -- so let me start off on
12:54:09 12 a high level, you know. I think those are in the
12:54:13 13 same field. You know, they are all on the
12:54:15 14 high-speed communications, right. So you know, you
12:54:19 15 can see the components. You know, that is very
12:54:24 16 relevant, you know, to what is discussed in this
12:54:27 17 particular '252 patent.

12:54:31 18 But if interested, for example, I can give
12:54:35 19 you some example. For instance, you know,
12:54:38 20 paragraph 51 of my report, so this is particularly
12:54:43 21 on a Cornelius prior art. And by the way, I just
12:54:50 22 went and picked one. So this one you can see, you
12:54:54 23 know, I found it, you know, is analogous art to the
12:54:58 24 '252 patent because it is in the same field of
12:55:02 25 endeavor, which is the high-speed communication as I

12:55:07 1 just mentioned.

12:55:08 2 And here, you know, Cornelius discloses an
12:55:12 3 active cable that provides high-speed connections.
12:55:16 4 Each of the two active plugs provides and receives
12:55:20 5 high-speed signals. Additionally, the '252 patent
12:55:25 6 recognized a problem where ever higher data rates
12:55:32 7 caused increased channel attenuation and dispersion
12:55:36 8 even as the equalizers are forced to operate at
12:55:39 9 faster symbol rates. The claims address this need
12:55:43 10 for more equalization with equalization for each of
12:55:47 11 the transmit and receive paths. Cornelius is
12:55:51 12 reasonably pertinent to the problem addressed by the
12:55:55 13 '252 patent because it teaches solutions for
12:56:01 14 high-speed active cables that include equalizer,
12:56:05 15 emphasis, and de-emphasis circuits in the
12:56:09 16 CDR/retimer circuitry on both receive and transmit
12:56:15 17 paths. So that's one example.

12:56:19 18 Q And you were just reading from your
12:56:21 19 declaration, right?

12:56:24 20 A For that example for the Cornelius, that was
12:56:27 21 indeed as I mentioned in paragraph 51 of my report.
12:56:32 22 That is correct.

12:56:32 23 Q The Lugthart reference, that I don't think
12:56:37 24 we talked about the patent number yet, but the
12:56:40 25 Lugthart patent is U.S. Patent Number 9,882,706,

12:56:48 1 right?

12:56:51 2 A 9,882,706 you said?

12:56:57 3 Q Yes.

12:56:58 4 A That is correct, counsel.

12:56:58 5 Q And that's Exhibit 1004?

12:57:01 6 A That is Exhibit 1004, that is correct,

12:57:04 7 counsel.

12:57:04 8 Q There's another Lugthart reference, right?

12:57:13 9 A Counsel, would you remind me which exhibit?

12:57:21 10 Q Sure. Actually I'm going to send you a new

12:57:23 11 one. Bear with me just a second.

12:57:23 12 (Document marked previously as

12:57:38 13 Exhibit 2021 was presented.)

12:57:38 14 BY MR. MCMAHON:

12:57:38 15 Q Dr. Chen, I've just sent you what we've

12:57:41 16 marked as Exhibit 2021 and that is U.S. Patent

12:57:49 17 No. 9,337,993 to Lugthart. Do you see that?

12:57:55 18 A I see that in the chat and I'm downloading

12:57:58 19 it.

12:59:22 20 Q Let me know when you have that downloaded,

12:59:25 21 Dr. Chen.

12:59:25 22 A Sure. I just downloaded it. I just need to

12:59:29 23 pull it out. Sorry about that. Yep, counsel, I

12:59:41 24 downloaded. I think this one is Exhibit 2021. Yep,

12:59:47 25 '993, Lugthart.

12:59:50 1 Q So I want to establish some terminology for
12:59:57 2 clarity here, Dr. Chen. If I refer to Exhibit 1004
13:00:00 3 as Lugthart '706 using the last three digits of the
13:00:05 4 patent number, will you understand that?

13:00:08 5 A I can understand that. I know are you
13:00:11 6 referring to Exhibit 1004?

13:00:13 7 Q Yes.

13:00:14 8 A Okay.

13:00:15 9 Q I will call that Lugthart '706, okay?

13:00:20 10 A Okay.

13:00:20 11 Q And then similarly, Exhibit 2021 I will
13:00:25 12 refer to that as Lugthart '993. Okay?

13:00:29 13 A Okay. Sounds good.

13:00:32 14 Q So why did you choose in your declaration to
13:00:37 15 use Lugthart '706 instead of Lugthart '993?

13:00:46 16 A Counsel, I'm just reviewing this '993
13:01:44 17 document in front of me.

13:01:50 18 Q So while you're doing that actually,
13:01:53 19 Dr. Chen, I'll withdraw that last question and we
13:01:55 20 can start, you know, in a slightly different spot.

13:01:57 21 A Okay.

13:01:58 22 Q The disclosure in Lugthart '993 is the same
13:02:02 23 as the disclosure in Lugthart '706, right?

13:02:12 24 A Counsel, that's why I was looking through
13:02:16 25 the '993 because as you can see, I use -- I rely on

13:02:22 1 this -- what's the number again -- '706 --

13:02:29 2 Q Right.

13:02:29 3 A -- sorry -- Lugthart, you know, throughout

13:02:32 4 my report. This '993 I should have seen that

13:02:39 5 before. You know, that was last year, right. And

13:02:44 6 it's been a while. And that's 50 -- 56 pages. And

13:02:52 7 then your question was to I guess ask me whether

13:02:56 8 they reveal, did you say the same claim language

13:02:58 9 or --

13:02:59 10 Q Same disclosure. And let me start in an

13:03:02 11 even simpler place.

13:03:03 12 Lugthart '706 and Lugthart '993 have exactly

13:03:07 13 the same figures, right, Figures 1A through 18 are

13:03:11 14 exactly the same in both Lugthart references, right?

13:03:16 15 A I see. So thank you for that question.

13:03:19 16 It's more confined so I can take a look. Make the

13:03:33 17 screen a little bit larger so I can read it. So I'm

13:04:00 18 at Figure 1A. That looks -- looks the same by a

13:04:07 19 quick look. Obviously, you know, I cannot read

13:04:11 20 every word and match word-by-word, but by and large,

13:04:17 21 it looks the same. And I'm checking Figure 2. Let

13:04:27 22 me see if I can rotate this. Sorry, Figure 1B.

13:04:53 23 Figure 1B, by and large they look the same. 1C, by

13:05:25 24 and large they look the same.

13:05:26 25 Q Dr. Chen, I'm sorry to interrupt. There are

13:05:28 1 a lot of figures here and it would take a lot of
13:05:30 2 time. I'll represent to you that the figures are
13:05:33 3 the same. And I'll also represent to you that the
13:05:36 4 disclosure is virtually the same. And so I'll go
13:05:39 5 back to my first question. And actually, let me
13:05:45 6 identify one difference between these two references
13:05:48 7 and that is that during examination of Credo's '252
13:05:54 8 patent, the examiner considered Lugthart '993 but
13:05:59 9 not Lugthart '706. Is that why you chose to use
13:06:05 10 Lugthart '706 instead of Lugthart '993?

13:06:12 11 A Counsel, I don't recall that particular
13:06:14 12 reason. And yeah, I don't recall that was the
13:06:20 13 reason why, you know, I chose this -- sorry, what's
13:06:24 14 the number -- '706 in particular. Yeah, I don't
13:06:30 15 recall the reason being that. Yeah.

13:06:34 16 Q Okay. Let's turn to Aronson. So Aronson is
13:06:44 17 -- sorry, bear with me just a second here.

13:06:46 18 A No problem.

13:06:48 19 Q Aronson is Exhibit 1005, right?

13:06:57 20 A Aronson is Exhibit 1005, that is correct,
13:07:01 21 counsel.

13:07:01 22 Q And I'm going to send you two other exhibits
13:07:07 23 in the Zoom chat right now. Let me know when you
13:07:10 24 have those.

25

13:07:10 1 (Document marked previously as
13:07:10 2 Exhibit 2022 was presented.)
13:07:10 3 (Document marked previously as
13:07:21 4 Exhibit 2023 was presented.)
13:07:21 5 A I see two drops, two files. Let me download
13:07:25 6 them.
13:07:52 7 Q Let me know when you have those downloaded.
13:07:53 8 A Sure. I just downloaded. I just need to
13:07:56 9 bring up the folder and make sure I have the right
13:08:00 10 one.
13:08:01 11 Q I'll start with Exhibit 2022, which is
13:08:05 12 Aronson's U.S. Patent No. 7,401,985. Let me know
13:08:12 13 when you see that.
13:08:13 14 A I opened up Exhibit 2022. Aronson '985 as
13:08:22 15 the last three digits.
13:08:25 16 Q Yes. And Exhibit 2023 is a printed Patent
13:08:31 17 Application Publication, numbered U.S. 2007/0237464,
13:08:42 18 also to Aronson. Do you see that?
13:08:44 19 A Counsel, I just opened Exhibit 2023. The
13:08:53 20 patent number seems correct. Did you say
13:08:59 21 2007/0237464?
13:09:03 22 Q Yes.
13:09:05 23 A That's the one. Okay. I think I have it,
13:09:08 24 counsel.
13:09:08 25 Q So again, kind of like we did with Lugthart,

13:09:12 1 I will refer to these three different Aronson
13:09:15 2 references. Your Exhibit 1005 is Aronson '389.
13:09:22 3 Okay?
13:09:23 4 A '389 Aronson. Okay.
13:09:26 5 Q And the two I just sent you, Exhibits 2022
13:09:29 6 and 2023, I will call Aronson '985 and Aronson '464.
13:09:38 7 A I see that. Yeah, I see that.
13:09:41 8 Q Did you consider Aronson '985 or Aronson
13:09:48 9 '464 in forming your opinions in this case?
13:09:52 10 A The question is '984 and '464, right?
13:09:57 11 Q '985 and '464.
13:10:01 12 A Oh, sorry, '985 and --
13:10:04 13 Q '464?
13:10:07 14 A '464.
13:10:08 15 Q I'll ask it in a simpler way. Did you
13:10:11 16 consider Exhibits 2022 or 2023 in forming your
13:10:14 17 opinions in this case?
13:10:14 18 A I'm just scrolling through the document,
13:10:22 19 counsel. By a quick scroll, I do see similar
13:10:53 20 figures here and there. I did not check one-by-one,
13:10:56 21 okay. I did not check one-by-one. But similar to
13:11:09 22 the other case, you know, I might have -- because
13:11:12 23 you know, it was last year, right, I might have
13:11:16 24 reviewed this, but I just don't recall particular
13:11:21 25 reason or why not, you know, to choose a particular

13:11:26 1 one sitting here today.

