08:15:18 1 IN THE UNITED STATES DISTRICT COURT

2 FOR THE DISTRICT OF DELAWARE

3

OSSEO IMAGING, LLC,)
4) VOLUME 4
Plaintiff,)
5) C.A. No. 17-1386(JFB)
v.)
6) ROUGH DRAFT
PLANMECA USA, INC.,)
7)
Defendant.)
8

9 Thursday, August 25, 2022
8:30 a.m.
10 Jury Trial

11

844 King Street
12 Wilmington, Delaware

13

BEFORE: THE HONORABLE JOSEPH F. BATAILLON
14 United States District Court Judge

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16

APPEARANCES:

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18 BAYARD, P.A.
BY: RONALD GOLDEN, ESQ.
19

-and-
20

MEISTER SEELIG & FEIN, LLP
21 BY: SETH H. OSTROW, ESQ.
BY: THOMAS M. CASSONE, ESQ.
22 BY: JEFFREY P. WEINGART, ESQ.
BY: ROBERT P. FEINLAND, ESQ.
23

24 Counsel for the Plaintiff

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APPEARANCES CONTINUED:
2
3 MORRIS NICHOLS ARSHT & TUNNELL LLP
BY: MICHAEL J. FLYNN, ESQ.
4
-and-
5
JACKSON WALKER LLP
6 BY: WASIF QURESHI, ESQ.
BY: LEISA T. PESCHEL, ESQ.
7 BY: CHRISTOPHER CRAVEY, ESQ.
BY: BLAKE DIETRICH, ESQ.
8
Counsel for the Defendant
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10 _ _ _ _ _ _ _ _ _ _ _ _
11
08:34:59 12
08:34:59 13 COURT CLERK: All rise.
09:00:56 14 (Jury entering the courtroom at 9:00 a.m.)
09:01:03 15 THE COURT: Please be seated, ladies and
09:01:14 16 gentlemen.
09:01:16 17 Will our previous witness please come back to
09:01:24 18 the stand.
09:01:33 19 Sir, I will remind you that you are still under
09:01:37 20 oath.
09:01:37 21 THE WITNESS: Yes, that's correct.
09:01:47 22 THE COURT: You may proceed, counsel.
09:01:49 23 CROSS-EXAMINATION
09:01:49 24 BY MR. WEINGART:
09:01:50 25 Q. Good morning, Mr. Pienkowski.

09:01:52 1 A. **Good morning.**

09:01:53 2 Q. **Mr. Pienkowski, before we begin, I only have a few**

09:01:56 3 **more questions, but did you speak to your attorneys last**

09:01:59 4 **night concerning any of your testimony yesterday?**

09:02:02 5 A. **No, it was a very lonely night.**

09:02:04 6 Q. **I'm sorry about that.**

09:02:09 7 Q. **Mr. Pienkowski, your attorneys yesterday were asking**

09:02:13 8 **you what's been marked as PX-37 which was a letter from**

09:02:19 9 **Osseo's attorney sent in October of 2009. Do you remember**

09:02:24 10 **that?**

09:02:24 11 A. **Yes, I do.**

09:02:25 12 Q. **And if you need to look at the letter to refresh on**

09:02:29 13 **that, it's behind Tab 1 in the blue binder that your**

09:02:35 14 **attorneys provided to you yesterday. Do you remember that**

09:02:46 15 **letter?**

09:02:47 16 A. **Yes, I do.**

09:02:50 17 Q. **And after that letter was received, you said that you**

09:02:54 18 **had sent it over to Mr. Tawast at Planmeca OY, correct?**

09:03:00 19 A. **That's correct.**

09:03:01 20 Q. **And after you received that letter, did you on behalf**

09:03:08 21 **of Planmeca USA seek or receive a written non-infringement**

09:03:18 22 **or invalidity?**

09:03:20 23 **MR. DIETRICH: Objection, Your Honor. May we**

09:03:22 24 **approach?**

09:03:23 25 **THE COURT: Yes, you may.**

09:10:49 1 (Sidebar discussion:)

09:10:49 2 THE COURT: All right. So what's the objection?

09:10:49 3 MR. DIETRICH: He's about to ask whether or not

09:10:49 4 we obtained an opinion of counsel and we haven't offered an

09:10:49 5 opinion of counsel and black letter Third Circuit law there

09:10:49 6 should be not an adverse inference of whether or not we

09:10:49 7 sought opinion of counsel so he shouldn't be able to ask the

09:10:49 8 question, that question, it's prejudicial.

09:10:49 9 THE COURT: Your position?

09:10:49 10 MR. WEINGART: My motion is I'm going to ask the

09:10:49 11 question --

09:10:49 12 THE COURT: Ask the question whether they sought

09:10:49 13 counsel?

09:10:49 14 MR. WEINGART: Whether they sought or received a

09:10:49 15 written opinion on --

09:10:49 16 MR. CASSONE: Expert opinion.

09:10:49 17 MR. WEINGART: Well, no, an opinion from

09:10:49 18 counsel.

09:10:49 19 MR. CASSONE: On infringement.

09:10:49 20 THE COURT: Okay. And your position is he can't

09:10:49 21 even can ask that question?

09:10:49 22 MR. DIETRICH: He can't even ask that because it

09:10:49 23 goes to adverse -- the Berms case, Your Honor, that there

09:10:49 24 should not be an adverse inference for not seeking opinion

09:10:49 25 of counsel, that the jury should take that into

09:10:49 1 consideration and Federal Circuit says that's a problem.
09:10:49 2 THE COURT: And do you have any law that says
09:10:49 3 that it's proper?
09:10:49 4 MR. WEINGART: Well, the thing -- I don't have a
09:10:49 5 case for you, Your Honor, but what I will say is that
09:10:49 6 obviously you know, if they've produced an opinion to us, it
09:10:49 7 would be part of the case. They haven't produced an
09:10:49 8 opinion. And all I want to know is whether they sought or
09:10:49 9 received one.
09:10:49 10 THE COURT: I assume some interrogatories went
09:10:49 11 out asking whether they did or didn't, so you should know
09:10:49 12 the answer to this question and the answer to this question
09:10:49 13 is what, do you know.
09:10:49 14 MR. WEINGART: I believe the answer is no.
09:10:49 15 THE COURT: And your position is he doesn't need
09:10:49 16 to?
09:10:49 17 MR. DIETRICH: Whether we sought or did not seek
09:10:49 18 is privileged inquiry as far as what they did or did not do
09:10:49 19 in response to these letters with respect to counsel.
09:10:49 20 THE COURT: Doesn't that go straight to
09:10:49 21 willfulness? How does it not go to willfulness.
09:10:49 22 MR. DIETRICH: Your Honor, Federal Circuit,
09:10:49 23 Knorr-Bemse, K-N-O-R-R, case, the jury should not be
09:10:49 24 instructed, there should not be adverse inference for not
09:10:49 25 seeking opinion of counsel.

09:10:49 1 **THE COURT: Do you have any law to the contrary?**
09:10:49 2 **MR. WEINGART: I don't have law to the contrary**
09:10:49 3 **right there on the tip of my tongue, but I mean we can**
09:10:49 4 **always agree on some kind of jury instruction to cover you**
09:10:49 5 **on that.**
09:10:49 6 **MR. DIETRICH: I can tell you we're not going to**
09:10:49 7 **agree on the a jury instruction, it's black letter law that**
09:10:49 8 **this jury should not be instructed on opinions of counsel,**
09:10:49 9 **one that was introduced into the case, that is black letter**
09:10:49 10 **Federal Circuit law it's been that way for the last**
09:10:49 11 **twenty years.**
09:10:49 12 **MR. WEINGART: The alternative is for me to ask**
09:10:49 13 **him questions what his questions were with Mr.^.**
09:10:49 14 **Mr. ^/WAFPLT was the only attorney he spoke to, whether he**
09:10:49 15 **had any authority to go ahead and seek an opinion or what**
09:10:49 16 **the instructions were from Planmeca Oy.**
09:10:49 17 **MR. DIETRICH: That isn't the only option, the**
09:10:49 18 **option is His Honor sustains my objection and we don't go**
09:10:49 19 **into opinion.**
09:10:49 20 **MR. FLYNN: Your Honor, if I may, in all**
09:10:49 21 **Delaware cases, an opinion of counsel has to be produced if**
09:10:49 22 **you're relying on a defense of willfulness.**
09:10:49 23 **THE COURT: I have never had a case where**
09:10:49 24 **somebody didn't ask for a lawyer's opinion, period, the end.**
09:10:49 25 **Okay. And I'm sure that occurs. If you don't ask for an**

09:10:49 1 opinion of the lawyer, oh, man, okay. But I can't -- if you
09:10:49 2 don't have some law to dispute what counsel has said about
09:10:49 3 Knorr-Bemse.
09:10:49 4 MR. CASSONE: We haven't read the case either.
09:10:49 5 THE COURT: Say what?
09:10:49 6 MR. CASSONE: I'm sure Mr. Cravey is
09:10:49 7 representing -- I haven't read the whole case. I don't know
09:10:49 8 that it actually stands for that proposition or if it's --
09:10:49 9 THE COURT: Show me some law to the contrary.
09:10:50 10 MR. CASSONE: Fair enough.
09:10:50 11 MR. DIETRICH: I can tell you that I have read
09:10:50 12 the case and it absolutely stands for that proposition.
09:10:50 13 THE COURT: Okay. Well, you know, on the issue
09:10:50 14 of willfulness I'm going to have to sustain the objection
09:10:50 15 unless you see some law to the contrary.
09:10:50 16 MR. WEINGART: Your Honor, I would like to have
09:10:50 17 an opportunity maybe to go ahead and give you that
09:10:50 18 authority, bring them back at another time to continue the
09:10:50 19 cross.
09:10:50 20 THE COURT: He'll be here to do that.
09:10:50 21 MR. WEINGART: If we could just continue that
09:10:50 22 cross at a later time today.
09:10:50 23 THE COURT: However you want to proceed. I
09:10:50 24 mean, when you're ready, let me know, we'll have a
09:10:50 25 discussion and then we'll decide whether he comes back for

09:10:50 1 this issue or not. And then if you send me a copy of the
09:10:50 2 Bemse case that would be helpful.
09:10:50 3 MR. DIETRICH: Your Honor, understanding this is
09:10:50 4 your court, we won't object to recalling Mr. Pienkowski
09:10:50 5 after he's come and gotten done, they've had their
09:10:50 6 opportunity to ask their questions.
09:10:50 7 THE COURT: I have no doubt about that, but the
09:10:50 8 question is whether this is an appropriate area for inquiry
09:10:50 9 and if it is, I'll let him ask the questions. But if it's
09:10:50 10 not, and you're correct, then he won't be able to ask any
09:10:50 11 questions on this issue.
09:10:50 12 MR. DIETRICH: Very well.
09:10:50 13 MR. WEINGART: Just for the record, we agree
09:10:50 14 with you, Your Honor, it goes directly to willfulness. I
09:10:50 15 have one other small area to ask him about with a few
09:10:50 16 questions, I can either wait and do it all at the same time.
09:10:50 17 THE COURT: You better get it over, whatever
09:10:50 18 you're going to do you can square up now, because based on
09:10:50 19 the impression I have right now, unless you can come up with
09:10:50 20 some law there is not going to be any inquiry about whether
09:10:50 21 he obtained a letter from counsel because I think that
09:10:50 22 defense counsel has given me the correct law because in the
09:10:50 23 back of my head I remember some issues about this, but like
09:10:50 24 I said, I have never had a case where a company didn't at
09:10:50 25 least ask for a review from counsel, which is, I have no

09:10:50 1 problem with that. But we'll cross that bridge when I see
09:10:50 2 the law from both sides. For the time being I'm sustaining
09:10:50 3 the objection.
09:10:50 4 (End of side-bar.)
09:10:50 5 THE COURT: You may continue, counsel.
09:10:50 6 MR. WEINGART: Thank you, Your Honor.
09:10:50 7 BY MR. WEINGART:
09:10:50 8 Q. Mr. Pienkowski, during your tenure at Planmeca USA,
09:10:50 9 did Planmeca ever sell the Romexis software in the U.S. on
09:10:50 10 its own without selling the physical hardware units with
09:10:51 11 Romexis installed that makeup the accused ProMax models in
09:10:51 12 question?
09:10:51 13 A. If I'm understanding your question, you're asking me
09:10:51 14 if we sold the product separately for another competitor
09:10:51 15 product.
09:10:51 16 Q. Did you sell it to customers that didn't --
09:10:51 17 separately from the overall ProMax line of products?
09:10:51 18 A. I do not recall.
09:10:51 19 Q. You don't recall whether you offered Romexis licenses
09:10:55 20 to third parties that had not purchased the ProMax family of
09:11:01 21 products?
09:11:01 22 A. That's correct, I don't recall ever doing that.
09:11:04 23 Q. What's that?
09:11:05 24 A. I said I don't recall.
09:11:10 25 Q. Well, if you look at your deposition testimony,

09:11:14 1 please. And I'll direct you to page 106 of your testimony
09:11:26 2 which is tab -- behind tab S in the book I gave you
09:11:31 3 yesterday, sir.
09:11:33 4 A. Is that the blue one or the white one?
09:11:36 5 Q. Excuse me. The white one.
09:11:50 6 And do you see on page 106, line 5 through 10
09:11:58 7 where you were asked "and does Planmeca USA ever sell the
09:12:05 8 Romexis software on its own without selling physical
09:12:09 9 hardware units?" Do you see that?
09:12:12 10 A. Correct.
09:12:12 11 Q. And your answer at that time was, "to the best of my
09:12:16 12 knowledge, not in the United States."
09:12:19 13 Do you see that?
09:12:19 14 A. Yes, I do.
09:12:20 15 Q. Does that refresh your recollection about whether
09:12:24 16 Planmeca USA sold or licensed the Romexis software on its
09:12:30 17 own without selling physical hardware units comprising the
09:12:34 18 ProMax accused systems?
09:12:37 19 A. That's correct, to the best of my knowledge, not in
09:12:40 20 the United States.
09:12:41 21 Q. Not in the United States, correct?
09:12:43 22 A. Yes.
09:12:43 23 Q. And the software, the Romexis software updates that
09:12:48 24 you testified about yesterday, Planmeca USA doesn't offer or
09:12:56 25 license or sell those Romexis software updates or upgrades

09:13:04 1 to any parties that don't already have -- haven't already
09:13:08 2 purchased the ProMax systems, correct?
09:13:12 3 A. To the best of my knowledge, correct.
09:13:15 4 Q. So they're only offered to existing customers that
09:13:18 5 have already purchased the ProMax systems, correct?
09:13:20 6 A. To the best of my knowledge, correct.
09:13:30 7 MR. WEINGART: Your Honor, that concludes my
09:13:32 8 cross-examination now, subject to what we discussed on the
09:13:35 9 side-bar.
09:13:36 10 THE COURT: All right. Redirect, counsel.
09:13:40 11 MR. DIETRICH: Yes, Your Honor. I just have a
09:13:42 12 couple of points that I would like to clarify for the jury,
09:13:45 13 if I may.
09:13:46 14 THE COURT: You may
09:13:47 15 REDIRECT EXAMINATION
09:13:48 16 BY MR. DIETRICH:
09:13:55 17 Q. Mr. Pienkowski, you were asked if you spoke to any
09:13:58 18 attorneys over the break last night, is that right?
09:14:00 19 A. That's correct.
09:14:01 20 Q. And you answered that you did not?
09:14:03 21 A. That's correct.
09:14:04 22 Q. And that would include me, is that right?
09:14:06 23 A. I didn't talk to anybody.
09:14:10 24 Q. Okay. Let's open your deposition to page 156, if we
09:14:16 25 can. I just want to hold that page for a moment if I may.