13:11:27 2 Q Okay. So I'll represent to you that Aronson
13:11:33 3 '985 and Aronson '464, that is Exhibits 2022 and
13:11:38 4 2023, were cited to the Patent Office during
13:11:43 5 examination of Credo's '252 patent. Do you
13:11:48 6 understand that?

13:11:49 7 A Okay. I don't specifically remember that
13:11:53 8 prosecution history, but I understand, counsel, what
13:11:56 9 you just told me. You know, you said that it was
13:11:59 10 cited during that prosecution of file history.

13:12:03 11 Q Whereas by contrast, Exhibit 1005, Aronson
13:12:10 12 '389, was not cited duration prosecution of Credo's
13:12:13 13 '252 patent. Do you understand that?

13:12:16 14 A Again, counsel, I don't recall the complete,
13:12:22 15 you know, history and to the point where I remember
13:12:24 16 what was cited, what was not cited. But I
13:12:29 17 understand what you are telling me is that -- did
13:12:36 18 you say '389 was not cited? Is that what you just
13:12:41 19 told me, right?

13:12:43 20 Q It is.

13:12:44 21 A Okay. Right. So yeah, again, you know, I
13:12:48 22 don't recall all the details, you know, for that,
13:12:50 23 you know, as to which was cited, which was not
13:12:52 24 cited.

13:12:54 25 Q Did you choose to use Exhibit 1005, that is

13:13:01 1 Aronson '389, because that's the one that was not
13:13:04 2 cited during examination of the '252 patent?

13:13:09 3 A I don't recall that was being the reason.
13:13:14 4 Again, you know, my opinions are on the technical
13:13:17 5 side, so I look at the technical components and
13:13:21 6 that's how I usually form my opinions.

13:13:25 7 Q Okay. Did you consider which references the
13:13:29 8 examiner of the '252 patent had reviewed or not
13:13:33 9 reviewed?

13:13:38 10 A Counsel, I don't specifically remember
13:13:42 11 sitting here to say that, oh, I used that as a
13:13:47 12 factor to consider. You know, again I think go back
13:13:51 13 to what I said earlier because I'm a technical
13:13:54 14 person, I like to see things, you know, from
13:13:57 15 technical perspective.

13:14:00 16 Q Okay. Do you know what an Information
13:14:04 17 Disclosure Statement is?

13:14:04 18 A Information Disclosure Statement. Can you
13:14:15 19 please remind me what specific document that you're
13:14:18 20 referring to?

13:14:18 21 Q Yes. So right now I'm not referring to a
13:14:21 22 specific document. I'm asking about a type of
13:14:24 23 document that's used at the Patent Office. It's
13:14:27 24 called an Information Disclosure Statement. It's
13:14:30 25 sometimes referred to as just an IDS.

13:14:34 1 A Okay. Thanks for spelling the acronym. So
13:14:41 2 I heard about IDS, not specifically for this case;
13:14:46 3 you know, in general. But yeah, that's to the
13:14:51 4 extent I understand about IDS. I just heard, you
13:14:54 5 know, something about IDS, yeah.

13:14:58 6 Q Did you consider any Information Disclosure
13:15:02 7 Statements in connection with your opinions in this
13:15:06 8 case?

13:15:06 9 A Let me double-check my report. So counsel,
13:18:17 10 I was checking at least on the technical opinions
13:18:20 11 when I formed in my report, at least I haven't found
13:18:27 12 any citation here in the technical part, you know,
13:18:31 13 that's cites a particular -- you said IDS, correct?

13:18:36 14 Q Yeah. So maybe I can help here. If you
13:18:40 15 have your declaration there, Exhibit 1003, and --

13:18:44 16 A I do.

13:18:45 17 Q -- if you turn to page 20, beginning with
13:18:49 18 paragraph 26, let me know when you have that.

13:18:54 19 A Counsel, I'm at page 20 of my report.

13:19:10 20 Q And you see paragraph 26?

13:19:15 21 A I do see paragraph 26.

13:19:18 22 Q That's the first paragraph of a section
13:19:21 23 entitled "Prosecution History," right?

13:19:23 24 A That's under the section of "Prosecution
13:19:30 25 History," that is correct.

13:19:32 1 Q And this is the section of your report where
13:19:35 2 you talk about the back-and-forth negotiation that
13:19:41 3 Credo had with the Patent Office in obtaining the
13:19:44 4 '252 patent, correct?

13:19:49 5 A Correct. It does talk about that history,
13:19:52 6 what's going through that process.

13:19:54 7 Q I'd like to jump ahead two pages to page 22,
13:20:02 8 and if you look at paragraphs 30 and 31, those two
13:20:11 9 paragraphs are talking about Aronson, correct?

13:20:14 10 A So, counsel, I see -- I do see paragraph 30.
13:20:44 11 And then here, yeah, I do see that numerous
13:20:51 12 references, including Aronson and Cornelius teaches
13:20:58 13 equalizer parameters that account for losses caused
13:21:00 14 by host-side paths. And then went down to
13:21:04 15 paragraph 31, I think that's what you mentioned,
13:21:07 16 this one I do see Aronson explains that this
13:21:12 17 invention would provide equalization to compensate
13:21:15 18 for high frequency loss in the host board traces.
13:21:20 19 And go on to say that Aronson also teaches providing
13:21:24 20 equalization/emphasis for the host-side printed
13:21:28 21 circuit board PCB and for the cables. So those are
13:21:32 22 what I provide here in my report, 30 and 31.

13:21:35 23 Q And in those two paragraphs, when you say
13:21:37 24 Aronson, you're referring to Exhibit 1005, correct?

13:21:42 25 A Aronson, I think that should be

13:22:01 1 Exhibit 1005, that's the one that -- Aronson that I
13:22:10 2 use in my report.

13:22:11 3 Q Okay. Now, in paragraph 32, you wrote, "Two
13:22:16 4 other patents related to Aronson were disclosed in
13:22:20 5 Information Disclosure Statements, both before and
13:22:23 6 after the amendment."

13:22:24 7 Did I read that correctly?

13:22:26 8 A Counsel, that is correct.

13:22:28 9 Q And here you cite to Exhibit 1002, and three
13:22:33 10 specific pages, right, page 2, page 451, and
13:22:37 11 page 640?

13:22:44 12 A I see that there's a citation on
13:22:48 13 Exhibit 1002, right, that's what you mentioned.
13:22:53 14 Yeah, and there's some page numbers afterwards.

13:22:57 15 Q And so you have -- I'm going to send you
13:23:02 16 Exhibit 1002, but I believe you also already have it
13:23:06 17 in the second of your two binders in the room with
13:23:10 18 you. So these -- the files that I'm about to send
13:23:12 19 you are quite large. Feel free to download the
13:23:15 20 PDFs, but if it's more convenient, you can also look
13:23:20 21 at the second binder to find Exhibit 1002.

13:23:20 22 (Document marked previously as

13:23:28 23 Exhibit 1002 was presented.)

13:23:28 24 A Sure, how about this, let me download first.
13:23:37 25 So, counsel, I see there are in total three parts.

13:23:40 1 Q Three parts, correct. When you're ready,
13:24:15 2 Dr. Chen, I'd like to turn to page 2 of
13:24:18 3 Exhibit 1002. Let me know when you're there.

13:24:20 4 A Sure. So counsel, I'm at page 2 of this
13:24:36 5 document.

13:24:36 6 Q On page 2 of Exhibit 10 -- let me withdraw
13:24:42 7 that.

13:24:43 8 Exhibit 1002 is a copy of what we call the
13:24:46 9 prosecution history for the '252 patent, right?

13:24:56 10 A Yeah, this one is file history excerpts for
13:25:06 11 the patent '252.

13:25:07 12 Q Okay. And on page 2 of Exhibit 1002, I'd
13:25:13 13 like to direct your attention to the middle of the
13:25:16 14 page. There is a table at the top of which are the
13:25:23 15 words "U.S. Patent," and in that table, there is a
13:25:27 16 row that says 2 in the column under the heading
13:25:31 17 "Cite number."

13:25:32 18 Do you see that?

13:25:38 19 A Counsel, are you referring to the row of
13:25:40 20 that table? The number 2, right?

13:25:46 21 Q Yes.

13:25:46 22 A Okay. Yeah, I see that there's a row and
13:25:52 23 indexed with two.

13:25:53 24 Q And in the next column of that row, there's
13:25:57 25 a number, patent number 7,401,985. Do you see that?

13:26:04 1 A Counsel, I do see that number. I do see
13:26:08 2 that number.

13:26:09 3 Q And that's a reference to the same Aronson
13:26:13 4 patent that we talked about earlier, Exhibit 2022,
13:26:17 5 correct?

13:26:19 6 A 2022, so I'm just pulling up -- I see
13:26:29 7 Exhibit 2022, the patent number is 7,401,985. So
13:26:38 8 that's the number.

13:26:41 9 Q And what Exhibit 1002 tells us here is that
13:26:48 10 the Aronson '985 patent was cited to the Patent
13:26:53 11 Office, correct?

13:27:20 12 A Counsel, yeah, I do see that's one of the
13:27:24 13 document that was cited here, yeah, in this table
13:27:34 14 and of this page, yeah.

13:27:36 15 Q Okay. So going back to your declaration,
13:27:41 16 paragraph 32, we established that you cited to
13:27:45 17 Exhibit 1002 and you cited to three specific page
13:27:49 18 numbers, right?

13:27:55 19 A Let me just go back to my report, right.

13:28:01 20 Q Yes.

13:28:02 21 A And this is -- can you please remind me
13:28:05 22 again which paragraph?

13:28:07 23 Q Yes, paragraph 32. The sentence that --
13:28:11 24 there's a citation that carries over from page 22 to
13:28:14 25 page 23. And you cited three different page numbers

13:28:17 1 in Exhibit 1002. We've just looked at the first of
13:28:21 2 those which was page number 2, right?

13:28:23 3 A Counsel, that is correct.