09:14:25 1 **Do you have 156 there?**
09:14:26 2 A. **Yes, I do.**
09:14:27 3 Q. **Thank you.**
09:14:28 4 **So yesterday when I questioned you, you said**
09:14:31 5 **that dentists specializing in implants, in dental implants**
09:14:35 6 **generally tend to purchase ProMax 3D that shows smaller**
09:14:41 7 **image volume, do you remember that?**
09:14:43 8 A. **Yes, I do.**
09:14:44 9 Q. **And I think you said that the implant specialists**
09:14:46 10 **will typically purchase a ProMax 3D/S or a 3D classic, do**
09:14:53 11 **you remember that?**
09:14:53 12 A. **Yes, I do.**
09:14:54 13 Q. **During cross-examination, Osseo's attorney asked you**
09:14:57 14 **about your deposition testimony on that topic. Do you**
09:15:00 15 **remember that?**
09:15:00 16 A. **Yes, I do.**
09:15:02 17 Q. **Can I get you to look at page 156 of your deposition.**
09:15:08 18 **And yesterday Osseo's attorney did not give you an**
09:15:13 19 **opportunity to read lines 9 through 14 from page 156. Can**
09:15:17 20 **you do that now?**
09:15:22 21 A. **Yes.**
09:15:29 22 Q. **So let me be clear, can you read that out loud**
09:15:32 23 **please?**
09:15:32 24 A. **I didn't know I was supposed to read it out loud. I**
09:15:35 25 **thought we would put it on the screen.**

09:15:37 1 If you're looking at larger volume screen you're
09:15:42 2 looking at it from orthopedic or oral surgeons. If your
09:15:44 3 looking to anything from a mid to a classic, you're looking
09:15:47 4 more of a GP. If you're looking to a small volume machine
09:15:50 5 it would be more endo and implants.
09:15:52 6 Q. If you're looking to a small volume machine that
09:15:55 7 would be more endo and implants, is that what you said?
09:15:58 8 A. That's correct.
09:15:59 9 Q. Is that consistent with your deposition testimony
09:16:02 10 yesterday?
09:16:02 11 A. That's correct.
09:16:02 12 Q. I'm sorry, with your trial testimony yesterday?
09:16:05 13 A. That would be correct.
09:16:06 14 Q. Can I get you to turn to page 170 of your deposition.
09:16:20 15 A. I'm there.
09:16:21 16 Q. And yesterday Osseo's attorney did not ask you about
09:16:24 17 page 170 of your deposition; is that right?
09:16:27 18 A. From what I recall, correct.
09:16:29 19 Q. And can I get you to read out loud lines 17
09:16:33 20 through 24?
09:16:35 21 A. "Well for the dentist they get their field of view
09:16:39 22 okay, field of view. They can purchase the best field of
09:16:43 23 view for their office to optimize their return on
09:16:46 24 investment.
09:16:47 25 Q. And the next, so in other words?

09:16:49 1 A. So in other words, if you're going to do an implant
09:16:52 2 and you're only going to do the root canal, you don't need
09:16:56 3 the biggest volume in the world you get your best return on
09:17:00 4 your investment because we have different fields of view.
09:17:03 5 Q. Is that consistent with your trial testimony
09:17:06 6 yesterday?
09:17:06 7 A. Yes, it is.
09:17:07 8 Q. So I want to give you the last word on this issue if
09:17:10 9 I can. If Osseo later argues in this case that Bob
09:17:16 10 Pienkowski says that dental implant specialist generally
09:17:20 11 purchase large volume imaging machines, would you disagree
09:17:24 12 with that statement?
09:17:25 13 A. Yes, I would. Because the smallest view is purchased
09:17:32 14 by dentist and the classic is also purchased by some implant
09:17:37 15 people, which is a larger view than the S, but it's not the
09:17:42 16 largest, largest view, there are three more machines larger
09:17:47 17 than that.
09:17:47 18 Q. I understand that a dentist can obviously purchase
09:17:50 19 whatever ProMax 3D imaging machine that they want to
09:17:54 20 purchase, however during your time at Planmeca between 2011
09:17:57 21 and 2020, did you gain an understanding of the ProMax 3D
09:18:03 22 models, typically purchased by dental implant specialists?
09:18:08 23 A. Could you repeat that question, please?
09:18:10 24 Q. During your time at Planmeca from 2011 to the 2020,
09:18:17 25 did you gain an understanding of the volume size of ProMax

09:18:23 1 3D systems that were typically purchased by implant
09:18:25 2 specialists?
09:18:28 3 A. Yes. I don't have a statistical detail, but through
09:18:33 4 our sales force, most of them are S's and classics.
09:18:37 5 Q. Thank you.
09:18:37 6 I would like to focus on one other thing that
09:18:40 7 was discussed yesterday during your testimony. Mr. Herndon,
09:18:45 8 can we get PX-55. Can you blow up that table, please?
09:18:55 9 Yesterday you were asked about this document.
09:18:57 10 Do you remember that?
09:18:58 11 A. Yes, I do.
09:19:00 12 Q. All right. Can you go to the next page, Mr. Herndon.
09:19:07 13 And blow up the bottom, the margin shown. And Osseo's
09:19:15 14 attorney spent some time talking about this data that's
09:19:19 15 shown on the bottom of the page. Do you remember that?
09:19:22 16 A. Yes, I do.
09:19:23 17 Q. Now, I want to be really clear. What we're looking
09:19:26 18 at here, is this a plan or is this actual sales data?
09:19:37 19 A. That, I don't know.
09:19:39 20 Q. Okay. Let me come at this from a different angle,
09:19:55 21 then. Does Planmeca require when it sells ProMax 3D systems
09:20:00 22 that it receives a 25 percent profit margin?
09:20:04 23 A. No, there is no requirement.
09:20:05 24 Q. And so every time Planmeca sells a ProMax 3D system,
09:20:09 25 does it get a 25 percent gross profit margin?

09:20:14 1 A. **No, that would be incorrect.**
09:20:15 2 Q. **What kind of things would go into whether or not**
09:20:19 3 **Planmeca receives, what profit margin Planmeca receives when**
09:20:22 4 **it sells its ProMax 3D systems?**
09:20:24 5 A. **There is quite a few circumstances. One we do some**
09:20:31 6 **charity things with our products called MOM, it's an**
09:20:36 7 **abbreviation for Missions of Mercy, what we do is set these**
09:20:42 8 **machines up in some major cities, it might be five machines,**
09:20:46 9 **four machines, and local dentists come and they take digital**
09:20:51 10 **images on people and they view the images and do whatever**
09:20:54 11 **dental work they can do under the environment. Well those**
09:21:00 12 **machines are now used, so we have to refurbish them and sell**
09:21:02 13 **them at a discount. We also throughout the year we have**
09:21:05 14 **promotions at dental shows where we discount our products to**
09:21:09 15 **try to increase sales to makeup for the cost of the trade**
09:21:13 16 **show. In the past we've also, we've put rebates together**
09:21:18 17 **for our distribution which means that they hit certain sales**
09:21:23 18 **targets then we provide rebates to them, sometimes we have**
09:21:26 19 **paid it in product, we send them product which probably had**
09:21:29 20 **a 0 balance.**
09:21:31 21 **And promotions for orthodontists if there is a**
09:21:35 22 **meeting. It's just sometimes there are these -- the new**
09:21:40 23 **category that's going on in the market is these large**
09:21:46 24 **corporate businesses where they'll come to Planmeca and say**
09:21:52 25 **look, we have 400 or 500 operators throughout the United**

09:21:57 1 States or offices, we would be interested in purchasing a
09:22:00 2 hundred of your 2D machines or 3D machines over the next two
09:22:05 3 years, so that's a big negotiation. In those circumstances,
09:22:09 4 we're pretty lucky if we get 16 or 17 percent. So there is
09:22:14 5 a lot of circumstances that with different times during the
09:22:19 6 year, during the -- that we would not be able to get our
09:22:23 7 targeted hopefully 25 percent.
09:22:25 8 Q. All right. I appreciate that explanation. Let me
09:22:28 9 see if I can summarize it. So the actual profit margins
09:22:32 10 that Planmeca receives for any sale of a ProMax 3D system is
09:22:37 11 based on a negotiation with a customer; is that fair?
09:22:42 12 A. Yes, that is.
09:22:43 13 Q. And how would you go about determining what
09:22:47 14 percentage profit margin Planmeca made on any sale, would
09:22:51 15 you have to look at the actual sales data?
09:22:53 16 A. Yeah, it would be -- you would have to look at what
09:23:00 17 we purchased the product for, the Planmeca, and then you
09:23:03 18 have to look at what we sold the product for to our
09:23:07 19 distributor and that way is the only way you can come up
09:23:10 20 with a fair profit margin.
09:23:13 21 Q. This is another one, Mr. Pienkowski that I want to
09:23:16 22 give you the last word on. So if later in this case or
09:23:19 23 during closing Osseo argues that Mr. Pienkowski told you,
09:23:23 24 ladies and gentlemen, that Planmeca receives a 25 percent
09:23:26 25 profit margin on the sales of ProMax 3D, would you disagree

09:23:30 1 with that statement?

09:23:31 2 A. Yes, we don't always get that, there is a lot of

09:23:35 3 circumstances, and why not.

09:23:38 4 MR. DIETRICH: Thank you. No further questions,

09:23:39 5 Your Honor.

09:23:40 6 THE COURT: Recross, counsel.

09:23:46 7 RECROSS-EXAMINATION

09:23:49 8 BY MR. WEINGART:

09:24:04 9 Q. Mr. Pienkowski, may I direct your attention to

09:24:04 10 page 85 of your deposition transcript, please. Do you have

09:24:25 11 that?

09:24:25 12 A. Yes, I do.

09:24:27 13 Q. Do you recall at your deposition that you were being

09:24:30 14 asked about Planmeca USA's profit margins in connection with

09:24:36 15 sales of the promotions systems?

09:24:38 16 A. Yes, I was asked, correct.

09:24:41 17 Q. All right. And do you recall that when -- that you

09:24:45 18 were discussing those margins and you were specifically

09:24:50 19 discussing the larger volume machines on page 85; correct?

09:24:54 20 A. Yes, that's correct.

09:25:03 21 Q. And you were asked about the wholesale price on

09:25:07 22 page 85 of the large machines, of the large volume machines;

09:25:10 23 correct?

09:25:14 24 A. I don't see any pricing on that page.

09:25:16 25 Q. At lines 6 and 7, you were being asked about the

09:25:21 1 **wholesale price. Correct?**
09:25:23 2 A. **That's correct.**
09:25:24 3 Q. **All right. And you responded as follows "there is**
09:25:32 4 **not as many competitors in the market with that volume size**
09:25:33 5 **so somebody that wants a larger machine, you can get a**
09:25:38 6 **little bit more margin for it. Do you see that?**
09:25:42 7 A. **Yes, that's correct.**
09:25:42 8 Q. **And when you were saying a little bit more margin,**
09:25:47 9 **you were saying that that was a margin that was over the**
09:25:50 10 **25 percent level, correct?**
09:25:52 11 A. **I can't recall what margin we started with, but we**
09:25:55 12 **never sold that many promotions manuals.**
09:25:58 13 Q. **Yesterday we saw that your largest ProMax machine was**
09:26:04 14 **approximately 38 percent correct yesterday?**
09:26:06 15 A. **Did you see how many we sold.**
09:26:10 16 Q. **I'm asking you, that in that document we looked at**
09:26:14 17 **yesterday the testimony indicated that the margin with the**
09:26:18 18 **largest volume unit was 38 percent, correct?**
09:26:21 19 A. **For that particular sell. We didn't sell many.**
09:26:26 20 **MR. WEINGART: Thank you, Your Honor, we would**
09:26:27 21 **like to have a side-bar about the topic we talked about a**
09:26:30 22 **few minutes ago, please.**
09:26:31 23 **THE COURT: Sure. Let's do that.**
09:26:32 24 **(Side-bar discussion:)**
09:29:31 25 **THE COURT: All right.**

09:29:31 1 **MR. CASSONE: Your Honor, I think contrary to**
09:29:31 2 **what Mr. Cravey told you, well, I will just read it, it**
09:29:31 3 **says --**
09:29:31 4 **THE COURT: Where are you reading from?**
09:29:31 5 **MR. CASSONE: I'm reading from -- what am I**
09:29:31 6 **reading from.**
09:29:31 7 **MR. GOLDEN: It's right in Matthews Patent**
09:29:31 8 **Digest.**
09:29:31 9 **THE COURT: From the patent --**
09:29:31 10 **MR. GOLDEN: The leading authority on Federal**
09:29:31 11 **Circuit, et cetera.**
09:29:31 12 **MR. CASSONE: It says in Knorr the Federal**
09:29:31 13 **Circuit declined to address whether a jury or a fact finder**
09:29:31 14 **should even be told whether an accused infringer did or did**
09:29:31 15 **not consult counsel. Hence the question remains open on**
09:29:31 16 **whether the consultation of counsel should be part of the**
09:29:31 17 **willfulness determination an accused infringer relied on**
09:29:31 18 **attorney/client privilege and not disclose its opinions**
09:29:31 19 **before.**
09:29:31 20 **THE COURT: Okay. So right now, right now the**
09:29:31 21 **evidence would be they were contacted and there is no**
09:29:31 22 **evidence that they ever contacted a lawyer, other than their**
09:29:31 23 **in-house counsel about whether they should -- whether they**
09:29:31 24 **were infringing.**
09:29:31 25 **MR. CASSONE: We think that's what the evidence**

09:29:31 1 will show.

09:29:31 2 THE COURT: That's what the evidence shows so

09:29:31 3 far, that's all we have gotten. They're saying that's

09:29:31 4 enough under the law. So you pulled it up.

09:29:31 5 MR. DIETRICH: I'm saying under 35 U.S.C. 298

09:29:31 6 they codified, that's 35 U.S.C. --

09:29:31 7 THE COURT: I think you're right. All right.

09:29:31 8 I'm standing by it. Good luck, guys.

09:29:31 9 MR. CASSONE: Thank you, Your Honor.

09:29:31 10 (End of sidebar.)

09:29:31 11 MR. WEINGART: No further questions.

09:29:31 12 THE COURT: Any follow-up?

09:29:31 13 MR. DIETRICH: Nothing from Planmeca, Your

09:29:31 14 Honor.

09:29:31 15 THE COURT: You may step down, sir. Just be

09:29:31 16 careful. You got to watch out for old guys like me. You

09:29:31 17 don't want to fall. Young guys can fall down.

09:29:31 18 THE WITNESS: I'll grab the side, thank you,

09:29:31 19 Your Honor.

09:29:31 20 Do I take these or leave them?

09:29:31 21 COURT CLERK: You can leave them.

09:29:31 22 THE COURT: Defendant may call its next witness.

09:29:31 23 MS. PESCHEL: Your Honor, next for defendant

09:29:31 24 Planmeca, Planmeca calls Dr. Norbert Pelc.

09:29:32 25 THE COURT: Doctor, if you just come to the

09:29:34 1 **front here and in front of my courtroom deputy, we're going**
09:29:36 2 **to ask you a couple of questions and then swear you in.**
09:29:39 3 **COURT CLERK: Can you please state and spell**
09:29:41 4 **your name for the record.**
09:29:42 5 **THE WITNESS: Norbert Pelc. N-O-R-B-E-R-T.**
09:29:46 6 **P-E-L-C.**
09:29:48 7 **NORBERT PELC, having been duly sworn, was**
09:29:53 8 **examined and testified as follows:**
09:30:16 9 **THE COURT: You may proceed.**
09:30:18 10 **MS. PESCHEL: Thank you, Your Honor.**
09:30:20 11 **DIRECT EXAMINATION**
09:30:20 12 **BY MS. PESCHEL:**
09:30:21 13 Q. **Dr. Pelc, can you introduce yourself to the jury.**
09:30:25 14 A. **Yes, I'm Norbert Pelc. I live with my wife of**
09:30:29 15 **48 years in Aptos, California. We have two children, a son**
09:30:33 16 **who is 38 and a daughter who is 36. Will be 36 in October.**
09:30:42 17 **And we have two grandchildren and our -- and they all live**
09:30:47 18 **in the Silicon Valley, very close to our house and that's**
09:30:50 19 **quite nice.**
09:30:51 20 Q. **Where did you grow up?**
09:30:52 21 A. **I was born in Bueno Aires, Argentina. And my family**
09:30:59 22 **moved to the United States in 1964 to Wisconsin, south**
09:31:05 23 **eastern Wisconsin and I grew up there.**
09:31:09 24 Q. **Why did your family move from Argentina?**
09:31:12 25 A. **Well, there is, you may hear about a fair amount of**

09:31:15 1 political strife and violence in Argentina. And we were a
09:31:20 2 working class family and the economic opportunities my
09:31:26 3 parents felt that their children would have was what
09:31:30 4 motivated them.
09:31:31 5 Q. Why are you here today?
09:31:34 6 A. I was hired by the firm representing Planmeca to
09:31:39 7 provide opinions on the patents-in-suit.
09:31:43 8 Q. And are your opinions in this case your own
09:31:47 9 independent opinions?
09:31:48 10 A. Yes, they are.
09:31:49 11 Q. Does your compensation in this case depend on the
09:31:52 12 outcome at all?
09:31:53 13 A. No.
09:31:56 14 MS. PESCHEL: Your Honor, may I approach with
09:31:57 15 witness binders?
09:31:58 16 THE COURT: Yes, you may.
09:32:17 17 BY MS. PESCHEL:
09:32:43 18 Q. Dr. Pelc, can you turn to tab A behind Tab 1 of the
09:32:48 19 first binder.
09:32:55 20 A. I have it.
09:32:55 21 Q. What is that document?
09:32:57 22 A. It's my first report, the opening report.
09:33:02 23 Q. Oh, I'm sorry, tab A behind Tab 1.
09:33:12 24 A. Oh, I see. The front page, actually it says
09:33:16 25 Exhibit 1. I get it now. It's my curriculum vitae.

09:33:20 1 Q. And can you just look at that and make sure that it's
09:33:24 2 a full copy of your curriculum vitae. And maybe can you
09:33:33 3 explain for the jury what that means.
09:33:35 4 A. Sure. This is a copy of my curriculum vitae as of
09:33:39 5 2019 when I turned it on in and the curriculum vitae list my
09:33:47 6 education, where I have worked, fellowships and teaching and
09:33:53 7 honors that I have received. And then also service to the
09:34:01 8 government and various scientific societies. And then there
09:34:06 9 are many pages of publications of papers, invited lectures,
09:34:15 10 issued U.S. patents. And then at the very end there is a
09:34:20 11 list of my previous testimony in other cases.
09:34:25 12 Q. Is it fair to say, Dr. Pelc, that that is sort of an
09:34:30 13 expanded resume of your work?
09:34:32 14 A. Yes, quite detailed.
09:34:33 15 Q. On the first page is it marked DX-150?
09:34:36 16 A. Yes.
09:34:37 17 MS. PESCHEL: Your Honor at this time I would
09:34:38 18 like to offer into evidence Defendant's Exhibit 150 and
09:34:42 19 publish it to the jury.
09:34:43 20 THE COURT: Any objection?
09:34:45 21 MR. OSTROW: No objection.
09:34:45 22 THE COURT: 150 is received.
09:34:49 23 (DX Exhibit No. 150 was admitted into evidence.)
09:34:55 24 BY MS. PESCHEL:
09:34:58 25 Q. Now, as you mentioned, Dr. Pelc, this particular

09:35:02 1 **document, which will now go back to the jury is a little bit**
09:35:07 2 **lengthy. Have you prepared a set of slides today to assist**
09:35:11 3 **in your testimony?**
09:35:12 4 A. **Yes I did.**
09:35:13 5 Q. **Did those slides at least in the beginning summarize**
09:35:16 6 **some of the information that's in here?**
09:35:19 7 A. **Yes.**
09:35:20 8 Q. **I think it may be easier to use those.**
09:35:29 9 **Mr. Herndon, can we go to Dr. Pelc's slides?**
09:35:40 10 **Dr. Pelc, are these the slides that you prepared**
09:35:42 11 **to assist in your testimony today?**
09:35:46 12 A. **They look like it, yes.**
09:35:48 13 Q. **Can you tell us a little bit about your educational**
09:35:51 14 **background?**
09:35:52 15 A. **Yes. I obtained a Bachelor of Science degree from**
09:35:56 16 **the University of Wisconsin in Madison, in mathematics,**
09:36:03 17 **engineering and physics. Then I got Masters of Science,**
09:36:05 18 **Doctorate of Science from Harvard in '76 and '79,**
09:36:11 19 **concentrating on medical radiology physics.**
09:36:15 20 Q. **You mentioned that you were from a working class**
09:36:18 21 **family. How did you pay for college?**
09:36:20 22 A. **Well, this was -- since I was a resident of Wisconsin**
09:36:25 23 **it's a state school, and especially back in the day, tuition**
09:36:30 24 **was quite reasonable. And my parents both worked hard and**
09:36:37 25 **were frugal and they helped with some costs and I worked and**

09:36:42 1 paid for the rest. The graduate school I had fellowships.
09:36:47 2 Q. And after graduate school, where did you work?
09:36:50 3 A. I got a job with General Electric Medical Systems as
09:36:56 4 a senior physicist in the R & D group called the Applied
09:37:02 5 Sciences Lab and for a while managed that group.
09:37:05 6 Q. And then on slide 3 you also list Stanford
09:37:08 7 University. What did you do there?
09:37:10 8 A. I decided to work in academics and move from industry
09:37:15 9 to academics and got a job at Stanford in primarily in the
09:37:25 10 Radiology Department.
09:37:25 11 Q. It also list the Department of Bioengineering. Were
09:37:26 12 you also involved in that department?
09:37:28 13 A. Yes. I helped create that department and then became
09:37:31 14 a faculty member in it and chaired it for five years.
09:37:35 15 Q. Have you been involved in any imaging research?
09:37:42 16 A. My whole year really has been in imaging research. I
09:37:47 17 did some research very much related to the topic of this
09:37:53 18 litigation as an undergraduate. And we can talk more about
09:38:00 19 that. And then all of my graduate research was in imaging,
09:38:04 20 and specifically in tomography.
09:38:07 21 Q. You mentioned that you had some relevant experience
09:38:10 22 as an under graduate. Can you expand on that a little bit?
09:38:14 23 A. Yes. I was interested in finding a field that would
09:38:19 24 combine my interests in mathematics and physics and
09:38:23 25 engineering and medicine. And I heard about a professor by

09:38:27 1 the name of John Cameron and went in and visited him. He
09:38:33 2 was quite kind. And he told me about medical physics, and
09:38:37 3 then introduced me to and helped me get a job in the bone
09:38:41 4 mineral laboratory which was directed by Richard Mazess and
09:38:46 5 I got a job for the last two years of my under graduate
09:38:52 6 training and both earned money and earned experience in bone
09:38:57 7 densitometry.
09:38:58 8 Q. And then on DDX-4.4 you list the bullet points with
09:39:05 9 respect to your graduate research, like tomography, computed
09:39:09 10 tomography and tomosynthesis, are you going to explain those
09:39:15 11 later to the jury?
09:39:16 12 A. Yes, I will.
09:39:17 13 Q. You mentioned you worked at GE medical systems. What
09:39:20 14 types of things did you work on there?
09:39:22 15 A. I worked in computed tomography during the early days
09:39:25 16 of CT, and helped develop a number of new methods and
09:39:31 17 improvements to the GE CT product line. Especially worked
09:39:38 18 that led to a product called the GE 9800. A lot of the
09:39:45 19 things that I did was related to new calibration and
09:39:48 20 reconstruction software that both improved the performance
09:39:51 21 of the machine, allowed it to do higher resolution imaging,
09:39:56 22 and make the machine more reliable.
09:40:00 23 I also worked on a project to build a dual
09:40:04 24 energy system, x-ray imaging system which led to my first
09:40:12 25 patent, I guess on an x-ray source for dual energy

09:40:17 1 **measurements. And that system was used for a number of**
09:40:21 2 **research studies including in bone densitometry. And then**
09:40:27 3 **later half of my tenure at GE I worked at magnetic residence**
09:40:34 4 **imaging developing techniques in MRI.**
09:40:36 5 Q. **Do you have an example of what those techniques would**
09:40:39 6 **be?**
09:40:39 7 A. **Well, a lot of the work that I did was just to**
09:40:43 8 **improve the machine, but things that people might be**
09:40:48 9 **interested in is I developed techniques for imaging blood**
09:40:52 10 **vessels and to image the beating heart without any**
09:40:56 11 **intervention, invasion of the person, noninvasive.**
09:41:01 12 Q. **And then looking at slide 6 it appears you have**
09:41:05 13 **summarized your work at Stanford. Can you at a high level**
09:41:09 14 **describe what types of research projects you have been**
09:41:12 15 **involved in?**
09:41:12 16 A. **Initially I continued my research in MRI, but then**
09:41:17 17 **switched back to my interest in x-ray imaging and CT. And**
09:41:22 18 **we developed methods for circular tomosynthesis that was**
09:41:26 19 **used in a type of orthopedic imaging, and for the last**
09:41:32 20 **decade or so we have been working on new kinds of machines**
09:41:36 21 **and methods to reduce the radiation dose from computed**
09:41:40 22 **tomography.**
09:41:41 23 Q. **Dr. Pelc, do you have any patents?**
09:41:43 24 A. **Yes. I am the inventor in ninety-five issued U.S.**
09:41:48 25 **patents.**