13:28:25 4 Q Okay. The second page number that you cite
13:28:28 5 is page 451, right?

13:28:31 6 A I see that 451.

13:28:35 7 Q And so if you could turn to page 451 of
13:28:43 8 Exhibit 1002, let me know when you have that.

13:28:47 9 A Okay, counsel, I'm at -- did you say 451 or
13:29:04 10 452?

13:29:06 11 Q I believe I said 451. Hang on just a
13:29:08 12 second.

13:29:08 13 A 451. Okay.

13:29:10 14 Q Yes, 451.

13:29:12 15 A Counsel, I'm at page 451.

13:29:14 16 Q And here we see basically the same thing we
13:29:17 17 saw on page 2, right? There's a row in the middle
13:29:21 18 of the page that has the number 2, and then it lists
13:29:24 19 the patent number for Aronson '985, right?

13:29:28 20 A Counsel, I do see this row number 2 with the
13:29:36 21 same patent number and I also see the name Aronson.

13:29:41 22 Q And this is in the Information Disclosure
13:29:44 23 Statement provided by the applicant for the '252
13:29:47 24 patent, right?

13:29:49 25 A On this page on the top left, I see that --

13:29:55 1 I do see that statement.

13:29:56 2 Q Okay. So now I'd like to go to the third
13:29:59 3 page you cited, which is page 640.

13:30:25 4 A Page 640. For some reason, I don't see
13:31:00 5 page 640 in my hard copy. Let me try yours.

13:31:04 6 Q If you look in the PDFs, you're going to
13:31:07 7 have to look at part 3. That's where page 640
13:31:09 8 appears.

13:31:13 9 A Part 3. Okay. Okay, counsel, I'm at
13:31:40 10 page 640 on the PDF document you just sent me,
13:31:44 11 part 3.

13:31:44 12 Q And this is another Information Disclosure
13:31:48 13 Statement submitted by the applicant, right?

13:31:50 14 A I'm reading on the top left box. I think
13:31:55 15 that is the statement by the applicant.

13:31:57 16 Q And there's a row a little bit below that
13:32:01 17 that has the number 7, and then a U.S. Patent
13:32:07 18 Publication Number 2007/0237464. Do you see that?

13:32:14 19 A I see that second column in that row has
13:32:21 20 2007/0237464. I see that.

13:32:25 21 Q And that is the Aronson '464 reference that
13:32:31 22 we talked about earlier in Exhibit 2023, right?

13:32:35 23 A Let me double-check. I submit 2023, the
13:32:45 24 marking -- the patent -- sorry, the patent number is
13:32:49 25 2007/0237464. I see that, counsel.

13:32:59 1 Q So in this Information Disclosure Statement
13:33:02 2 by the applicant, the applicant disclosed the
13:33:05 3 Aronson '464 reference to the Patent Office, right?

13:33:09 4 A That is in this form and the form is the
13:33:14 5 statement -- IDS by applicant.

13:33:17 6 Q Okay. Now, if we skip ahead ten pages to
13:33:23 7 page 650 of Exhibit 1002, let me know when you have
13:33:29 8 that.

13:33:30 9 A Counsel, I'm at page 650.

13:33:50 10 Q Okay. This page looks somewhat like what we
13:33:56 11 saw earlier, but there's some more information
13:33:58 12 added. And in particular, do you see the first
13:34:03 13 column has a heading that says, "Examiner Initial"?
13:34:08 14 Do you see that?

13:34:12 15 A I do see the first column, there is an
13:34:16 16 examiner initial words.

13:34:19 17 Q And do you see right below that, there is --
13:34:23 18 there are two slashes with the letters AJ between
13:34:26 19 them? Do you see that?

13:34:28 20 A Counsel, I do see slash -- AJ in between the
13:34:32 21 slash.

13:34:33 22 Q And those are the examiner's initials,
13:34:36 23 right?

13:34:37 24 A That is under the column of examiner
13:34:43 25 initial.

13:34:44 1 Q And if you go to the next page, 651, you can
13:34:47 2 see in the examiner's signature section near the
13:34:51 3 bottom. The examiner's name is Andrew Jordan,
13:34:56 4 right?

13:34:56 5 A On page 651, I do see examiner
13:35:03 6 signature/Andrew Jordan. I see that.

13:35:06 7 Q And right below the examiner's name, I'm
13:35:10 8 going to read that text. Tell me if read it
13:35:14 9 correctly. "Examiner: Initial if reference
13:35:16 10 considered, whether or not citation is in
13:35:19 11 conformance with MPEP 609."

13:35:23 12 Do you see that?

13:35:23 13 A I see the words -- the sentence that you
13:35:29 14 just -- you just read through.

13:35:31 15 Q And that means that if the examiner initials
13:35:34 16 a reference that means that the examiner has
13:35:36 17 considered that reference, right?

13:35:38 18 A So I read here, initial if reference
13:35:52 19 considered, whether or not citation is in
13:35:56 20 conformance of MPEP 609. Yeah, counsel, I'm -- I'm
13:36:09 21 trying to understand what is that conformance MPEP
13:36:13 22 609.

13:36:17 23 Q I can try to help clarify that. So you may
13:36:20 24 recall I asked earlier if you were familiar with the
13:36:23 25 Manual of Patent Examining Procedure. The acronym

13:36:28 1 MPEP refers to the Manual of Patent Examining

13:36:31 2 Procedure. Do you understand that?

13:36:36 3 A Okay. So I can see that's acronym for the

13:36:43 4 sentence, the wording that you just say, yeah.

13:36:49 5 Okay. Yeah, so to that extent, yeah, I think this

13:36:52 6 -- yeah.

13:36:53 7 Q Are you familiar with the Manual of Patent

13:36:56 8 Examining Procedure, Section 609?

13:36:58 9 A Yeah, I'm not an attorney and I don't do

13:37:05 10 this personally, so I'm not very familiar with this

13:37:10 11 -- did you say 609 is the section or page?

13:37:12 12 Q 609 is the section, yes.

13:37:14 13 A Section, okay. Yeah, I don't -- I don't

13:37:17 14 recall. I don't --

13:37:19 15 Q That's okay. So if we go back to page 650,

13:37:23 16 answer this if you know. In the left column under

13:37:28 17 the examiner initial, as we said before, there are

13:37:30 18 two slashes with the letters AJ between them, and

13:37:33 19 then there is a handwritten line that goes all the

13:37:37 20 way down --

13:37:37 21 A Sorry. I apologize. Which page?

13:37:41 22 Q Sorry. Page 650.

13:37:45 23 A 650. Okay. I apologize. I know I

13:37:47 24 shouldn't interrupt you, but --

13:37:49 25 Q No, please -- I want you to be able to

13:37:52 1 follow the documents that I'm referring to. So if
13:37:54 2 you're not following, please let me know even if you
13:37:57 3 have to interrupt me.

13:37:59 4 So are you at 650 now?

13:38:01 5 A I'm at 650. I'm there.

13:38:04 6 Q Okay. And so I'm looking back now at the
13:38:07 7 column on the left where it says "Examiner Initial"
13:38:11 8 and right below that, there are the two slashes that
13:38:14 9 we talked about with the examiner's initials AJ
13:38:17 10 between them. Do you see that?

13:38:21 11 A I see that. There's a slash and AJ in
13:38:24 12 between the slashes.

13:38:25 13 Q And then there's a line, a handwritten line
13:38:27 14 that goes to the bottom of the page with an arrow at
13:38:30 15 the bottom. Do you see that?

13:38:31 16 A I see that there's an arrow go all the way
13:38:37 17 to the bottom of the page or close to the bottom of
13:38:40 18 the page.

13:38:40 19 Q And that means that the examiner considered
13:38:43 20 all of the references listed on this page, right?

13:38:48 21 A Yeah, counsel, I think -- yeah, because I am
13:39:04 22 not familiar with all this process, you know, I have
13:39:07 23 not, you know, filed this myself, you know, in the
13:39:10 24 past. So I'm not comfortable to answer the question
13:39:15 25 whether that arrow and that passage validate the

13:39:21 1 point that you just mentioned.

13:39:22 2 Q Okay. That's fine. If you don't know,
13:39:24 3 that's fine.

13:39:25 4 So let's go back to your declaration. And
13:39:32 5 paragraph 32 which begins on page 22. Let me know
13:39:36 6 when you're there.

13:39:45 7 A I'm at page 22. Correct. And which
13:39:48 8 paragraph, counsel?

13:39:50 9 Q Paragraph 32.

13:39:52 10 A Paragraph 32. Yep. I see that.

13:39:55 11 Q So I'm going to read this first sentence
13:39:58 12 again. "Two other patents related to Aronson were
13:40:03 13 disclosed in Information Disclosure Statements, both
13:40:06 14 before and after the amendment."

13:40:08 15 Did I read that correctly?

13:40:10 16 A That is also the wording that I read here.

13:40:13 17 Q Okay. And when we go to the next page, I'll
13:40:15 18 read the next sentence. "Yet the examiner initialed
13:40:20 19 these without any evidence that he analyzed the
13:40:22 20 relevant portions."

13:40:24 21 Did I read that correctly?

13:40:28 22 A The sentence goes by "Yet the examiner
13:40:33 23 initialed this without any evidence that" the -- he
13:40:37 24 -- sorry -- "he analyzed the relevant portions." I
13:40:43 25 see that.

13:40:43 1 Q Okay. Did you write those words?

13:40:50 2 A So it's been a while. I don't recall
13:40:54 3 exactly whether I write these exact words. But in
13:40:57 4 general, related to the legal aspect, you know, I
13:41:07 5 you know, work with the counsels and all that,
13:41:09 6 right, and the technical opinion, you know, is --

13:41:12 7 MR. LIANG: I would caution -- I would
13:41:13 8 caution the witness not to reveal any privileged
13:41:16 9 communications, but you're free to answer the
13:41:20 10 question.

13:41:21 11 A Sure. Yeah, so that's to the extent that I
13:41:24 12 remember.

13:41:24 13 Q That sentence we just read -- I'll read it
13:41:29 14 again. "Yet the examiner initialed these without
13:41:32 15 any evidence that he analyzed the relevant
13:41:34 16 portions." Dr. Chen, do you know what that sentence
13:41:38 17 means?

13:41:40 18 A What it means is what it says, you know, in
13:41:47 19 the sentence, right. So the examiner initialed this
13:41:50 20 without any evidence that he analyzed the relevant
13:41:52 21 portions.