09:41:49 1 Q. **Can you turn in your binder to Tab 10?**

09:41:59 2 A. **Book one?**

09:41:59 3 Q. **Ten?**

09:42:00 4 A. **Yes, I have it.**

09:42:02 5 Q. **What is that?**

09:42:03 6 A. **That is a copy of one of my patents, the '080 patent.**

09:42:10 7 Q. **And what generally is the patent related to?**

09:42:14 8 A. **It's related to a CT system for imaging say a bone**

09:42:24 9 **inside of a the body when the bone is smaller than the body**

09:42:28 10 **in its entirety.**

09:42:31 11 **MS. PESCHEL: At this time Your Honor we would**

09:42:33 12 **like to offer into evidence Defense Exhibit 4.**

09:42:36 13 **THE COURT: Any objection?**

09:42:37 14 **MR. OSTROW: No objection.**

09:42:38 15 **THE COURT: Four is received.**

09:42:40 16 **(DX Exhibit No. 4 was admitted into evidence.)**

09:42:46 17 **May I publish, Your Honor?**

09:42:47 18 **THE COURT: Yes, you may.**

09:42:49 19 **BY MS. PESCHEL:**

09:42:50 20 Q. **Dr. Pelc, I just wanted the jury an opportunity to**

09:42:53 21 **look at what you were talking about.**

09:42:55 22 **In this particular patent it says the assignee**

09:43:00 23 **is Lunar corporation. What is that?**

09:43:02 24 A. **Yes. During my time at Stanford I did some outside**

09:43:13 25 **consulting including Lunar. We will talk a little bit more**

09:43:13 1 about Lunar later, and through that work, this patent came
09:43:20 2 out of that consulting work and since they had hired me as a
09:43:23 3 consultant, the rights to the invention are assigned to
09:43:26 4 them.
09:43:27 5 Q. And when was this particular patent filed?
09:43:30 6 A. It was filed on May 8th of 1995.
09:43:35 7 Q. When did it issue?
09:43:36 8 A. July 2nd, 1996.
09:43:47 9 Q. Dr. Pelc, I would like to briefly summarize your
09:43:58 10 experiences, publications and teachings. Can you give the
09:44:02 11 jury at a high level what that has been over your 40-year
09:44:06 12 career?
09:44:07 13 A. Sure, I am an author of 220 peer reviewed journal
09:44:12 14 articles and 360 research papers presented at conferences.
09:44:17 15 I have taught a number of courses on a variety of topics
09:44:20 16 related to diagnostic imaging. And much of the teaching
09:44:25 17 that I do is one on one with my doctoral students.
09:44:31 18 Q. And then I see here you have a resident radiologic
09:44:36 19 physics course, what was that?
09:44:37 20 A. The residents are people who are training to be
09:44:43 21 radiologist and they need to learn about radiological
09:44:45 22 physics because it's important for their knowledge and
09:44:48 23 practice, and I taught them x-ray physics for a number of
09:44:53 24 years and many classes of are radiologists.
09:44:59 25 Q. And I think I had jumped ahead in my questioning a

09:45:02 1 little bit earlier. But going back to your patent which
09:45:05 2 I'll refer to if it's okay with you as the '080 patent by
09:45:10 3 the last three numbers. Can you give an overview of how
09:45:13 4 that might be relevant in this case?
09:45:15 5 A. Yes, the '080 patent as I said is intended to allow
09:45:21 6 the imaging of a small bony region inside of a large object.
09:45:26 7 And because it's -- if you can do that because it's smaller
09:45:30 8 you can make the scan faster, you can reduce radiation dose
09:45:35 9 and have a number of advantages. And the way this worked is
09:45:39 10 by using the dual energy technique to separate soft tissue
09:45:45 11 from bone, once you get rid of the soft tissue and you have
09:45:48 12 only bone you now have, are looking only at the small
09:45:52 13 structure and can have those advantages. As an aside, also
09:45:56 14 the reconstruction will be only of bone and will be
09:46:00 15 quantitative bone densitometry.
09:46:02 16 Q. Did you have any other patents related to
09:46:05 17 densitometry and computed tomography?
09:46:08 18 A. Many patents related to computed tomography and I
09:46:12 19 mentioned the dual energy x-ray source patent.
09:46:27 20 Q. Dr. Pelc, I'm showing you on slide 11, a figure from
09:46:27 21 your '080 patent K you describe the equipment that was
09:46:31 22 involved in that patent?
09:46:32 23 A. Yes. You can also get a flavor for it from the
09:46:36 24 figure on the front of the patent. There is an x-ray
09:46:39 25 source, there is a detector, so the gantry has to go around

09:46:46 1 in circles so there is a gantry motor controller. There is
09:46:50 2 a computer that coordinates all those activities and
09:46:54 3 controls the x-ray source. A data acquisition system that
09:46:59 4 includes an analog to digital converter. There is a table
09:47:03 5 motor because the patient is moved in and out of the scanner
09:47:07 6 on the table and there is a table motor controller that is
09:47:15 7 in turn controlled by the computer. A console that of
09:47:19 8 course has a keyboard and input devices and mass storage and
09:47:24 9 a display that's in the console.
09:47:31 10 Q. Dr. Pelc during the course of your career have you
09:47:31 11 received any awards and recognitions?
09:47:33 12 A. Yes, an abbreviated list of awards. I was elected to
09:47:38 13 the national academy of engineering which I view as quite an
09:47:44 14 honor because it only elects less than 100 people from all
09:47:48 15 of engineering every year. I received two awards for
09:47:54 16 lifetime achievement, one from the American association of
09:47:59 17 physicists in medicine and one from the radiological society
09:48:03 18 of North America that was talked about a couple of times
09:48:06 19 already in this trial. And I also was granted an honorary
09:48:12 20 doctorate of medicine from the Frederick Alexander
09:48:16 21 University in Nuremberg.
09:48:20 22 Q. I see on slide 12 you have a list of fellows? What is
09:48:26 23 a fellow.
09:48:27 24 A. Scientific societies generally recognize meritorious
09:48:31 25 members by naming them fellows. So I am a fellow of the

09:48:37 1 American association of physicists in medicine, the
09:48:40 2 international society for magnetic resonance in medicine,
09:48:44 3 the institute for medical and biological engineering, SPIE,
09:48:48 4 which is a society devoted to optics, and the American Heart
09:48:54 5 Association.
09:48:54 6 MS. PESCHEL: Your Honor at this time I would
09:48:54 7 like to tender Dr. Pelc as an expert in the field of the
09:48:58 8 infringed patent including digital imaging tomography and
09:49:02 9 densitometry.
09:49:02 10 MR. OSTROW: I'm sorry, I couldn't hear.
09:49:06 11 MS. PESCHEL: I would like too tender Dr. Pelc
09:49:08 12 as an expert in the field of the asserted patents including
09:49:11 13 digital imaging, tomography and densitometry.
09:49:15 14 MR. OSTROW: We object.
09:49:16 15 THE COURT: You object?
09:49:18 16 MR. OSTROW: Yes, Your Honor.
09:49:20 17 THE COURT: Overruled. You may proceed,
09:49:24 18 counsel.
09:49:25 19 MS. PESCHEL: Thank you, Your Honor.
09:49:28 20 BY MS. PESCHEL:
09:49:29 21 Q. Dr. Pelc, what materials did you review in this case?
09:49:32 22 A. I reviewed the patents and their prosecution history,
09:49:36 23 legal briefs, deposition testimony, expert reports, trial
09:49:41 24 exhibits, a few Planmeca confidential documents and a lot of
09:49:47 25 prior art materials.

09:49:49 1 Q. With respect to the Planmeca technical materials,
09:49:53 2 what kind of things did you consider?
09:49:55 3 A. Technical documents that describe the machines so
09:49:58 4 that I would have a good understanding of them. And also
09:50:02 5 Planmeca's responses to discovery, deposition transcripts of
09:50:09 6 Planmeca witnesses. A few of Planmeca Oy patents. And I
09:50:15 7 had conversations with Planmeca employees, especially Timo
09:50:21 8 Muller.
09:50:24 9 Q. And what were you asked to do in this case?
09:50:26 10 A. I was asked to respond to Dr. Kia's infringement
09:50:31 11 report and in it present my opinions as to whether the
09:50:36 12 ProMax 3D systems infringe any asserted claim. And to
09:50:40 13 analyze and present opinions related to whether the claims
09:50:44 14 of the Osseo patents are valid or invalid. And provide
09:50:49 15 technical expertise relevant to the damages expert.
09:50:57 16 Q. Dr. Pelc, can we discuss a little bit about the
09:51:00 17 technology that we've heard about in this case?
09:51:02 18 A. Sure, I would be glad to. X-rays were discovered by
09:51:07 19 Wilhelm Rontgen in 1895. He was doing research on other
09:51:13 20 things and noticed this strange phenomenon and was smart
09:51:19 21 enough to realize that was more important than whatever else
09:51:22 22 he was trying to do with the equipment and started pursuing
09:51:25 23 that. And he realized that there was rays, nobody knew
09:51:35 24 about radiation at that time or not much, and there with
09:51:35 25 were rays coming from his device that carried energy and he

09:51:38 1 didn't know what they were so he called them X-rays because
09:51:41 2 he didn't know what they were. But explained a number of
09:51:48 3 things about X-rays, and for his work was given the Nobel
09:51:52 4 prize in physics, the first Nobel prize ever in physics in
09:51:59 5 1901 and soon after his discovery, he realized that his
09:52:04 6 x-rays were penetrating things but some things were
09:52:09 7 penetrated more easily than others. And so he thought that
09:52:12 8 they might be useful for making images of the inside of
09:52:18 9 people, something that hadn't been done before. And took
09:52:19 10 this image of his wife's hand and as far as we know, this is
09:52:24 11 the first -- well a reproduction obviously of the first
09:52:29 12 x-ray ever taken.
09:52:32 13 Q. Dr. Pelc, we've also heard a lot about densitometry
09:52:36 14 in this case. Are there common ways to do densitometry in
09:52:41 15 the scientific field?
09:52:44 16 A. Yes. A couple of them are called absorptiometry
09:52:50 17 which means measuring the absorption of x-rays. I mentioned
09:52:54 18 John Cameron earlier, he was the professor that I went to
09:52:57 19 visit. And he was responsible for a number of innovations.
09:53:01 20 You see there a picture from a system that he built and was
09:53:06 21 using in 1967 to measure the bone mineral in the forearm of
09:53:16 22 a person. You talked about this machine earlier in the
09:53:16 23 trial, this is the one that requires the arm to be sub
09:53:19 24 merged in water. It's called single energy absorptiometry.
09:53:26 25 The second picture that you see there is Richard Mazess who

09:53:28 1 was my under graduate research advisor, he founded Lunar in
09:53:33 2 1973 to commercialize a technic called dual energy x-ray
09:53:38 3 absorptiometry and the benefit of dual energy is the person
09:53:44 4 doesn't have to be submerged in water. You see a picture
09:53:50 5 there are of a Lunar bone densitometer, the person would lay
09:53:53 6 on the table and the machine would scan the person and
09:53:57 7 measure their bone mineral content.
09:54:03 8 Q. Is that the same Lunar that your patent is assigned
09:54:03 9 to?
09:54:03 10 A. That's right.
09:54:04 11 Q. Something else that has come up in this trial is
09:54:08 12 something called computed tomography. What are you showing
09:54:10 13 on slide 19?
09:54:11 14 A. The scanner that you see there is a photograph of the
09:54:14 15 first scanner to take an image of a human being. It was
09:54:19 16 developed by a company called EMI, and the first image of a
09:54:23 17 patient was performed October 1st, 1971, a little more than
09:54:28 18 50 years ago. And the image that you see on the right is
09:54:32 19 not of the first person, but one of the early ones. And
09:54:40 20 that actually is a tumor. And it just startled people that
09:54:46 21 this could be done.
09:54:49 22 Q. And then on slide 20 which is also labeled computed
09:54:54 23 tomography, what are you showing?
09:54:55 24 A. That machine that I showed you a development was led
09:54:59 25 by Godfrey Hounsfield who worked for EMI. And he and

09:55:05 1 another physicist named Alan Cormack shared the Nobel prize
09:55:11 2 in physiology and medicine for the development of computed
09:55:15 3 tomography. An award was given in 1979. Cormack had done
09:55:19 4 independent work, actually prior to Hounsfield and was
09:55:23 5 credited for innovation as well.
09:55:29 6 Q. Is there a way to use computed tomography to do
09:55:31 7 densitometry?
09:55:31 8 A. Yes, there is. A person on the left is Harry Genant,
09:55:38 9 he is a bone radiologist, was, he's passed away, was a bone
09:55:43 10 radiologist at the University of California San Francisco
09:55:47 11 and he led efforts at UCSF to develop quantitative bone
09:55:55 12 densitometry using computed tomography. The image in the
09:55:58 13 middle and the highlighted person there is Chris Cann who
09:56:02 14 was one of the pioneers in QCT. And the image oh the right
09:56:07 15 is from one of their publications from 1980 showing the
09:56:11 16 technique that they came up with, they realized that CT
09:56:15 17 alone was not able to quantitatively measure or compute bone
09:56:22 18 density by itself.
09:56:25 19 A. But if you put known standards and I have them
09:56:29 20 showing there and scan the known standards at the same time
09:56:32 21 as you scan the person, you can compare the reconstructed
09:56:37 22 values of the known standards to those in the bone and from
09:56:41 23 that, since you know the standards, from that, infer the
09:56:46 24 bone content of the bone, the bone mineral content of the
09:56:50 25 bone.

09:56:50 1 Q. **Dr. Pelc, can you turn to Tab 11 in your binder,**
09:56:56 2 **please?**
09:56:56 3 A. **Yes.**
09:57:06 4 Q. **What is that document?**
09:57:06 5 A. **That is the paper from which those figures are taken.**
09:57:08 6 Q. **Is that called precise measurement?**
09:57:13 7 A. **Measurement, precise measurement of vertebral mineral**
09:57:17 8 **content using computed tomography, and it was published in**
09:57:24 9 **1980.**
09:57:24 10 Q. **And at the bottom is it joint Exhibit 5?**
09:57:25 11 A. **Yes, that's correct.**
09:57:26 12 **MS. PESCHEL: Your Honor, I would like to offer**
09:57:28 13 **into evidence joint Exhibit 5.**
09:57:29 14 **THE COURT: Any objection?**
09:57:31 15 **MR. OSTROW: No, Your Honor.**
09:57:32 16 **THE COURT: JX-5 will be received.**
09:57:36 17 **(JX Exhibit No. 5 was admitted into evidence.)**
09:57:36 18 **MS. PESCHEL: May I publish it to the jury, Your**
09:57:39 19 **Honor?**
09:57:39 20 **THE COURT: Yes, you may.**
09:57:40 21 **BY MS. PESCHEL:**
09:57:41 22 Q. **Is this the article that you were describing?**
09:57:44 23 A. **Yes.**
09:57:45 24 Q. **And you talked a little bit about Chris Cann and**
09:57:50 25 **Harry Genant, they are the authors of this article?**

09:57:53 1 A. **Yes, that's right.**

09:57:58 2 Q. **And then I believe you said it was published in 1980?**

09:57:58 3 A. **Yes.**

09:58:07 4 Q. **I believe, Dr. Pelc, you have some excerpts, possibly**

09:58:10 5 **on the next slide. Can you explain what you're showing**

09:58:13 6 **here?**

09:58:13 7 A. **Yes, so you see the title of the paper there. I**

09:58:17 8 **think this shows that the first bone densitometry conducted**

09:58:22 9 **with CT was no later than 1980, obviously they had been**

09:58:26 10 **working on it for a while. The measured CT numbers in**

09:58:32 11 **Hounsfield units are converted to bone mineral density by**

09:58:39 12 **comparing them to those standards. They also compared one**

09:58:41 13 **tomographic model to the other. On the bottom right you see**

09:58:46 14 **five images of vertebral bodies of the spine. Each -- those**

09:58:52 15 **are 2 of 3 levels that were scanned through the lumbar**

09:58:58 16 **spine, of lumbar spine elements. And they were scanned**

09:59:03 17 **three different times. You see there the dates, November,**

09:59:08 18 **1977, June 1978, and December 1978. And in this table which**

09:59:15 19 **is from that paper, you see the CT numbers in Hounsfield**

09:59:20 20 **units from each of the vertebrae in each much the scans and**

09:59:23 21 **then the X bar means the average.**

09:59:27 22 **And then those were converted to bone mineral**

09:59:30 23 **content in milligrams per milliliter, and it's comparing**

09:59:37 24 **those.**

09:59:38 25 Q. **So, Dr. Pelc, when you said, you were talking about**

09:59:42 1 this table and you were saying mineral content in milligrams
09:59:46 2 per milliliter. Is that a determination of bone density?
09:59:49 3 A. That's right, it's a determination of a bone, the
09:59:53 4 density of bone mineral in milligrams per milliliter.
09:59:57 5 Q. Dr. Pelc, were you in the courtroom when Dr. Massie
10:00:00 6 testified?
10:00:00 7 A. Yes.
10:00:01 8 Q. What did you understand Dr. Massie to claim his
10:00:05 9 improvement over the preexisting technology was?
10:00:08 10 A. He claimed that what he did is take techniques like
10:00:13 11 these and like the Lunar detection bone machine and bring
10:00:19 12 them into dentistry.
10:00:22 13 Q. Do you agree with Dr. Massie that that was new?
10:00:25 14 A. No. No, he may not have been aware, but it was not
10:00:29 15 new.
10:00:30 16 Q. Dr. Pelc, can you turn to Tab 12 in your binder.
10:00:37 17 A. Yes.
10:00:39 18 Q. What is this document?
10:00:41 19 A. This is a copy of a paper by Devlin and Horner
10:00:47 20 entitled measurement of mandibular bone mineral content
10:00:51 21 using the dental panoramic tomogram. It was published in
10:00:57 22 1991.
10:00:57 23 Q. Is this an example of dental densitometry using
10:01:01 24 tomography before 1999?
10:01:03 25 A. Yes.

10:01:05 1 MS. PESCHEL: Your Honor I would like to move
10:01:06 2 into evidence PX-98, plaintiff's Exhibit 98.
10:01:10 3 THE COURT: Any objection?
10:01:11 4 MR. OSTROW: No objection.
10:01:12 5 THE COURT: PX-98 is received.
10:01:14 6 (PX Exhibit No. 98 was admitted into evidence.)
10:01:15 7 MS. PESCHEL: May I publish it to the jury, Your
10:01:17 8 Honor?
10:01:17 9 THE COURT: Yes, you may.
10:01:19 10 BY MS. PESCHEL:
10:01:20 11 Q. And Dr. Pelc, this was the article that you were just
10:01:22 12 talking about, right?
10:01:23 13 A. Yes, yes. That's the first page of the article.
10:01:25 14 Q. And up at the top it says J.DENT, what is that?
10:01:31 15 A. It's the journal of dentistry, I guess, I don't know
10:01:40 16 exactly what the abbreviation stands for. But that's the
10:01:42 17 name, the abbreviation of the name of the journal.
10:01:45 18 Q. I think we're going to talk about several scientific
10:01:48 19 articles today. Is it okay if you refer to them by either
10:01:55 20 the first author or some other name or way to refer to them?
10:01:55 21 A. Yes, we often refer to it by the last name of the
10:01:58 22 first author and the year.
10:02:00 23 Q. So for instance this one we could refer to as Devlin
10:02:04 24 1991?
10:02:04 25 A. That's right.

10:02:06 1 Q. Dr. Pelc can you turn to Tab 13 in your binder?
10:02:09 2 A. Yes.
10:02:12 3 Q. What is this document?
10:02:13 4 A. This is an article entitled trabecular bone mineral
10:02:19 5 density of mandible and alveolar height in postmenopausal
10:02:25 6 women. It was published in the Scandinavian journal of
10:02:33 7 dental research in 1993. And the first author name is
10:02:34 8 Klemetti.
10:02:35 9 Q. Is this another example of dental densitometry using
10:02:39 10 tomography before 1999?
10:02:40 11 A. Yes.
10:02:41 12 MS. PESCHEL: Your Honor, I would like to move
10:02:43 13 into evidence plaintiff's Exhibit 100.
10:02:45 14 THE COURT: Any objection.
10:02:46 15 MR. OSTROW: No, Your Honor.
10:02:47 16 THE COURT: 100 is received.
10:02:54 17 (PX Exhibit No. 100 was admitted into evidence.)
10:02:54 18 MS. PESCHEL: May I publish it to the jury, Your
10:02:54 19 Honor?
10:02:54 20 THE COURT: Yes, you may.
10:02:54 21 BY MS. PESCHEL:
10:03:04 22 Q. Dr. Pelc, when it says bone mineral density, what
10:03:04 23 does that mean?
10:03:04 24 A. That's the bone mineral density calculated in
10:03:07 25 milligrams per milliliter.

10:03:09 1 Q. And then it says bone mineral density of mandible
10:03:15 2 what is that?
10:03:15 3 A. We heard that before, it's one of the bones of the
10:03:18 4 jaw.
10:03:24 5 Q. Dr. Pelc, what are you showing on slide 23?
10:03:33 6 A. On the left is a repeat of that first page of the
10:03:36 7 Devlin article that we talked about already. And on the
10:03:40 8 right is both the first page of the Klemetti paper and also
10:03:46 9 two images from that paper. And those images were taken
10:03:51 10 with a commercial Siemens scanner. The first was, shows you
10:03:59 11 the patient as seen from the side. The lower images is of
10:04:04 12 the jaw, the bone of the jaw is clearly visible there. But
10:04:10 13 not seen on that image is the fact that at the same time
10:04:14 14 that they scanned the jaw, they also scanned standards of
10:04:19 15 known mineral content or equivalent mineral content. And
10:04:23 16 they used the technique of Cann and Genant to convert the
10:04:31 17 Hounsfield Unit values that were produced by the Siemens
10:04:34 18 machine in that jaw to mineral content in milligrams per
10:04:41 19 milliliter through calculations related to the measured CT
10:04:46 20 numbers of the standards.
10:04:48 21 Q. Now, I want to switch gears just a little bit,
10:04:52 22 Dr. Pelc. What type of computed tomography was used in the
10:05:02 23 ProMax 3D systems?
10:05:02 24 A. Cone beam computed tomography.
10:05:02 25 Q. Was cone beam computed tomography known before 1999?

10:05:05 1 A. **Yes.**

10:05:05 2 Q. **And if you will turn in your binder to Tab 14.**

10:05:14 3 A. **Yes.**

10:05:16 4 Q. **What is at Tab 14?**

10:05:23 5 A. **It's a copy of a paper published in European**

10:05:24 6 **radiology in 1998. The first author's name is Mozzo.**

10:05:30 7 Q. **At the bottom does it have a label DX-93?**

10:05:34 8 A. **It's at the top, yes, DX-93.**

10:05:37 9 **MS. PESCHEL: Your Honor, at this time I would**

10:05:39 10 **like to move into defendant Defense Exhibit 93.**

10:05:42 11 **THE COURT: Any objection?**

10:05:42 12 **MR. OSTROW: No objection.**

10:05:43 13 **THE COURT: 93 is received.**

10:05:45 14 **(DX Exhibit No. 93 was admitted into evidence.)**

10:05:50 15 **BY MS. PESCHEL:**

10:05:52 16 Q. **At a high level, Dr. Pelc, what is this Mozzo article**

10:05:56 17 **about?**

10:05:59 18 A. **Well cone beam computed tomography was known even**

10:06:03 19 **before this. It goes back to the mid 1980's. And what**

10:06:09 20 **Mozzo and his colleagues did is build a CT machine,**

10:06:14 21 **volumetric CT machine for dental imaging based on the cone**

10:06:19 22 **beam technique and this paper presents at a high level what**

10:06:24 23 **the machine was like and presents preliminary results with**

10:06:29 24 **that machine.**

10:06:30 25 Q. **Mr. Herndon, can we go back to DDX-4, slide 24,**

10:06:35 1 please. What are you showing here, Dr. Pelc?
10:06:44 2 A. On the left is again the front page of the article.
10:06:51 3 The text in the box is actually, you can see behind it and
10:06:56 4 slightly to the left where it came from in the paper, it's
10:07:00 5 on the second column of the first page. And Mozzo there
10:07:04 6 says the new machine presented in the paper is the first
10:07:08 7 commercial CBCT system devoted to dentomaxillofacial
10:07:15 8 imaging. And in the middle you see a picture or a drawing
10:07:21 9 of the he geometry of the machine it has an x-ray source at
10:07:24 10 the top, a cone beam, the patient or the subject shown as a
10:07:31 11 cylinder and the x-ray beam lands on a large area detector.
10:07:36 12 And on the right are volume renderings from images produced
10:07:43 13 by that machine.
10:07:44 14 Q. And are those images in the Mozzo article?
10:07:46 15 A. Yes, these are both at Figure 1 and Figure 6 from
10:07:54 16 that article.
10:07:57 17 Q. Let's dive a little bit deeper into the technology we
10:08:01 18 just discussed. Can you explain to the jury how an x-ray is
10:08:05 19 generally made?
10:08:05 20 A. Yes, x-rays are produced in an x-ray tube and they --
10:08:10 21 if you just had an x-ray tube here, it would shine x-rays in
10:08:14 22 all directions, we don't want that. So we put it in a
10:08:19 23 shielded box and in front we put a device that can further
10:08:23 24 limit in a controlled way, the direction of the x-rays. And
10:08:26 25 the collimator only passes x-rays that are headed toward

10:08:30 1 what you want the image, and the x-rays pass through the
10:08:34 2 patient and then land on the receptor to produce an image
10:08:40 3 like the image that Roentgen made of his wife's hand.
10:08:43 4 Q. I'm going to move to slide 26. Are there any
10:08:48 5 specific issues with projection radiography?
10:08:50 6 A. Yes, one that was recognized really early on is that
10:08:53 7 if you have an object, if you imagine the collection of four
10:08:58 8 geometric objects there, they can be one in front of the
10:09:02 9 other. So the image that you see in P which we call a
10:09:06 10 projection, has super imposition of objects that happen to
10:09:10 11 be in line with each other when the x-rays were penetrating.
10:09:15 12 And in a single projection like that, you can't tell what
10:09:20 13 was in front of what or anything, you just see the
10:09:23 14 projection of all of them.
10:09:25 15 And the reason I'm trying to show you that in
10:09:28 16 the graphic on the bottom, if you have x-rays shining on
10:09:32 17 that orange cube, some fraction will be transmitted by that
10:09:38 18 cube and that fraction depends on a property of the material
10:09:41 19 in the cube and the thickness and the property we call the
10:09:47 20 linear attenuation coefficient, and those two together
10:09:50 21 determine the intensity of the x-rays that come out of the
10:09:54 22 orange cube.
10:09:54 23 Now, if you now were to shine the remaining
10:09:59 24 intensity on another box -- thank you, Mr. Herndon -- this
10:10:05 25 blue box, even fewer x-rays would come out.