13:41:52 22 Q And do you understand that the Manual of
13:42:00 23 Patent Examining Procedure, Section 609, requires
13:42:01 24 the examiner to consider the references if he's
13:42:05 25 going to initial those lines that we looked at

13:42:07 1 before?

13:42:16 2 A Counsel, as I said, you know, I don't recall
13:42:20 3 specifically what that 609 section is, you know, and
13:42:24 4 that -- you know, so I -- yeah, so I cannot, you
13:42:33 5 know, conclude that, you know, based on that
13:42:37 6 sentence -- that whatever 609.

13:42:40 7 Q Okay. Let's go to the next sentence. I'll
13:42:43 8 read it. "The examiner also ran raw patent numbers
13:42:47 9 from the IDS in searches, but failed to consider
13:42:50 10 them for this limitation."

13:42:52 11 Did I read that correctly?

13:42:58 12 A Counsel, yeah, that sentence reads "The
13:43:01 13 examiner also ran raw patent numbers from the IDS in
13:43:05 14 searches but failed to consider them for this
13:43:07 15 limitation." That is the wording.

13:43:09 16 Q How do you know that?

13:43:49 17 A Counsel, that is what I provide here in the
13:43:51 18 report, right. Again, there are a lot of documents
13:43:58 19 that I reviewed, you know, during that time, you
13:44:04 20 know, of drafting this. So that has to be some part
13:44:10 21 of that, you know, during that review of the
13:44:13 22 documents, you know, for this particular sentence.

13:44:15 23 Q Do you know whether that sentence that I
13:44:21 24 just read is true?

13:44:28 25 A That's the opinion that I provide in the

13:44:31 1 report, right. So yeah, so.

13:44:41 2 Q I understand that it's your declaration. My
13:44:44 3 question is do you know if it's true?

13:44:52 4 A I'm pretty sure that, you know, at that
13:44:58 5 time, you know, when we prepared -- when I prepared
13:45:00 6 this report, you know, I would have the confidence,
13:45:05 7 you know, in order to write down this sentence.

13:45:09 8 Q Okay. Sitting here today, do you know if
13:45:12 9 that sentence is true?

13:45:13 10 A Sitting here today, I -- because as I
13:45:20 11 mentioned you cite all those ME -- sorry, MP -- MP
13:45:29 12 609, I don't even recall what's the detail of it.
13:45:35 13 So sitting here today, I'm not comfortable, you
13:45:40 14 know, to make comment. You know, specifically you
13:45:43 15 are asking me very specific question to those
13:45:46 16 document -- related to those document. So yeah, so
13:45:51 17 I'm not ready to comment. But like I said, I'm sure
13:45:57 18 that, you know, last year when I prepared this,
13:46:00 19 review the documents and that's the conclusion that
13:46:05 20 I provide here.

13:46:05 21 Q So you were confident of the conclusion when
13:46:10 22 you signed the declaration, but you don't know if
13:46:13 23 that estimate is true sitting here today?

13:46:16 24 MR. LIANG: Objection to form.

13:46:17 25 A Counsel, that's not what I just said. Okay.

13:46:23 1 All I'm saying is that sitting here today -- so you
13:46:28 2 can imagine there are really a lot of documents,
13:46:30 3 especially this has something to do with the IDS
13:46:34 4 procedure which I did not personally file that
13:46:36 5 myself. So there were a lot of details that I just
13:46:40 6 cannot remember sitting here today right now. So I
13:46:44 7 don't feel comfortable to make that comment here.

13:46:51 8 MR. MCMAHON: Okay. We've been going for a
13:46:55 9 little over an hour again. Let's take another
13:46:57 10 break. We can go off record.

13:46:57 11 (Whereupon, the deposition in the
13:46:57 12 above-entitled cause was recessed
13:46:57 13 to 2:24 p.m. this date.)

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13:46:57 1 A F T E R N O O N S E S S I O N

14:24:49 2 CROSS EXAMINATION (Resumed)

14:24:49 3 BY MR. MCMAHON:

14:24:56 4 Q Dr. Chen, welcome back.

14:24:58 5 A Thank you.

14:24:58 6 Q Glad you had time for lunch.

14:25:01 7 Did you talk to anybody during your

14:25:03 8 lunchtime, Dr. Chen?

14:25:04 9 A No. I was just enjoying my lunch.

14:25:08 10 Q Sounds good.

14:25:09 11 A Yeah, but as I was having my lunch, just one

14:25:12 12 thing I want to clarify a little bit, you know,

14:25:15 13 regarding this document this morning. Remember we

14:25:19 14 discussed this redriver and retimer. I just want to

14:25:21 15 emphasize that -- you know, I think I might have

14:25:23 16 mentioned this, but just in case I didn't, retimer

14:25:25 17 is actually a very well-known technique in our

14:25:28 18 field. Right. So a POSITA or engineer in our field

14:25:31 19 would understand, you know, what they need to do,

14:25:36 20 including the circuit that we talk about CDR. They

14:25:39 21 are very well-known. So when the POSITA understands

14:25:43 22 when they need a retimer, you know, in the circuits,

14:25:46 23 they would just do it. You know, all these are

14:25:49 24 well-known, you know, techniques that you can find

14:25:53 25 in papers or textbook, you know, classes. I think I

14:25:56 1 might have already mentioned this, but just in case
14:25:59 2 I didn't describe that.

14:26:02 3 Q Thank you. At any point during the
14:26:06 4 deposition today during breaks, have you discussed
14:26:08 5 your testimony with Marvell's counsel?

14:26:12 6 A No, not at all.

14:26:14 7 Q Okay. If -- before we broke, we were
14:26:29 8 looking at your declaration, Exhibit 1003 on
14:26:32 9 page 23. If you could go back to that.

14:26:42 10 A Page 23 of my declaration, correct?

14:26:49 11 Q Correct.

14:26:50 12 A Okay. Not the paragraph. Is it
14:26:53 13 paragraph or page?

14:26:54 14 Q Page 23, paragraph 33.

14:26:56 15 A I'm sorry. All right. Okay, counsel, I'm
14:27:02 16 at page 23.

14:27:03 17 Q I'm just going to read that first sentence.
14:27:06 18 "Although patents in the same family as Lugthart
14:27:09 19 (see below Section V.C.1) and Aronson were disclosed
14:27:15 20 during prosecution, the prosecution history makes it
14:27:17 21 clear that neither of these references were analyzed
14:27:19 22 for limitation 1e."

14:27:21 23 Did I read that correctly?

14:27:22 24 A Counsel, I do see this paragraph 33, and I
14:27:29 25 see the sentence, "Although patents in the same

14:27:31 1 family as Lugthart and Aronson were disclosed during
14:27:36 2 prosecution, the prosecution history makes it clear
14:27:40 3 that neither of these references were analyzed for
14:27:42 4 the limitation 1e." I see that, counsel.

14:27:46 5 Q Now, before the break, we looked at those
14:27:50 6 Information Disclosure Statements and the examiner's
14:27:53 7 initials and confirmed that the examiner considered
14:27:55 8 these references, right?

14:28:01 9 A Counsel, it's what we have checked before
14:28:04 10 the break, we did go through those pages -- two
14:28:08 11 pages, three pages. I do see those rows, right, and
14:28:16 12 you know, cite that patents. So that's to the
14:28:19 13 extent that I -- that I see.

14:28:23 14 Q Okay. Isn't it possible that the examiner
14:28:27 15 did consider those references and just disagrees
14:28:29 16 with you?

14:28:31 17 MR. LIANG: Objection to form.

14:28:33 18 A Counsel, I'm not sure that question. Did
14:28:40 19 you say that examiner -- are we talking about that
14:28:47 20 examiner AJ? Is that --

14:28:50 21 Q Yes, Andrew Jordan, yes.

14:28:52 22 A Right, right. Counsel, I don't know this
14:28:55 23 particular examiner, so I do not know what, you know
14:29:01 24 -- what he would say or what. All I checked as we
14:29:07 25 went through this morning, you know, I do see the

14:29:10 1 document and I do see that the initial with slash AJ
14:29:16 2 slash, and I do see the patent and the number that
14:29:19 3 you quoted. Okay. So that's to the extent that I
14:29:22 4 do see.

14:29:23 5 Q Okay. All right. Let's turn to some of the
14:29:28 6 references that you considered. We haven't talked
14:29:31 7 yet about Cornelius. That is Exhibit Number 1006.
14:29:43 8 So I will send that. I know you have a copy of it,
14:29:46 9 but I'm going to put a copy in the Zoom chat both
14:29:51 10 for you and for the court reporter.

14:29:53 11 (Document marked previously as
14:29:54 12 Exhibit 1006 was presented.)

14:29:54 13 BY MR. MCMAHON:

14:30:05 14 Q So, Dr. Chen, you should now have
14:30:07 15 Exhibit 1006 in the Zoom chat as well as in I think
14:30:11 16 the first of your two binders. Let me know when you
14:30:14 17 have that.

14:30:14 18 A Sure. I'm just downloading it first. I
14:30:31 19 download it and I also have the hard copy in the
14:30:35 20 binder one for the Cornelius, yes.

14:30:39 21 Q Okay. And if you can keep that open at the
14:30:43 22 same time, I also want to refer to -- well,
14:30:47 23 actually, yeah. So if you look at -- sorry, give me
14:30:54 24 just a moment --

14:30:56 25 A No problem.

14:30:56 1 Q -- to close some of my PDF tabs.

14:31:21 2 A Counsel, do you mind I go -- I close the
14:31:24 3 door? I forgot to close the door.

14:31:26 4 Q Go ahead.

14:31:27 5 A Sorry about that.

14:31:28 6 Q No problem.

14:31:52 7 A Counsel, I'm back.

14:31:54 8 Q Okay. So I would like you to keep Cornelius
14:31:59 9 available because I want to refer to that. But I
14:32:01 10 also want you to look at a second document at the
14:32:04 11 same time, your declaration, paragraph 62 which is
14:32:07 12 on page 37.

14:32:38 13 A Counsel, I'm at page 37, paragraph 62 of my
14:32:44 14 report.

14:32:44 15 Q And in that paragraph, you note that
14:32:51 16 Cornelius refers to different standards, including
14:32:58 17 USB, PCIe, and display port, right?