10:10:08 1 **The thing you may find interesting is that if**
10:10:11 2 **you reverse the order and put the blue box first and then**
10:10:14 3 **the orange box, the intermediate intensity which you can't**
10:10:18 4 **see because that's not where your receptor is, is different**
10:10:23 5 **between the two but the final intensity is independent of**
10:10:26 6 **which one was in front of which. And that's fundamental to**
10:10:30 7 **x-rays.**
10:10:30 8 **So objects that are in the same path are**
10:10:33 9 **superimposed in the projection image.**
10:10:36 10 Q. **Dr. Pelc, what is tomography, how does that differ**
10:10:40 11 **from what you just described?**
10:10:41 12 A. **So because of that, people in the x-ray imaging field**
10:10:45 13 **in the early part of the 20th century developed the first**
10:10:54 14 **techniques for tomography. And tomography comes from the**
10:10:54 15 **Greek, it just means imaging a layer. And if we were to**
10:10:57 16 **make perfect ideal slice images through that object with**
10:11:03 17 **geometry, geometric objects in it, slice two would only**
10:11:07 18 **contain the two in the front and slice one would contain the**
10:11:10 19 **two in the back. And you might ask yourself, well how did**
10:11:14 20 **we do this with x-rays if we have this superimposition**
10:11:19 21 **problem. And we have depth perception with our eyes because**
10:11:25 22 **we have two of them. And tomography uses the same idea.**
10:11:29 23 **You image the object from many directions and you use the**
10:11:34 24 **changes in the images from various directions to try to say**
10:11:38 25 **something about what is in front of what.**

10:11:41 1 Q. **What type of tomography are there?**
10:11:44 2 A. **Tomography is a very generic term that means, you**
10:11:48 3 **know, anything that's imaging layers. And here you see**
10:11:54 4 **three groupings inside that venn diagram of tomography.**
10:12:02 5 **There are panoramic images that we heard about in this case,**
10:12:06 6 **and the interesting thing about panoramic images is that the**
10:12:10 7 **focal plane is curved. Tomosynthesis, the focal layers**
10:12:16 8 **usually are flat, but in fact now we're starting to see the**
10:12:20 9 **overlap of those two circles in the venn diagram. And in**
10:12:25 10 **fact the SmartPan method that we heard about yesterday is**
10:12:29 11 **actually at the inter section of those two. And I also show**
10:12:33 12 **computed tomography, all of these rely on imaging the object**
10:12:38 13 **from many directions by somehow moving the source. All the**
10:12:44 14 **modern methods use computers to calculate these tomographic**
10:12:49 15 **images and they can produce them for multiple planes or**
10:12:53 16 **objects from a single scan. And the differences among them**
10:13:01 17 **has to do with the details of what those focal planes look**
10:13:01 18 **like. In particular, computed tomography is better able to**
10:13:07 19 **separate layers than the other methods.**
10:13:11 20 Q. **I'm going to turn to your slide 29. Can you explain**
10:13:14 21 **to the jury how computed tomography works?**
10:13:17 22 A. **Yes. So as I said, we have to look at the object**
10:13:20 23 **from many directions so we have an x-ray tube, collimator,**
10:13:24 24 **detector and electronics to measure the transmitted**
10:13:29 25 **intensity and those rotate around the object. And in**

10:13:33 1 **computed tomography we have to rotate at least halfway**
10:13:38 2 **around.**
10:13:39 3 Q. **What are you showing here?**
10:13:40 4 A. **So, the next problem you have is each of those**
10:13:44 5 **measurements has superimposition, has information about**
10:13:48 6 **everything that was in the path. And so the array of**
10:13:52 7 **projection data, all of them together are given to something**
10:13:57 8 **called a reconstruction program and the job of the**
10:14:00 9 **reconstruction program is to undo all of that**
10:14:06 10 **superimposition. I think Dr. Kia described it as solving a**
10:14:10 11 **giant set of simultaneous equations and that actually is a**
10:14:15 12 **good description for it. And from it, you end up with an**
10:14:19 13 **image in which in each voxel, we have a calculation of the**
10:14:27 14 **linear attenuation coefficient going back to what I said,**
10:14:29 15 **the linear attenuation coefficient was, which is it**
10:14:33 16 **describes how easy it is for radiation to penetrate that**
10:14:39 17 **particular material. And they can be converted to**
10:14:45 18 **Hounsfield units if you like or just left as linear**
10:14:53 19 **attenuation coefficient.**
10:14:53 20 Q. **And I think we've already heard testimony on this,**
10:14:57 21 **Dr. Pelc, but Hounsfield units were named after Sir Godfrey**
10:15:03 22 **Hounsfield?**
10:15:04 23 A. **That's correct.**
10:15:08 24 Q. **Dr. Pelc, does any Osseo patent teach three**
10:15:12 25 **dimensional cone beam computed tomography?**

10:15:16 1 A. **No.**

10:15:16 2 Q. **Does any Osseo patent teach computed tomography?**

10:15:23 3 A. **No.**

10:15:25 4 Q. **Let's turn to your non-infringement opinion. Were**

10:15:28 5 **you in the courtroom when Dr. Kia testified on**

10:15:31 6 **non-infringement?**

10:15:32 7 A. **Yes.**

10:15:33 8 Q. **I mean on infringement, I apologize?**

10:15:35 9 A. **Yes.**

10:15:35 10 Q. **Did you review Dr. Kia's reports on infringement?**

10:15:38 11 A. **No. I'm sorry, can you repeat the question.**

10:15:41 12 Q. **Did you review Dr. Kia's reports on infringement?**

10:15:44 13 A. **Yes, I did.**

10:15:45 14 Q. **So you heard his testimony and you have read his**

10:15:49 15 **reports in do you agree with Dr. Kia's opinion?**

10:15:55 16 A. **Not on this point, no.**

10:15:55 17 Q. **What is your opinion about how Osseo is interpreting**

10:15:59 18 **densitometry in its infringement theory?**

10:16:01 19 A. **Osseo's view is that mere calculation of Hounsfield**

10:16:12 20 **units or linear attenuation in Hounsfield units is**

10:16:12 21 **quantitatively calculated bone density and that is simply**

10:16:16 22 **not true.**

10:16:16 23 Q. **And you're referring to quantitatively calculated**

10:16:21 24 **bone density, is that because that is how the court**

10:16:25 25 **construed bone densitometry?**

10:16:27 1 A. **That's correct.**

10:16:28 2 Q. **I think there are some variations of the language**

10:16:31 3 **used, I think one used yesterday is relative bone density is**

10:16:35 4 **enough to meet the Court's construction, what is your**

10:16:38 5 **opinion?**

10:16:40 6 A. **Yes, I listened carefully to the testimony and when**

10:16:44 7 **describing the values and the meaning of Hounsfield units,**

10:16:56 8 **Osseo and the witnesses were using words like Hounsfield**

10:16:57 9 **units to represent bone density, or their bone density**

10:17:01 10 **values calibrated to Hounsfield units or includes bone**

10:17:05 11 **density and the one we heard yesterday repeatedly was**

10:17:10 12 **relative bone density. These do not meet the Court's**

10:17:15 13 **construction of quantitatively calculated bone density. In**

10:17:22 14 **particular, when the court issued that claim construction,**

10:17:27 15 **it also explained the rationale for it. And in that**

10:17:31 16 **rationale, the court said quantitative bone density is not**

10:17:37 17 **enough, grayscale is not enough, and relative measurements**

10:17:41 18 **of bone density are not enough. So quantitatively**

10:17:51 19 **calculated bone density is very specific and Hounsfield**

10:17:51 20 **units don't meet that.**

10:17:52 21 Q. **Dr. Pelc, I want to turn to your slide 33 and ask**

10:17:58 22 **you, we also heard an interpretation with respect to Osseo's**

10:18:05 23 **theory of infringement of the model term. Do you agree with**

10:18:06 24 **that?**

10:18:06 25 A. **No, I don't agree with Osseo's interpretation of the**

10:18:10 1 **model term.**

10:18:11 2 Q. **Why not?**

10:18:12 3 A. **Well, it's very long phrase there, but the model is**

10:18:21 4 **supposed -- and various terms are used in different claims.**

10:18:25 5 **But they mean merging information from multiple tomographic**

10:18:30 6 **scans, and I underlined that because that's really**

10:18:34 7 **important, of an object to produce a representation of the**

10:18:39 8 **subject/said representation depicting quantitative density**

10:18:45 9 **differences of the object scanned, and again I highlighted**

10:18:49 10 **that because it's important, which is created by the**

10:18:53 11 **microprocessor using densitometry, and there I want you to**

10:18:59 12 **combine created using densitometry. So it has to be created**

10:19:04 13 **using quantitatively calculated bone density. And it has to**

10:19:09 14 **be created by merging information from multiple tomographic**

10:19:13 15 **scans. Multiple tomographic scans.**

10:19:18 16 **And what the Planmeca machine does is a single**

10:19:23 17 **scan. To meet the infringement requirement, Osseo is**

10:19:30 18 **misinterpreting the projections of the CT scan and calling**

10:19:37 19 **each of them a tomographic scan. Well a single projection**

10:19:42 20 **is not a tomographic scan. And it also is treating the**

10:19:48 21 **reconstruction algorithm as merging. I don't agree with**

10:19:53 22 **either of those. The reconstruction algorithm is not**

10:19:55 23 **merging information from multiple tomographic scans. It's**

10:20:00 24 **reconstructing an image from multiple projections.**

10:20:05 25 Q. **Are the projections tomographic?**

10:20:07 1 A. **No, each projection is not tomographic. Each**
10:20:10 2 **projection has the superimposition problems that we talked**
10:20:15 3 **about.**
10:20:20 4 Q. **Let's talk at a high level -- I apologize, I am not**
10:20:22 5 **on the right slide?**
10:20:24 6 A. **Just related to that, I'm sorry, individual views are**
10:20:28 7 **not scans, they're projections or views. Reconstruction**
10:20:31 8 **does not merge views in the way taught by the patents. And**
10:20:35 9 **these are just not the way we use the words merged and**
10:20:40 10 **scanned in the field. And if you listen carefully to**
10:20:43 11 **Dr. Kia's testimony, the only time he called projections**
10:20:49 12 **tomographic scans was when he was trying -- was using claim**
10:20:52 13 **charts to try to show infringement. At other times he**
10:20:55 14 **called them views or frames or projections which are the**
10:21:00 15 **words we normally use.**
10:21:04 16 Q. **What are you showing on slide 34?**
10:21:10 17 A. **Well, further reasons why I disagreed with this claim**
10:21:14 18 **interpretation is that the claims also call for the computer**
10:21:19 19 **or controller to be comparing models. And the comparison**
10:21:24 20 **that you were shown was not the computer comparing models,**
10:21:29 21 **it was the operator comparing models and that just does not**
10:21:35 22 **meet the claim limitation.**
10:21:37 23 **So you could ask yourself why is Osseo using**
10:21:41 24 **this erroneous claim interpretation or why does it matter.**
10:21:46 25 **And it matters because with this claim interpretation these**

10:21:50 1 claim elements now read on the prior art.
10:21:53 2 Q. Do you have an example of that?
10:21:55 3 A. Sure. So any reconstruction algorithm will be
10:21:58 4 merging information from multiple tomographic scans because
10:22:02 5 they all --
10:22:03 6 Q. I apologize, I didn't mean to interrupt you. Under
10:22:07 7 their interpretation?
10:22:08 8 A. Under their interpretation. Any reconstruction
10:22:11 9 algorithm would meet that limitation. Here is one machine
10:22:15 10 that would meet that limitation as well as the densitometry
10:22:20 11 limitation, and that is this machine that I showed you from
10:22:25 12 the Mozzo article which was commercialized under the name
10:22:31 13 NewTom 9000, so that's a picture of the machine and the
10:22:37 14 images that I showed you earlier. And similarly on the next
10:22:41 15 slide, the Klemetti system would meet those claim
10:22:48 16 limitations because the Siemens scanner reconstructed CT
10:22:54 17 images, merging information from multiple tomographic scans,
10:22:58 18 and produced images in Hounsfield units.
10:23:01 19 Now, I want you to keep in mind that while I
10:23:08 20 think that those are -- don't meet the claim limitation and
10:23:09 21 are not -- Hounsfield units are not densitometry or in the
10:23:14 22 way it's used in the claims, the authors of the Klemetti
10:23:20 23 paper went on to, in fact, convert their measurements to
10:23:30 24 quantitatively calculated bone density. So they actually
10:23:30 25 did densitometry.

10:23:35 1 Q. **Dr. Pelc, can you summarize any disagreements that**
10:23:37 2 **you have with Dr. Kia's analysis?**
10:23:39 3 A. **Yes. I believe he misunderstands the Osseo patents.**
10:23:43 4 **He misunderstands the ProMax 3D systems. He errs in**
10:23:52 5 **equating Hounsfield units to densitometry and I don't**
10:23:53 6 **believe that they are quantitatively calculated bone**
10:24:00 7 **density. He errs in calling each of the two images 2D**
10:24:05 8 **images in the projection scan. And he errs in saying that**
10:24:10 9 **the computer is, or that the system meets the claim**
10:24:17 10 **limitation because the examples he showed rely on the user**
10:24:23 11 **doing the comparing, not the computer.**
10:24:26 12 Q. **What is --**
10:24:27 13 **THE COURT: Are you about finished because it's**
10:24:28 14 **about time for a break.**
10:24:30 15 **MS. PESCHEL: This would be a great time, Your**
10:24:32 16 **Honor.**
10:24:32 17 **THE COURT: Okay. So ladies and gentlemen,**
10:24:33 18 **let's take a morning break. Let's take fifteen minutes.**
10:24:37 19 **COURT CLERK: All rise.**
10:24:39 20 **(Jury leaving the courtroom at 10:24 a.m.)**
10:24:57 21 **THE COURT: Please be seated, ladies and**
10:25:02 22 **gentlemen. I probably should have visited with you this**
10:25:07 23 **morning early, but I read the signals wrong.**
10:25:12 24 **So at any rate, how are we on jury instructions?**
10:25:15 25 **Can someone just briefly tell me where we are.**

10:25:18 1 MR. OSTROW: I'll start, Your Honor. So the
10:25:20 2 parties did exchange some revisions to what the Court had
10:25:26 3 put out as jury instructions. Partially to make them
10:25:27 4 consistent with how we ended up with the preliminary
10:25:30 5 instructions, there were some changes there to be carried
10:25:33 6 over, partially to update the information based on how the
10:25:37 7 case is going. At the moment are some minor disputes, we
10:25:41 8 may be able to resolve them ourselves, I think we're still
10:25:45 9 working on it, if the Court wants to know what they are.
10:25:47 10 THE COURT: No, I just need a progress report.
10:25:49 11 MR. OSTROW: The other thing is, the Court
10:25:52 12 expressed an interest in maybe shortening them. There are
10:25:55 13 sections that are somewhat repetitive --
10:25:57 14 THE COURT: Absolutely repeated instructions.
10:26:01 15 MR. OSTROW: Take those out because they are in
10:26:03 16 the book. If they make sense, take them out, there is no
10:26:07 17 reason to read them twice. I think we're going to be up
10:26:10 18 against the time deadline and just me reading them takes
10:26:13 19 time. But if you think that they need to be -- in order to
10:26:17 20 make sense that I need to repeat them, I understand that,
10:26:21 21 too.
10:26:22 22 MR. OSTROW: We'll consult on that.
10:26:24 23 MR. DIETRICH: I think what the Court was also
10:26:27 24 after was logistics. I think we can get a copy of one
10:26:30 25 document to the Court sometime after lunch, mid afternoon so

10:26:33 1 that we can discuss it.