14:33:06 18 A Counsel, I do see that USB, PCIe, and
14:33:11 19 display port standards.

14:33:13 20 Q And in the next sentence, you wrote,
14:33:16 21 "Cornelius cites to several known communication
14:33:19 22 standards, including PCIe, DP, and ethernet."

14:33:25 23 Did I read that correctly?

14:33:29 24 A I believe it is correct.

14:33:31 25 Q Now, to be clear, Cornelius does not refer

14:33:36 1 to ethernet anywhere in the description of the
14:33:39 2 invention, correct?

14:33:45 3 A Counsel, let me just check.

14:33:50 4 Q Sure.

14:34:40 5 A Counsel, you know, as I point out, you know,
14:34:43 6 in my -- in this page of my report, you see that,
14:34:49 7 you know, I refer to this under other publications,
14:34:53 8 and there you can see there's an ethernet, you know,
14:34:57 9 standard that Cornelius was citing to. And then
14:35:02 10 also, because Cornelius does talk about having
14:35:08 11 different standards and I think, you know, one of
14:35:12 12 the part of the specification talk about high-speed
14:35:16 13 IOs. So I think the POSITA would understand that,
14:35:20 14 you know, ethernet is one of the standard that being
14:35:23 15 considered.

14:35:24 16 Q Dr. Chen, I appreciate that you have an
14:35:27 17 opinion on that, but that was not my question. My
14:35:30 18 question is this and I'll be a little bit more
14:35:32 19 specific. In Exhibit 1006, there are 14 columns of
14:35:38 20 text beginning on page 13 of the exhibit. Do you
14:35:44 21 see those 14 columns?

14:35:48 22 A Counsel, let me just quickly check.

14:35:58 23 Counsel, I do see 14 columns in Cornelius.

14:36:02 24 Q Nowhere in those 14 columns did Cornelius
14:36:05 25 mention ethernet, right?

14:36:11 1 A Counsel, I'm just going through Cornelius
14:36:36 2 because I do recall specifically on the HSIO,
14:36:41 3 because that really refer to the high-speed IOs, you
14:36:45 4 know as one of the standard potential, you know, I
14:36:49 5 think they talk about, you know. There could be
14:36:52 6 some you know, high-speed IO standards and that's
14:36:57 7 how you can kind of use their teaching. So I'm just
14:37:02 8 trying to find that portion.

14:37:09 9 Q And while you're doing that, Dr. Chen, I
14:37:11 10 just want to be clear, I'm looking to know whether
14:37:14 11 the word ethernet appears anywhere in columns 1
14:37:18 12 through 14? That's the question. It's that simple,
14:37:22 13 yes or no?

14:37:24 14 A Sorry, let me just -- so I tried to look for
14:37:40 15 column 1 to 14. I do see HSIO. It is true at
14:37:51 16 least, you know, for now when I go through this I
14:37:55 17 don't see the exact word of "ethernet" if that's
14:37:57 18 what you're asking. However, like I said, the
14:38:00 19 POSITA would look at this high-speed IO and because
14:38:02 20 they also cite in other publication being cited as
14:38:08 21 one of the high-speed standard, a POSITA would
14:38:10 22 understand that, okay, this can refer to the
14:38:14 23 ethernet protocol.

14:38:17 24 Q So for example, in column 4 of Cornelius,
14:38:25 25 beginning around line 10 -- let me know when you're

14:38:30 1 there.

14:38:33 2 A I'm -- did you say column 4?

14:38:36 3 Q Yes.

14:38:37 4 A Okay. And sorry, which line were you

14:38:42 5 referring to?

14:38:42 6 Q Beginning at column 10, here's one of the

14:38:45 7 places that Cornelius talks about HSIO, right?

14:38:50 8 A Sorry. Column 10, right?

14:38:53 9 Q Column 4, line 10.

14:38:55 10 A Line 10. Sorry. Yep, I see that column 4,

14:39:10 11 line 10. Starting line 10 there's a few mention

14:39:14 12 about the HSIO signals.

14:39:16 13 Q And in that same paragraph, Cornelius refers

14:39:19 14 to display port, right?

14:39:30 15 A Display port is one of the signal that in

14:39:36 16 this paragraph mention as HSIO, yeah, correct.

14:39:41 17 Q It's an example of HSIO, right?

14:39:43 18 A It's one example, correct.

14:39:45 19 Q If you go to the next page, column 5, in the

14:39:51 20 paragraph that begins on line 18, Cornelius refers

14:39:56 21 to other standards, HDMI and DVI. Do you see that?

14:40:03 22 A Around line 18, you say? Right? Column 5.

14:40:10 23 Q The paragraph -- yeah, the

14:40:13 24 paragraph beginning on line 18. In that paragraph,

14:40:16 25 Cornelius refers to HDMI and DVI, right?

14:40:21 1 A The cable adapter may provide signal to an
14:40:27 2 HDMI or DVI type of sink or endpoint. I see that.
14:40:32 3 I see that passage here.

14:40:34 4 Q Okay. And we can agree that display port is
14:40:40 5 not the same thing as ethernet, right?

14:40:42 6 A It is a different protocol.

14:40:45 7 Q And HDMI is different from ethernet?

14:40:50 8 A It is different protocol, right. But as I
14:40:54 9 point out earlier, you know, they are all various
14:40:58 10 protocol and that the teaching of the Cornelius is
14:41:00 11 to accommodate multiple protocols. And the two
14:41:03 12 specific -- paragraph, counsel, you point out are
14:41:06 13 basically two examples, right, so two embodiments.

14:41:10 14 Q Dr. Chen, listen. I would really like to
14:41:12 15 get through this as quickly as possible. If you
14:41:15 16 could constrain your answers to the questions I am
14:41:17 17 asking. I know you would like to say more. Your
14:41:20 18 counsel is free to ask you questions when I'm
14:41:22 19 finished and you can answer anything more you want
14:41:24 20 to provide. But you're really going beyond the
14:41:26 21 scope of my questions. If you could constrain your
14:41:30 22 answers to my questions, I would appreciate it.

14:41:32 23 My next question is this, can we agree that
14:41:35 24 DVI is not the same thing as ethernet?

14:41:41 25 A Counsel, I think I just answered that

14:41:43 1 question. DVI is another protocol just like

14:41:47 2 ethernet is another protocol.

14:41:49 3 Q And they are not the same protocol?

14:41:50 4 A They are two different protocols.

14:41:51 5 Q And nowhere in columns 1 through 14 does
14:41:55 6 Cornelius mention the ethernet protocol, correct?

14:41:58 7 A Counsel, I think I answered that question
14:42:02 8 earlier. So from column 1 to 14, I do not see the
14:42:07 9 exact word of "ethernet." But like I said, you
14:42:11 10 know, it is another protocol and that's what
14:42:14 11 Cornelius was teaching to share between different
14:42:18 12 protocols.

14:42:19 13 Q If you could look at the drawings, please.
14:42:22 14 The drawings appear in Cornelius on sheets 1 through
14:42:26 15 10. Do you see those? It says Sheet 1 of 10, 2 of
14:42:32 16 10, 3 of 10 at the top of the page.

14:42:34 17 A Counsel, which page are you referring to?

14:42:36 18 Q So page 3 of Cornelius shows Figures 1
14:42:42 19 and 2. Do you see that?

14:42:48 20 A Sorry. Page 3, I see the page 3.

14:42:53 21 Q And at the top it says, Sheet 1 of 10. Do
14:42:56 22 you see that?

14:42:59 23 A Sheet 1 of 10. I see that, counsel.

14:43:02 24 Q And then the figures continue on that page
14:43:05 25 and the next nine pages through Sheet 10 of 10,

14:43:09 1 right?

14:43:10 2 A I see that.

14:43:14 3 Q And that goes through Figure 11, right?

14:43:17 4 A Figure 11 and that's Sheet 10 of 10, I see
14:43:29 5 that, counsel.

14:43:30 6 Q Would you agree that the word "ethernet"
14:43:34 7 does not appear anywhere in those figures? Yes or
14:43:39 8 no?

14:43:39 9 A Counsel, yeah, so on this Sheet 10 through
14:44:13 10 Sheet 10 among those figures, I do not see the
14:44:16 11 specific words "ethernet" but as I say, I do see
14:44:21 12 this HS10 and that's what I mentioned a few times,
14:44:24 13 you know, that's where you can impose this ethernet
14:44:29 14 protocol signal.

14:44:30 15 Q And so the only places anywhere in cornelius
14:44:35 16 that the word ethernet "appears" are both on page 2,
14:44:39 17 right?

14:44:43 18 A Counsel, if I search the word "ethernet," I
14:44:56 19 do get two hits, you know, specifically on page 2 of
14:45:02 20 this Cornelius, you know, again as one of the
14:45:06 21 high-speed protocol that, you know, he's thinking
14:45:08 22 about to accommodate.

14:45:10 23 Q And this — the word "ethernet" appears here
14:45:13 24 in the list of other publications that were cited in
14:45:18 25 Cornelius, right?

14:45:21 1 A Counsel, the exact -- the word -- sorry, the
14:45:25 2 exact word "ethernet" was hit twice on page 2, that
14:45:30 3 is correct.

14:45:30 4 Q And it's your opinion that because the word
14:45:35 5 "ethernet" appears twice on page 2 under "Other
14:45:39 6 Publications," one of ordinary skill in the art
14:45:41 7 would understand that Cornelius applies to ethernet?

14:45:46 8 A For the reason -- counsel, for the reason I
14:45:49 9 mentioned earlier, because Cornelius talk about
14:45:53 10 having multiple standard -- so let's go to the
14:45:57 11 abstract. Okay. How about this? If you can please
14:46:01 12 go to the abstract. So an exemplary embodiment of
14:46:05 13 the present invention provides a connector that
14:46:07 14 provides signals compatible with a legacy standard
14:46:13 15 in one mode and a newer standard in another mode.
14:46:16 16 Okay.

14:46:16 17 So, counsel, a POSITA would read this and
14:46:21 18 understand, okay, what Cornelius is teaching is that
14:46:24 19 there can be some legacy standard -- along the line
14:46:28 20 that, counsel, you mentioned earlier DVI, HDMI, and
14:46:31 21 so on and so forth, but there could be a new
14:46:35 22 standard in another mode. And what a POSITA would
14:46:37 23 do is that they just look at, okay, let me take a
14:46:40 24 look. Cornelius, you know, provides a few standard,
14:46:43 25 including the page 2 of the document, right.