10:26:34 2 THE COURT: All right. So just a heads up, if

10:26:37 3 we do come up with -- I mean, once I do come up with

10:26:42 4 instructions, I'm going to ask the defendants to reproduce

10:26:46 5 them all for everybody because I asked the plaintiff to do

10:26:48 6 the initial instructions. Is that okay?

10:26:50 7 MR. DIETRICH: That's fine.

10:26:51 8 THE COURT: I just want to be fair. So we'll

10:26:54 9 take a recess. Is there one other thing?

10:26:57 10 MR. QURESHI: Yes, Your Honor, you had asked us

10:26:59 11 to think about the issue of the videos and report back to

10:27:02 12 you.

10:27:02 13 THE COURT: Yes.

10:27:02 14 MR. QURESHI: So we would request that the full

10:27:05 15 videos, I think it's 438 and 485 be sent back to the jury

10:27:09 16 room.

10:27:10 17 THE COURT: So you want those -- they're already

10:27:13 18 marked as exhibits, you want to present the full video as an

10:27:16 19 exhibit to the jury.

10:27:17 20 MR. QURESHI: Right now, they're marked as

10:27:20 21 438(A) and 485(A).

10:27:23 22 THE COURT: Do you have any objection to the

10:27:25 23 whole video?

10:27:26 24 MR. OSTROW: No, Your Honor.

10:27:27 25 THE COURT: Tell me the numbers again.

10:27:29 1 **MR. QURESHI: Somebody check me, I think 438 and**
10:27:34 2 **485.**
10:27:35 3 **THE COURT: Just a second, 438 and 485.**
10:27:45 4 **COURT CLERK: PTX-438 and PTX-485.**
10:27:50 5 **MR. OSTROW: The only thing, Your Honor, would**
10:27:51 6 **be if there is some way to isolate to the jury what part**
10:27:54 7 **they've actually saw.**
10:27:55 8 **THE COURT: I'm giving them both so they'll get**
10:27:57 9 **the snippet and they'll get the whole video.**
10:28:00 10 **MR. QURESHI: Will you inform the jury?**
10:28:01 11 **THE COURT: Yes. So PX-438 and PX-485 is**
10:28:10 12 **received, that's what my courtroom deputy is saying.**
10:28:14 13 **MR. QURESHI: Yes, Your Honor.**
10:28:15 14 **THE COURT: Thank you. Let's take our break.**
10:28:17 15 **COURT CLERK: All rise.**
10:28:19 16 **(A brief recess was taken.)**
10:40:50 17 **COURT CLERK: All rise.**
10:40:53 18 **(Jury entering the courtroom at 10:40 a.m.)**
10:40:59 19 **THE COURT: Please be seated, ladies and**
10:41:02 20 **gentlemen.**
10:41:02 21 **Ladies and gentlemen of the jury, before we**
10:41:05 22 **continue with the testimony of Dr. Pelc, the lawyers and I**
10:41:12 23 **have come to an agreement on some exhibits. So if, as**
10:41:16 24 **you'll recall some video clips of instructional videos were**
10:41:20 25 **played yesterday. And for completeness, we were going to**

10:41:26 1 give you not only those small clips but also the whole
10:41:30 2 training video, there will be both exhibits. The IT
10:41:34 3 department here at the court will set up a computer and
10:41:37 4 monitor so that you can play them in advance, turn back and
10:41:41 5 play them as many times as you want when you go back to the
10:41:44 6 jury room. So those are exhibits number PX-438 and PX-485.
10:41:51 7 So those will be admitted into evidence and you'll have them
10:41:54 8 to review during your deliberations.
10:41:56 9 All right. Ms. Peschel, you may continue your
10:42:01 10 examination of the witness.
10:42:04 11 MS. PESCHEL: Thank you, Your Honor.
10:42:24 12 BY MS. PESCHEL:
10:42:37 13 Q. Dr. Pelc, what is your opinion as to whether the
10:42:41 14 ProMax 3D systems infringe any of Osseo patent claims?
10:42:44 15 A. In my opinion, the ProMax 3D systems do not infringe
10:42:49 16 any of the asserted claims because they did not do
10:42:54 17 densitometry, they did not merge multiple tomographic scans
10:42:58 18 to create the claimed models, and the ProMax 3D system did
10:43:04 19 not compare claimed models.
10:43:07 20 Q. And slide 38 is summary of the particular reasons why
10:43:13 21 the promotions systems do not infringe that you're going to
10:43:18 22 present today?
10:43:18 23 A. Yes, that's right.
10:43:19 24 Q. Dr. Pelc, do you have an understanding of legally
10:43:22 25 what is required to prove infringement?

10:43:25 1 A. I think so.
10:43:26 2 Q. What is that understanding?
10:43:28 3 A. That in order to prove infringement, you have to
10:43:31 4 prove that Planmeca made, used or sold, or offered to sell
10:43:35 5 or imported what is covered by the asserted claims of the
10:43:41 6 Osseo patents without permission.
10:43:42 7 And that infringement analysis is a two-step
10:43:47 8 process. First, the claims are construed by the court. And
10:43:53 9 then we apply that construed claim meaning and compare
10:43:58 10 element by element to the accused system, the ProMax 3D
10:44:03 11 systems and see if they match.
10:44:06 12 And a patent claim is only infringed if each and
10:44:13 13 every one of the claim elements is practiced or included in
10:44:17 14 the ProMax 3D systems.
10:44:23 15 Q. Dr. Pelc, you provided at least three reasons why the
10:44:27 16 ProMax 3D systems did not infringe. What does that mean in
10:44:30 17 terms of the claim language for the asserted claim?
10:44:34 18 A. So those reasons map on to the highlighted sections
10:44:38 19 here -- let me back up. What you see on the left are the --
10:44:43 20 is claim one and claim seven of the '301 patent, and claim
10:44:47 21 one of the '262 patent, and claim one and claim six of the
10:44:53 22 '374 patent.
10:44:55 23 And the things that are highlighted are not met
10:44:58 24 by the accused system. And the ones that have two X's have
10:45:04 25 two reasons why they don't meet that element.

10:45:07 1 Q. I know that you put two X's where there was also a
10:45:11 2 comparing limitation. But with respect to the tomographic
10:45:16 3 densitometry model, the model terms, is there 1 or 2 reasons
10:45:20 4 why those don't infringe?
10:45:23 5 A. That's right. The ones that talk about patient
10:45:27 6 densitometry models, those have two reasons. First, they
10:45:32 7 don't have the merging of multiple tomography scans and they
10:45:38 8 don't have densitometry.
10:45:39 9 Q. Dr. Pelc, let's turn to your first reason where the
10:45:44 10 ProMax 3D systems did not infringe the claims of the Osseo
10:45:46 11 patent. Can you explain at a high level why it's your
10:45:50 12 opinion that they do not do densitometry?
10:45:52 13 A. Just to repeat one more time, densitometry has been
10:45:56 14 construed by the court to mean quantitatively calculated
10:45:59 15 bone density. And all of the claims include the
10:46:04 16 densitometry limitation.
10:46:06 17 Q. Are Hounsfield units quantitatively calculations of
10:46:09 18 bone density?
10:46:10 19 A. No, no, I think we will go through a little bit more.
10:46:14 20 But they are not. Hounsfield units are not densitometry.
10:46:18 21 Q. And I'm showing on slide 42 the asserted claims and
10:46:22 22 there is some red highlighting. What is that indicating?
10:46:26 23 A. So the densitometry word is highlighted in the claims
10:46:30 24 that include that word directly. But on the '374 patent,
10:46:37 25 you see that tomographic model is highlighted because the

10:46:42 1 Court's construction is that the tomographic models of the
10:46:50 2 '374 patent include densitometry.
10:46:55 3 Q. Dr. Pelc, earlier today when you talked about two
10:47:00 4 ways that densitometry is done in the field with x-rays.
10:47:02 5 What were those again?
10:47:04 6 A. Well the two accepted ways of doing bone density
10:47:09 7 calculations are, DEXA, dual energy x-ray absorptiometry, or
10:47:19 8 some way to use dual energy in order to get rid of the
10:47:23 9 errors and be able to get to quantitative calculated bone
10:47:28 10 density or quantitative computed tomography which is
10:47:32 11 abbreviated QCT and that was the method of Genant and Cann.
10:47:38 12 Q. You mentioned those in the two bullet points. What
10:47:41 13 is the point of slide 43?
10:47:43 14 A. Well, the point of slide 43 is that there is no
10:47:50 15 evidence presented in this case that the ProMax 3D systems
10:47:55 16 use dual energy or that they practice quantitatively
10:48:05 17 calculated computed tomography which requires standing the
10:48:07 18 patient simultaneously with standard and using the values of
10:48:10 19 the standard to compute quantitatively bone density.
10:48:17 20 Q. If Dr. Kia did not demonstrate infringement of the
10:48:19 21 densitometry limitation using methods known in the art
10:48:28 22 before densitometry, let's take a look at his theory. What
10:48:28 23 did you understand that Dr. Kia testified to as meeting the
10:48:30 24 densitometry requirements of all of the asserted claims?
10:48:32 25 A. Again, the Osseo patents require densitometry which

10:48:35 1 has been construed to mean quantitatively calculated bone
10:48:38 2 density, and Osseo's interpretation is that the ProMax 3D
10:48:44 3 images which are based on Hounsfield units meet that
10:48:48 4 limitation which I don't agree with. Hounsfield units are
10:48:52 5 scaled values of linear attenuation coefficient as we've
10:48:56 6 heard in this case.
10:48:58 7 Q. If you wanted to convert Hounsfield units to a
10:49:02 8 quantitatively calculated of bone density without using
10:49:10 9 detection a, without using QCT techniques, could it
10:49:10 10 theoretically be done?
10:49:12 11 A. Yes, theoretically it could be done. But it requires
10:49:15 12 knowing additional things about the measurement and the
10:49:20 13 object being scanned. You need to know the x-ray photon
10:49:23 14 energy, that's like the color of the x-rays. And I'll say a
10:49:28 15 little bit more about that. And you also need to know the
10:49:32 16 composition of the material being imaged, by composition, I
10:49:42 17 mean what elements are in it, and what are their fractions
10:49:42 18 in the object.
10:49:44 19 Q. So moving from slide 44 to 45, what are you showing
10:49:48 20 on slide 45?
10:49:49 21 A. So this was trying to go through this exercise, could
10:49:54 22 we theoretically calculate density from Hounsfield units.
10:49:58 23 And here is one way that I came up with doing that. You
10:50:03 24 first have to convert Hounsfield units back to linear
10:50:08 25 attenuation coefficient. Essentially undue to Hounsfield

10:50:11 1 Unit scaling. And then once you have linear attenuation
10:50:16 2 coefficients, unfortunately I bring up another term there is
10:50:19 3 nothing called a mass attenuation coefficient, if you take
10:50:24 4 the ratio of the linear attenuation coefficient, divided by
10:50:27 5 the mass attenuation coefficient, you get density.
10:50:32 6 Q. Can you measure a mass attenuation coefficient in the
10:50:39 7 types of machines?
10:50:39 8 A. No.
10:50:40 9 Q. How would you get the mass attenuation coefficient?
10:50:45 10 A. As I said, you have to know the composition of the
10:50:48 11 material, the fraction by weight of each of the elements.
10:50:51 12 What I am showing -- and we a brief 85 the mass attenuation
10:50:56 13 coefficient as Mu over Rho, two Greek letters. Rho is the
10:51:02 14 Greek letter usually used in physics to mean density. And
10:51:07 15 the table shows you the mass attenuation coefficient of
10:51:10 16 water, blood, soft tissue, polystyrene and cortical bone at
10:51:18 17 three different x-ray energies, 40, 60 and 80 keV. If you
10:51:27 18 knew the linear attenuation coefficient of water, you could
10:51:29 19 do the first step of converting Hounsfield units to linear
10:51:36 20 attenuation coefficient undoing the Hounsfield Unit.
10:51:39 21 Then if you knew the mass attenuation
10:51:44 22 coefficient for that object at that energy, you could take
10:51:48 23 the ratio and extract density. But as you see, the mass
10:51:53 24 attenuation coefficient varies quite dramatically as a
10:51:55 25 function of both energy and material.