14:46:46 1 So I think that's how I would read, that's
14:46:49 2 how a POSITA would read, you know, when they look at
14:46:52 3 this Cornelius document. But you are right, you
14:46:55 4 know, that exact word of ethernet, it does show up
14:47:01 5 on page 2 two times exactly to be precise.

14:47:04 6 Q For the same reason, there is no place in
14:47:21 7 Cornelius that mentions ethernet plugs, correct?

14:47:26 8 MR. LIANG: Objection to form.

14:47:27 9 A Counsel, we just went through the document.
14:47:35 10 We already see that the exact word, if that's what
14:47:39 11 you're looking for, the exact hit was on page 2 of
14:47:44 12 the document. However, you know, I do want to point
14:47:48 13 out, you know, Cornelius, you know, point out this
14:47:51 14 active plug, right. So if you can even please go to
14:47:55 15 the title page you see that 500, 505 active plug,
14:48:00 16 right. So POSITA look at this and say, okay, you
14:48:04 17 know, that's where you can -- you can do this active
14:48:07 18 plug and having this ethernet, you know, being one
14:48:11 19 of them. DVI is another one we just talk about,
14:48:14 20 right. HDMI is another one.

14:48:16 21 So I think, yeah -- so I think specifically
14:48:19 22 if you are looking for the exact words on the
14:48:21 23 ethernet, sure, that's on page 2. But again, POSITA
14:48:26 24 look at this, they understand, okay, that's active
14:48:28 25 plug to carry those different standards or

14:48:33 1 protocols.

14:48:34 2 Q That's your opinion after reading Cornelius,
14:48:36 3 right?

14:48:38 4 A I think that's what a POSITA -- this is the
14:48:42 5 people in my field, in our field, that's how they
14:48:44 6 would understand. And again, counsel, you know,
14:48:46 7 that's why I went through the abstract, right, to
14:48:50 8 kind of look at, you know, what Cornelius precisely
14:48:55 9 teaches. And I think that's what the POSITA or
14:49:00 10 myself would understand, you know, the teaching of
14:49:03 11 Cornelius.

14:49:04 12 Q Cornelius does not teach data speeds of 50
14:49:08 13 gigabaud or higher, correct?

14:49:12 14 A Counsel, let me double-check because you
14:49:19 15 asked a very specific question on this rate of 50
14:49:22 16 gigabaud.

14:49:24 17 Q I'll withdraw that. Let me ask a different
14:49:26 18 question.

14:49:27 19 A Okay.

14:49:27 20 Q In your declaration, you have not opined
14:49:31 21 that Cornelius teaches a data rate of 50 gigabaud,
14:49:35 22 correct?

14:49:38 23 A Let me, let me just double-check. I have
14:49:43 24 referred to one of the ground that I offer my
14:49:47 25 opinions. Let me just double-check that.

14:49:58 1 Q You might want to look at page 113 of your
14:50:01 2 declaration.

14:50:02 3 A Right, right. Yep, that's right. So
14:50:08 4 counsel, it is correct claim 5 is discussing about
14:50:12 5 the 50 gigabaud -- sorry, in excess of 50 gigabaud.
14:50:19 6 And this is using ground two. And specifically you
14:50:36 7 can see from paragraph 185, 186 where I use
14:50:41 8 Lugthart -- the Lugthart reference for this specific
14:50:46 9 teaching, correct.

14:50:47 10 Q And Lugthart is the only reference you cite
14:50:50 11 as teaching 50 gigabaud or higher, correct?

14:50:56 12 A Let me check. Yeah, I'm reading 185, this
14:51:08 13 is Lugthart where I talk about this 50 gigabaud.
14:51:13 14 And 186 -- let me just double-check real quick.
14:51:23 15 This is also Lugthart.

14:51:26 16 Q The teachings that you point to in Lugthart
14:51:34 17 were considered by the examiner during prosecution,
14:51:37 18 right?

14:51:43 19 A Let me double-check. But counsel, if you
14:51:56 20 know which paragraph that I discuss this, you know,
14:51:59 21 you might help me a little bit here, but otherwise,
14:52:02 22 I will note it myself.

14:52:04 23 Q I don't know that you discuss that in your
14:52:06 24 declaration. But this goes to the point we
14:52:08 25 discussed earlier about the two different Lugthart

14:52:14 1 references. You chose to rely on Lugthart '706, the
14:52:19 2 examiner considered a different Lugthart reference,
14:52:24 3 Lugthart -- sorry, bear with me -- Lugthart '993,
14:52:40 4 which has the same disclosure.

14:52:42 5 So my question is this, do you agree that
14:52:44 6 the examiner considered the same teachings that you
14:52:47 7 now rely upon for the 50 gigabaud speed?

14:52:55 8 A Counsel, yeah, a couple things. You know,
14:52:57 9 as we just went through, I also agree that, you
14:53:01 10 know, on that form, those pages, I do see
14:53:03 11 specifically Aronson citing in those forms. Okay.
14:53:08 12 So that's Number 1. Number 2, I guess, counsel, you
14:53:12 13 are asking me whether this -- bear with me -- '985
14:53:20 14 or '464 would also teach this 50 gigabaud.

14:53:28 15 Q No. That's Aronson. I'm talking about the
14:53:32 16 two Lugthart references.

14:53:34 17 A Oh, I'm sorry.

14:53:37 18 Q Let me try to clarify. You cite to Lugthart
14:53:40 19 '706?

14:53:42 20 A '706, correct.

14:53:43 21 Q The examiner considered Lugthart '993 which
14:53:47 22 includes the same teachings, right?

14:53:51 23 A Lugthart '993 is one of the entry that we
14:53:56 24 just read this morning, right, on that form, yes.

14:53:59 25 Q So the examiner considered those teachings,

14:54:03 1 right?

14:54:09 2 A Sorry.

14:54:11 3 MR. LIANG: Objection to form.

14:54:18 4 A Yeah, counsel, I think we discussed earlier
14:54:22 5 what I do confirm sitting here today is that I do
14:54:25 6 see that Lugthart '993 appear in that form, right.
14:54:31 7 I forgot which page. So one of the three pages we
14:54:34 8 went over. Yeah. And the question you are asking
14:54:43 9 me is that does '993 talk about gigabaud? Is that
14:54:51 10 your question, counsel?

14:54:53 11 Q My question is whether you agree that the
14:54:57 12 examiner considered the same references -- the same
14:55:01 13 disclosure that you rely upon for the 50 gigabaud
14:55:05 14 speed?

14:55:07 15 A Yeah, counsel, you know, I don't know
14:55:10 16 personally the examiner. I cannot speak for his
14:55:15 17 mind. Yeah, but all I do see is that I do see this
14:55:20 18 '993 appear as that row in that page that we
14:55:25 19 overview -- sorry -- we review this morning. But I
14:55:32 20 really cannot speak for his mind.

14:55:34 21 Q Okay, give me just a moment.

14:55:46 22 Dr. Chen, you can turn now to Exhibit 1007,
14:55:51 23 which is the Samaan reference.

14:56:08 24 A Counsel, I'm at Samaan reference.

14:56:11 25 Q Let's start with the 50 gigabaud. You do

14:56:36 1 not rely on Samaan for any teaching of 50 gigabaud
14:56:40 2 speeds, right?

14:56:41 3 A So, counsel, on those two paragraphs we just
14:56:49 4 review, yeah, that was -- I was using Lugthart for
14:56:53 5 that 50 gigabaud.

14:56:56 6 Q Okay. And would you agree that Samaan does
14:57:00 7 not describe an active ethernet cable?

14:57:05 8 A Just one second. Let me just pull up that.
14:57:57 9 Counsel, would you mind sending me that Samaan PDF,
14:58:00 10 please?

14:58:00 11 Q Yes.

14:58:01 12 A I apologize. I cannot find my chat.

14:58:09 13 Q My apologies. I may not have sent it. I'll
14:58:15 14 send it right now.

14:58:16 15 A Okay. Thank you. Thank you.

14:58:44 16 Q While you're looking at that, I also did not
14:58:48 17 send you the Lugthart reference that we talked
14:58:53 18 about. I think you have a copy in your binder, but
14:58:55 19 I'm sending that now too so you have it.

14:59:00 20 A Sure, appreciate it.

14:59:00 21 (Document marked previously as

14:59:00 22 Exhibit 1007 was presented.)

14:59:00 23 (Document marked previously as

15:00:31 24 Exhibit 1004 was presented.)

15:00:31 25 A Okay, counsel. Let me just make sure that I

15:02:39 1 understand the question. The question is that
15:02:41 2 whether Samaan teaches ethernet, right, in his
15:02:44 3 teaching?

15:02:45 4 Q A little bit different. My question is
15:02:51 5 Samaan does not teach -- does not describe an active
15:02:54 6 ethernet cable, correct?

15:02:59 7 A So, counsel, if I can please direct your
15:03:11 8 attention to paragraph 67 of my report. So here as
15:03:24 9 I said here, Samaan applies his teaching to cables.
15:03:28 10 For example, when discussing retimer hot plug,
15:03:31 11 Samaan teaches why retimer are usable in reversible
15:03:36 12 cable. Samaan explains how retimers are used with
15:03:40 13 SFI and elsewhere teaches cable application for SFI.

15:03:46 14 There's a quote, "Furthermore, in the case
15:03:48 15 of USB3, SATA3, and even SFI, the cables or devices
15:03:54 16 connected to a host may vary in length." When
15:03:58 17 discussing SFI, Samaan cites to the specification
15:04:02 18 for SFP+ which is the small form factor pluggable
15:04:08 19 module standard that provides native support for
15:04:13 20 various ethernet standards, for example, 1 gigabit
15:04:17 21 ethernet, 10 gigabyte ethernet, and SFP+ modules
15:04:23 22 were also frequently used for active ethernet cable.
15:04:30 23 For example, the data sheet for TE, you know, SFP+
15:04:36 24 cables, for example for the Cisco cable, and also
15:04:39 25 the video. I think we might have reviewed that this

15:04:45 1 morning, that also using the SFP+ for the active
15:04:53 2 cables.

15:04:54 3 So yeah, so this combination, you know,
15:04:58 4 basically apply this known technique to a known
15:05:01 5 device, you know, that was ready for improvement to
15:05:05 6 pretty typical results. So that's one thing that I
15:05:10 7 have, you know, offered, you know, already in my
15:05:13 8 report.

15:05:14 9 And, counsel, I would also like to point out
15:05:16 10 that in Samaan document, there's a mention of a
15:05:24 11 10 gigabyte-KR standard and that is the 10 gigabyte
15:05:32 12 ethernet. Okay. So there are components, right, in
15:05:38 13 the combination that I just described that, you
15:05:41 14 know, Samaan has been able to use the Samaan
15:05:46 15 teaching there, you know, for the -- pairing the
15:05:55 16 ethernet signal on this active cable.

15:06:00 17 Q Dr. Chen, do you agree that a high-speed
15:06:01 18 serial bus is not the same thing as ethernet?

15:06:09 19 A The high-speed serial link or serial bus or
15:06:13 20 high-speed communication, that's the field, right.
15:06:16 21 So I think I might have mentioned earlier in the
15:06:18 22 morning those ethernet, like the one that we discuss
15:06:23 23 here, you know, active ethernet or PCIe, right,
15:06:28 24 express, you know, they are all part of this field.
15:06:31 25 Right. So they are all, you know, part of this.

15:06:34 1 It is true there are different product
15:06:37 2 types, right, different standards and that's
15:06:40 3 understandable. I think that's what a POSITA would
15:06:44 4 understand, yeah. But they are all, you know,
15:06:47 5 sitting within this -- I think you mentioned earlier
15:06:52 6 high-speed serial link or bus, yeah. So yeah, so
15:06:56 7 that's how a POSITA would understand.

15:07:00 8 Q So it's your opinion that ethernet is a
15:07:04 9 high-speed serial bus?

15:07:09 10 A Since we are -- counsel, since we talk about
15:07:12 11 this, you know, active ethernet cable a lot today,
15:07:15 12 right, so those high-speed link, you know, 10 gig,
15:07:20 13 even we just talk about over 50 gigabaud, right, so
15:07:24 14 they are certainly within this, you know, high-speed
15:07:28 15 link, right, or high-speed communication. Yeah, so
15:07:31 16 a POSITA would understand this would be one of the
15:07:35 17 representative example of the high-speed link.

15:07:39 18 Q So I'm asking a little bit more specific
15:07:41 19 question. My question is is it your opinion that
15:07:44 20 ethernet is a high-speed serial bus?

15:07:53 21 A Counsel, yeah, so ethernet, right -- so what
15:07:57 22 kind of product that are used, you know, for the
15:07:59 23 ethernet, right. So active ethernet cable is one of
15:08:03 24 them. And it happened that today we discuss a lot.
15:08:07 25 Yes, there are high-speed serial link, right, or

15:08:11 1 high-speed link or high-speed IO or high-speed
15:08:14 2 communication, that's usually the words that we
15:08:16 3 usually use in our field. Yeah, so you know,
15:08:21 4 especially as you can see today a lot of AI data
15:08:24 5 center, right. So those -- speed, you know, of
15:08:29 6 those ethernet is really, really high-speed now,
15:08:32 7 right. So for those -- a lot of popular, you know,
15:08:36 8 application in the field in our society even, right.
15:08:41 9 So that's what we are dealing with. So yeah, so I
15:08:45 10 think there's a lot of -- there's mainstream active,
15:08:49 11 you know, ethernet, you know, cable, that they are
15:08:53 12 high-speed, you know, communication.

15:08:56 13 Q Dr. Chen, can you answer this question with
15:08:58 14 a simple yes or no? Is ethernet a high-speed serial
15:09:03 15 bus?

15:09:05 16 A Counsel, because that's -- you are referring
15:09:10 17 that to an ethernet extender, right. And what I
15:09:13 18 describe is that, you know, this, you know, active,
15:09:17 19 you know, ethernet cable, you know, it is considered
15:09:20 20 as the, you know, high-speed, you know, serial link.

15:09:24 21 Q So I'm asking a -- I'm using different
15:09:28 22 words, Dr. Chen, and I'm asking for a simple
15:09:30 23 yes-or-no answer. If you don't know the answer, you
15:09:32 24 can say I don't know. But please answer, yes, no or
15:09:35 25 I don't know.

15:09:36 1 Is ethernet a high-speed serial bus?

15:09:38 2 A Counsel, in order for me to answer that
15:09:43 3 question, right, I need to know what context that
15:09:46 4 you are talking about, right. So you can be talking
15:09:49 5 about ethernet switch, for example. That's another
15:09:54 6 product. Ethernet cable specifically that we are
15:09:57 7 discussing today this morning and also this
15:09:59 8 afternoon, that is the one, you know, they are
15:10:03 9 high-speed. They are high-speed serial link. They
15:10:07 10 are high-speed communication, right.

15:10:09 11 So I think all I'm saying here is that, you
15:10:14 12 know, we wanted to make sure that, you know, when
15:10:17 13 you talk about this ethernet, you know, what kind of
15:10:20 14 ethernet you are referring to, you know. Similarly
15:10:24 15 if I tell you, okay, wi-fi, wi-fi has different
15:10:27 16 generation, has different standard. So if I want to
15:10:31 17 make some comment on a particular wi-fi extender, by
15:10:37 18 the way, not just myself, a POSITA would have to
15:10:39 19 understand, okay, are you talking about Wi-Fi 6, are
15:10:43 20 you talking about wi-fi 7 as an example. So that's
15:10:46 21 where this comes from, counsel.

15:10:49 22 Q Okay. So you cannot answer that question
15:10:54 23 with a simple yes, no, or I don't know?

15:10:57 24 A Unless I have a concrete, you know,
15:11:00 25 structures, right, to context — sorry, not

15:11:04 1 structure -- context, so what type of ethernet you
15:11:07 2 are talking about -- you are referring to -- sorry.
15:11:09 3 Just like, you know, when I talk about wi-fi, you
15:11:12 4 know, I would have to say, okay, this is Wi-Fi 6,
15:11:15 5 wi-fi 7, or are you talking about 4G, are you
15:11:21 6 talking about 5G, or are you talking about 6G.

15:11:24 7 So I think that's very typical actually in
15:11:26 8 our field to kind of put things in the context so
15:11:29 9 that, you know, when we communicate, when we
15:11:31 10 discuss, when we explain to our colleagues, that's
15:11:38 11 kind of what we do.

15:11:40 12 Q It's important to be precise, right?

15:11:44 13 A It is important and exactly because of that.
15:11:47 14 That's why I actually do need to understand
15:11:51 15 precisely, for example, that wi-fi example are you
15:11:54 16 referring to Wi-Fi 6, are you referring to wi-fi 7,
15:11:58 17 like that, right, precisely for the -- for that
15:12:03 18 precise, you know, answer to the question.

15:12:06 19 Q When we're talking about the context of the
15:12:08 20 prior art, it's important to be precise?

15:12:12 21 A The prior art are precise, right. So
15:12:17 22 whenever, you know, I cite to a particular prior
15:12:20 23 art, you know, I try my best, you know, to single
15:12:23 24 out, okay, this is the passage, right, this is the
15:12:26 25 component or maybe this is the figure that they are

15:12:29 1 showing exactly for that preciseness.

15:12:31 2 Q Dr. Chen, I'm sending you another exhibit.

15:12:48 3 I think we talked about this, but I'm not sure I

15:12:50 4 sent this to you. This is Exhibit 1005, Aronson,

15:12:53 5 and specifically the Aronson '389 reference.

15:12:53 6 (Document marked previously as

15:13:00 7 Exhibit 1005 was presented.)

15:13:00 8 A Sure, so let me save it. Counsel, I

15:13:21 9 download your document and I also see in my binder I

15:13:24 10 do have Exhibit 1005, Aronson.

15:13:28 11 Q Okay. Aronson is directed to an active

15:13:34 12 optical cable, right?

15:13:39 13 MR. LIANG: Objection to form.

15:13:43 14 A So, counsel, if you can please -- so I'm

15:14:22 15 just reading the document you just sent me in the

15:14:24 16 abstract section of Aronson. If you can please look

15:14:31 17 at the abstract. So here -- so first of all, you

15:14:36 18 know, Aronson talk about active cable. That's the

15:14:39 19 first sentence that Aronson talk about, an active

15:14:42 20 cable that is configured to communicate over much of

15:14:47 21 its length using one or more optical fibers and that

15:14:52 22 includes a -- sorry, integrated electrical

15:14:55 23 connectors at at least one end and so on and so

15:15:01 24 forth.

15:15:01 25 However, the passage I would like to direct

15:15:03 1 your attention is the last one. The cable --
15:15:06 2 because we're talking about active cable. The cable
15:15:10 3 may be an electrical to optical cable -- which I
15:15:13 4 think you referred earlier -- and electrical to
15:15:16 5 electrical cable, or one of many other potential
15:15:20 6 configuration. So I think this teaching by Aronson,
15:15:26 7 you know, has various, you know, coverage. So
15:15:28 8 basically it's active cable and it talk about
15:15:33 9 electrical. He also talk about optical, yeah.

15:15:37 10 Q So I want to be very clear. When you refer
15:15:40 11 in the abstract to the text that says "electrical to
15:15:44 12 electrical cable," is it your opinion that Aronson
15:15:48 13 is referring -- sorry. Let me withdraw that.

15:15:53 14 When Aronson says electrical to electrical
15:15:56 15 cable, is it your opinion that that is not an
15:15:59 16 optical cable in Aronson's disclosure?

15:16:07 17 A In fact -- in fact, counsel, if you can
15:16:13 18 please go to Figure 10 of Aronson. Do you see that?

15:16:21 19 Q I do.

15:16:22 20 A Okay. So this one, if you can see the words
15:16:29 21 there, you know, for example, somewhere in the
15:16:31 22 middle, right, you see that long, skinny section.
15:16:34 23 That's usually we consider is a cable section. And
15:16:39 24 then you can see that there's a copper twisted pair
15:16:42 25 or coax, yeah. So I think that is consistent to

15:16:49 1 what we just went through in the abstract. And then
15:16:51 2 of course, you know, there is also fiber part which
15:16:54 3 is an optical part, right.

15:16:55 4 So I think earlier in the figure I think
15:17:01 5 they also show the fiber there -- the fiber there.
15:17:14 6 So yeah, so I think as I say, Aronson teaches --
15:17:17 7 what it really tried to teach is the active cable,
15:17:22 8 right. And in the embodiment here, yes, it can be
15:17:24 9 optical which is fiber or it could be copper, though
15:17:27 10 usually when a POSITA look at the copper, they know
15:17:30 11 it's electrical. So you don't carry the photons on
15:17:34 12 the electrical copper -- sorry, the copper, I should
15:17:38 13 say copper material.

15:17:39 14 Q Dr. Chen, if you'd go to the first page, go
15:17:44 15 back to the first page of Aronson '389.

15:17:48 16 A First page.

15:17:52 17 Q Can you please read the title? What's the
15:17:54 18 title of Aronson '389?

15:17:56 19 A The title of Aronson says "Active optical
15:18:05 20 cable with integrated eye safety." So that's the
15:18:11 21 title read. And, counsel as I said, you know,
15:18:13 22 usually when we read the patent, we are not just
15:18:16 23 reading the title. We also read the abstract and we
15:18:19 24 look at the figure, right. So that's usually how we
15:18:22 25 get a broad view of what of this patent is really

15:18:26 1 about.

15:18:26 2 Q Dr. Chen, I understand you'd like to answer
15:18:29 3 questions other than the ones that I'm asking, but
15:18:31 4 again, I'm going to ask you to please constrain your
15:18:33 5 answers to the questions I'm asking. Your counsel's
15:18:35 6 free to ask follow-up questions if he so chooses.
15:18:38 7 That will be the time for you to provide other
15:18:40 8 information that's not responsive to my questions.

15:18:42 9 Who is the assignee of Aronson '389?

15:18:49 10 A Sorry. Can you please repeat that, who
15:18:53 11 is --

15:18:53 12 Q Yeah, what -- right under the title?

15:18:56 13 A What company?

15:18:57 14 Q The title says "Active optical cable with
15:19:01 15 integrated eye safety" and then two lines before
15:19:04 16 that it says "Assignee"? Do you see that?

15:19:07 17 A Thank you for pointing that to me. That one
15:19:09 18 is -- sorry, I don't know exactly how to pronounce
15:19:13 19 that -- Finister -- Finisar Corporation, Sunnyvale,
15:19:18 20 California.

15:19:19 21 Q Are you familiar with Finisar Corporation?

15:19:22 22 A I'm not familiar with this Finisar
15:19:25 23 Corporation.

15:19:25 24 Q Are you familiar that Finisar is a long-time
15:19:29 25 supplier of active optical cables?

15:19:32 1 A I wouldn't be surprised, you know. You look
15:19:35 2 at this patent, you know, it does talk about the
15:19:38 3 optical part as the cable, so I wouldn't be
15:19:40 4 surprised.

15:19:42 5 Q Would you be surprised -- would you be
15:19:44 6 surprised to learn that Finisar announced active
15:19:48 7 optical cables as early as 2008?

15:19:52 8 A Counsel, as you know, I don't really keep
15:19:55 9 track of the time, but I wouldn't be surprised,
15:19:57 10 yeah, if they release the product at some year.

15:20:02 11 Q Do you know if Finisar ever sold an active
15:20:05 12 electrical cable -- sorry. Withdrawn.

15:20:07 13 Do you know if Finisar ever sold an active
15:20:10 14 ethernet cable?

15:20:12 15 A Counsel, as I also probably mentioned
15:20:15 16 already in the morning, you know, I don't keep track
15:20:17 17 of the actual products, you know, what company, what
15:20:21 18 customer they sold that to. But as we just
15:20:24 19 discussed, you know, I wouldn't be surprised, you
15:20:26 20 know, if they have this product, you know, related
15:20:30 21 to this active cable because, you know, this patent
15:20:33 22 that we are reading, it is active cable.

15:20:37 23 Q Active optical cable?

15:20:40 24 A That's one of them, right. So as we can see
15:20:42 25 from the figures and embodiment, but they also show

15:20:46 1 the electrical copper cable.

15:20:51 2 Q Would you agree that the examiner considered
15:20:59 3 all of the teachings that you cite in Aronson '389?

15:21:08 4 MR. LIANG: Objection to form.

15:21:10 5 A '389, counsel, are you referring to one of
15:21:20 6 the page that we went over this morning?

15:21:25 7 Q Yes, the Information Disclosure Statements
15:21:27 8 and the examiner's initials.

15:21:29 9 A Right. I kind of forgot the marking the
15:21:32 10 patent because here we have a couple numbers. These
15:21:43 11 are Aronson, right. Yeah, I did remember we went
15:21:47 12 through some of the Aronson prior art. I just don't
15:21:52 13 recall the exact number because this one is '389.
15:21:58 14 That's your question, right, counsel? You know,
15:22:00 15 you're asking whether '389 is part of that -- how do
15:22:06 16 you call it, IDS citation, is that --

15:22:10 17 Q Yeah. So -- my question -- I think we
15:22:15 18 established this morning that the examiner
15:22:17 19 considered two other Aronson patents or
15:22:21 20 publications. And I'm asking you if you would agree
15:22:25 21 that the disclosures you point to in Aronson '389
15:22:28 22 also appear in those other two Aronson references
15:22:32 23 that the examiner did consider?

15:22:35 24 MR. LIANG: Objection to form.

15:22:37 25 A So, counsel, I think that's what I have

15:22:46 1 confirmed earlier. I do confirm that there are a
15:22:49 2 couple citations related to Aronson in that table
15:22:52 3 and at the page that you show me. And we went over
15:22:56 4 that. And I do recall there's initials there; if I
15:23:03 5 remember correctly that's AJ and that Aronson has
15:23:08 6 the patent number. I kind of forgot whether that's
15:23:11 7 exactly '389.

15:23:17 8 Q So you don't know?

15:23:19 9 A We can always go back, you know, counsel.
15:23:23 10 Would you like to kind of go back to that table and
15:23:25 11 just for me to see that '389 is cited as one of the
15:23:30 12 table?

15:23:31 13 Q No, I'll tell you it's not.

15:23:34 14 A Oh, it's not.

15:23:35 15 Q Let me be clear. Aronson '389 is not listed
15:23:38 16 in the Information Disclosure Statement.

15:23:39 17 A Oh, it's not listed. Okay.

15:23:41 18 Q Two other Aronson references are listed in
15:23:45 19 the Information Disclosure Statement. And I'm
15:23:47 20 asking you if you agree that the portions that you
15:23:51 21 cite in Aronson '389 also appear in those other two
15:23:55 22 Aronson references?

15:23:59 23 A Also appear in those two other Aronson —
15:24:06 24 counsel, can you please clarify what do you mean by
15:24:08 25 appear? What does that mean, appear? You mean like

15:24:11 1 title appear there or assignee appear there or --

15:24:17 2 Q Let me give you an example. Bear with me
15:24:20 3 just a second.

15:24:21 4 A No problem.

15:24:30 5 Q If you turn to page 119 of your declaration,
15:24:38 6 page 119.

15:24:46 7 A Page, 119, counsel, I'm there.

15:24:48 8 Q On this page, there are three paragraphs,
15:24:52 9 197 through 199, right?

15:24:54 10 A I do see that, counsel.

15:24:56 11 Q And these three paragraphs cite to several
15:25:01 12 different parts of Exhibit 1005 which is Aronson
15:25:06 13 '389, right?

15:25:07 14 A Aronson '389, yeah. So that's my citations.

15:25:22 15 Q So in these three paragraphs, you're
15:25:25 16 pointing to teachings in Aronson '389, right?

15:25:31 17 A I point to this Exhibit 1005 which is the
15:25:40 18 '389, that is correct.

15:25:41 19 Q And my question is the content of Aronson
15:25:46 20 '389 is the same as the content of Aronson '985 and
15:25:58 21 Aronson '464, both of which the examiner did
15:26:03 22 consider, right?

15:26:04 23 A So, counsel, yeah, so that's kind of what I
15:26:09 24 was asking earlier. So you say the content is same.
15:26:13 25 Do you refer by words they are the same so I can

15:26:16 1 help to take a look, no problem.

15:26:18 2 Q I've given you the documents and if the
15:26:21 3 answer is I don't know, then that's fine. I'd just
15:26:24 4 like to know if you do know, would you agree that
15:26:27 5 the content among those three documents, Aronson
15:26:32 6 '389, Aronson '985, and Aronson '464 is the same?

15:26:38 7 A Counsel, for that I do need to actually
15:26:41 8 review all these three documents one by one. Or you
15:26:48 9 know, I think there's a lot of documents -- or would
15:26:51 10 you like me to focus on a particular part, like
15:26:54 11 figures or titles, you know. So title is a little
15:26:58 12 bit easier, you know, I can see --

15:27:01 13 Q Okay, I'll withdraw the question. I don't
15:27:02 14 want to spend the time on that. Let's take a break.

15:27:07 15 (Short recess.)

15:27:08 16 MR. MCMAHON: Dr. Chen, I'm not sure you're
15:35:58 17 going to need your tea or coffee. I have no further
15:36:01 18 questions at this time. Pass the witness.

15:36:03 19 MR. LIANG: Nothing further from me or
15:36:07 20 nothing from me.

15:36:13 21
22 (Time Noted: 3:36 p.m.)

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C E R T I F I C A T E

I, Sandra L. Rocca, CSR, RMR, RDR, CRR, a
Certified Court Reporter within and for the States
of Illinois and Florida, do hereby certify:

That MICHAEL S. CHEN, Ph.D., the witness
whose deposition is hereinbefore set forth, was duly
sworn by me and that such deposition is a true
record of the testimony given by such witness.

I further certify that I am not related to
any of the parties to this action by blood or
marriage; and that I am in no way interested in the
outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my
hand this 5th of May, 2026.



Sandra L. Rocca, CSR, RMR, RDR, CRR

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CERTIFICATE OF DEPONENT

I hereby certify that I have read the foregoing pages of my deposition testimony in this proceeding, and with the exception of changes and/or corrections, if any, find them to be a true and correct transcription thereof.

Deponent

Date

NOTARY PUBLIC

Subscribed and sworn to before me this

_____ day of _____, 20__.

Notary Republic

My Commission Expires:_____

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3 Please read your deposition over carefully
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7 that are made.

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9 sheet and date it.

10 You are signing same subject to the changes
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18 transcript may be deemed to be accurate
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