10:51:58 1 So, for example, suppose you took your
10:52:01 2 Hounsfield units, you were able to undo the Hounsfield Unit
10:52:06 3 scaling and get linear attenuation coefficient, and you used
10:52:10 4 ---and it as bone, it was cortical bone but you used the
10:52:15 5 mass attenuation coefficient for water, and I would like you
10:52:17 6 to focus on the 40 keV, column if you use this number
10:52:26 7 instead of this number in the denominator, you make an error
10:52:30 8 of about a factor of three.
10:52:32 9 Similarly, if it's cortical bone and you divide
10:52:39 10 by this number instead of this number, because you have the
10:52:43 11 energy wrong, you make an error of a factor of three. So
10:52:46 12 those are pretty big errors, and you can't just waive your
10:52:51 13 hands at all and then call it quantitatively calculated bone
10:52:56 14 density.
10:52:56 15 Q. Dr. Pelc, in your always of the ProMax 3D systems,
10:52:59 16 did you see any evidence that they record the x-ray photon
10:53:04 17 energy?
10:53:04 18 A. No.
10:53:04 19 Q. Did you see any evidence that the ProMax 3D systems
10:53:07 20 used an x-ray photon energy to calculate bone density?
10:53:11 21 A. No.
10:53:15 22 Q. Moving from slide 45 to 46, what are you summarizing
10:53:21 23 here?
10:53:21 24 A. Well, so just summarizing what we have been talking
10:53:25 25 about, there is no evidence of look up tables for mass

10:53:30 1 **attenuation coefficients if they were practicing that**
10:53:33 2 **calculation that I showed you. There is no evidence that**
10:53:37 3 **they record the photon energy. There is no evidence of any**
10:53:44 4 **ProMax 3D algorithms or source code that converts Hounsfield**
10:53:49 5 **units to bone density quantitatively. And uses those values**
10:53:54 6 **for the images produced. And in fact, I heard Dr. Kia say**
10:54:01 7 **yesterday that in order to convert Hounsfield units to bone**
10:54:05 8 **density, you would need to know other things that the system**
10:54:09 9 **does not know.**
10:54:11 10 Q. **Now, Dr. Pelc, did anything that Dr. Kia testified to**
10:54:16 11 **in this trial change your opinions that the ProMax 3D**
10:54:19 12 **systems did not infringe?**
10:54:23 13 A. **No.**
10:54:24 14 Q. **If what Dr. Kia asserts that HU values are**
10:54:27 15 **densitometry were actually true, would the claims read on**
10:54:30 16 **the prior art?**
10:54:32 17 A. **Yes.**
10:54:33 18 Q. **I want to turn and talk about the second reasons that**
10:54:37 19 **you gave why the ProMax 3D systems did not infringe the**
10:54:41 20 **claims. That was with respect to the model terms. Can you**
10:54:45 21 **explain what these terms are in the asserted claims?**
10:54:48 22 A. **Yes. So you see the model, the model terms**
10:54:52 23 **highlighted in the various claims. They all have it. And**
10:54:59 24 **all of them require merging information from multiple**
10:55:04 25 **tomographic scans. And as I said, the ProMax 3D systems**

10:55:09 1 don't do that.
10:55:10 2 Q. Moving from slide 47 to slide 48, what was, again,
10:55:14 3 can you explain what the Court's construction was with
10:55:17 4 respect to tomographic modeling term?
10:55:20 5 A. So on the left column you see various terms from
10:55:24 6 different claims, all of them have model or modeling in
10:55:29 7 them. Some of them have densitometry and some of them
10:55:33 8 don't. But they all, in the Court's construction, mean
10:55:38 9 merging information from multiple tomographic scans of an
10:55:43 10 object to produce an representation of the object, said
10:55:46 11 representation depicting quantitatively density differences
10:55:51 12 of the object scanned, which is created by the
10:55:54 13 microprocessor in the controller using densitometry from at
10:55:57 14 least one focal plane.
10:56:00 15 Q. Dr. Pelc, if you move to slide 49, what did you think
10:56:04 16 about Dr. Kia's theory that a 3D volume meets the model
10:56:08 17 elements?
10:56:08 18 A. I'm sorry?
10:56:09 19 Q. The 3D volume meets those model requirements of the
10:56:14 20 asserted claims?
10:56:15 21 A. Well, his interpretation was that each view in the
10:56:22 22 tomographic scan was a tomographic scan, which is not true.
10:56:28 23 Each view is a projection, or a frame. And so the detector
10:56:34 24 array does not capture tomographic images. Each frame, each
10:56:38 25 image is just a single view. And the reconstruction

10:56:42 1 algorithm does not merge information from multiple
10:56:46 2 tomographic scans, it's just not true.
10:56:48 3 Q. What is the reconstruction server, of the ProMax 3D
10:56:54 4 systems doing?
10:56:54 5 A. It's performing this algorithm that you have heard
10:56:57 6 about called the Feldkamp algorithm which is an efficient
10:57:02 7 way of solving this system of equations or the equivalent of
10:57:07 8 that.
10:57:07 9 Q. Is the data before processing that Feldkamp
10:57:13 10 algorithm, is that tomographic?
10:57:15 11 A. No. The data going into the Feldkamp algorithm are
10:57:19 12 individual projections. And they are not tomographic. Each
10:57:24 13 one of them is a 2D view or projection with superimposition.
10:57:30 14 Tomographic would mean that it represents a slice, but it
10:57:34 15 doesn't represent a slice. It's a projection of the entire
10:57:37 16 object in a particular direction.
10:57:39 17 And so, no way would you say that the
10:57:44 18 reconstruction algorithm merges information from multiple
10:57:49 19 tomographic scans, it is treating or operating on the
10:57:53 20 projections that comprise one tomographic scan.
10:57:58 21 Q. Dr. Pelc, we've just walked through I believe, we
10:58:02 22 talked earlier you said there were two reasons why the model
10:58:05 23 requirements were not met, one had to do with the merging
10:58:08 24 which I think we just discussed and the second had to do
10:58:11 25 with densitometry. Was your second reason the same as what

10:58:15 1 we talked about with respect to densitometry?
10:58:17 2 A. That's right.
10:58:18 3 Q. I think we can move on to your third one, moving from
10:58:21 4 slide 49 to slide 50. What are the comparing requirements
10:58:25 5 of the asserted claims?
10:58:27 6 A. So the comparing is included in claim one of the '262
10:58:35 7 patent and claim six of the '374 patent. And we should read
10:58:42 8 them, the claim language carefully.
10:58:47 9 The '262 patent beginning in that claim element
10:58:51 10 before the highlighting, said computer creating, storing and
10:58:57 11 comparing three dimensional digital densitometry models. It
10:59:02 12 is the computer that is doing the comparing.
10:59:06 13 And in claim six of the '374 patent, similarly
10:59:11 14 it says said computer is further adapted to compare said
10:59:17 15 first tomographic model with said second tomographic model.
10:59:21 16 Again, the controller, I'm sorry, the controller is doing
10:59:24 17 the comparing.
10:59:26 18 There is another highlighted section which has
10:59:31 19 to do with the output device communicating densitometry
10:59:36 20 model comparison information. So if the computer is not
10:59:41 21 doing the comparing, there isn't any comparison information
10:59:47 22 to be communicated and you didn't infringe that element,
10:59:50 23 either.
10:59:50 24 Q. And that element you were just describing relates to
10:59:53 25 claim one of the '262 patent?

10:59:54 1 A. **Yes, that's correct.**
10:59:57 2 Q. **Moving to slide 51, can you explain why it's your**
11:00:00 3 **opinion that the ProMax 3D systems do not meet the comparing**
11:00:03 4 **element?**
11:00:04 5 A. **Yes. This is a high level summary. There is no**
11:00:07 6 **densitometry in the ProMax 3D systems as the court has**
11:00:11 7 **construed the term. There is no quantitative comparison of**
11:00:16 8 **densitometry information between two models. And there is**
11:00:19 9 **no comparison done by the controller or computer.**
11:00:24 10 Q. **Now, Dr. Pelc, Dr. Kia showed a number of different**
11:00:28 11 **images from the Romexis software. Did any of those**
11:00:31 12 **demonstrate that the ProMax 3D systems met the comparing**
11:00:34 13 **limitations?**
11:00:35 14 A. **No.**
11:00:37 15 Q. **I'm going to move to slide 53. On slide 53 on the**
11:00:42 16 **left, you have an image of what looks like what was**
11:00:47 17 **described yesterday as part of the implant modules?**
11:00:50 18 A. **That's correct.**
11:00:51 19 Q. **Can you explain that figure?**
11:00:52 20 A. **Yes. It is a figure from the implant module. And it**
11:00:58 21 **is showing some display of Hounsfield units in the region of**
11:01:05 22 **the implant. Whatever comparing is being done, it is not**
11:01:13 23 **being done by the computer, it's being done by the person**
11:01:17 24 **observing the image. And the images that are shown are all**
11:01:21 25 **from one volume, they're all from one scan. There are not**

11:01:24 1 two models here, there is one model. So you can't be doing
11:01:28 2 comparing of two models.
11:01:30 3 Q. And now I want to clarify a little bit. So the HU
11:01:35 4 units are showing and your opinion is that Hounsfield units
11:01:38 5 are not densitometry?
11:01:40 6 A. That's right. That's correct. So it's not
11:01:43 7 densitometry for the reasons that I stated, but in addition,
11:01:47 8 the comparison is not being done by the computer. And in
11:01:50 9 this case, in addition there aren't even two models.
11:01:54 10 Q. Now, moving to slide 54, on slide 54 is something
11:02:00 11 that's been shown from the TMJ module. Can you describe for
11:02:05 12 the jury what the TMJ module is?
11:02:08 13 A. The TMJ module, TMJ stands for temporal
11:02:14 14 temporomandibular joint, it's the joint in your jaw up here,
11:02:18 15 and normal people have two. And the TMJ module allows the
11:02:23 16 dentist or the physician to compare or to look in detail at
11:02:29 17 the temporomandibular joints and in addition compare the
11:02:34 18 left to the right. Again, these are side-by-side
11:02:37 19 presentations. The comparison is being done by the
11:02:42 20 observer, not the computer. There is only one model here as
11:02:46 21 well. There is one head that was scanned, so there are not
11:02:52 22 two models. And there is no quantitative information shown.
11:02:55 23 So I don't see how this can be quantitatively comparing.
11:03:01 24 Q. And then on slide 55, Dr. Pelc, you have an excerpt
11:03:07 25 that talks about the superimposition sub module. Can you

11:03:12 1 **explain what that is?**

11:03:13 2 A. **The superimposition sub module allows the user to**

11:03:18 3 **compare to observe two scans of the patient, one could be**

11:03:25 4 **before treatment, one is after treatment. And to view them**

11:03:29 5 **together to try to ascertain what changed between before and**

11:03:36 6 **after.**

11:03:37 7 **The first thing that has to be done is if you**

11:03:43 8 **have two volume scans, you have to line them up to each**

11:03:46 9 **other. And this is done by the observer picking three**

11:03:52 10 **points in the anatomy of the first model and the same three**

11:03:56 11 **pieces of anatomy in the second model, and then the computer**

11:04:02 12 **translates and rotates the two models so that they are**

11:04:06 13 **hopefully now close to alignment. And the user then has the**

11:04:11 14 **ability to manually adjust that further.**

11:04:14 15 **But all of that really required input from the**

11:04:17 16 **user in specifying the landmarks and then confirming that**

11:04:27 17 **they are in alignment in sufficient alignment. And then you**

11:04:32 18 **can display them side-by-side.**

11:04:33 19 **In this image on the right, you actually see a**

11:04:38 20 **red dot in the bridge of the nose. That is one of the**

11:04:42 21 **points that the observer selected. And then there is also**

11:04:48 22 **-- so there is the red dot. And here is a green dot that**

11:04:52 23 **the observer put on the temple. And then the computer is**

11:04:57 24 **going to shift and rotate these models to hopefully get them**

11:05:04 25 **close to alignment. And as I said the observer is free to**

11:05:10 1 further adjust.
11:05:10 2 Q. And so the sitting process that you're showing on
11:05:15 3 slide 56, I want to go back to some of these figures that
11:05:19 4 Dr. Kia showed yesterday. On slide 57, what are you showing
11:05:23 5 on the left?
11:05:24 6 A. So on the left is a screen shot from the overlay
11:05:33 7 capability of the superimposition module. It is displaying
11:05:37 8 the two volumes together. One is in grayscale and the other
11:05:44 9 one is transparent, so you can see them together and try to
11:05:49 10 discern where was there change.
11:05:52 11 It's the observer that is comparing. The
11:05:57 12 computer is just getting the models there for you to do the
11:06:01 13 comparison, the comparison. So a side-by-side comparison or
11:06:09 14 even an overlay is not a comparison being done by the
11:06:12 15 controller or the computer. And similarly -- or as I said,
11:06:17 16 there is no densitometry there. And there is no
11:06:21 17 quantitative comparison.
11:06:23 18 Q. Now, I believe that there may have been some
11:06:26 19 testimony about the side-by-side display of two volumes, and
11:06:31 20 then there is also the testimony about the overlay. What is
11:06:34 21 your opinion about whether the overlay function of the
11:06:37 22 superimposition module meets the comparing limitation?
11:06:42 23 A. I do not believe that that meets the limitation.
11:06:44 24 Q. Dr. Pelc in your analysis of the ProMax 3D systems,
11:06:47 25 did you see any evidence of the computer controller

11:06:51 1 **comparing the claim models?**
11:06:55 2 A. **No.**
11:06:55 3 Q. **With respect to the overlay function of the**
11:06:58 4 **superimposition module, what is your summary for why that**
11:07:04 5 **does not meet the comparing limitation?**
11:07:05 6 A. **Well it requires manual fitting by the user, there is**
11:07:10 7 **no evidence that the computer or controller is comparing**
11:07:13 8 **densitometry information between those models. HU values**
11:07:19 9 **aren't shown, so even if you thought HU values were**
11:07:22 10 **densitometry, they're not shown. And any comparison is**
11:07:28 11 **qualitative, it's not quantitative as required by the**
11:07:31 12 **Court's claim construction.**
11:07:35 13 Q. **So Dr. Pelc, can you remind the jury the three main**
11:07:39 14 **reasons that you have presented today for why Planmeca did**
11:07:42 15 **not infringe any claims of the Osseo patents?**
11:07:44 16 A. **Yes. The ProMax 3D did not do densitometry, it did**
11:07:49 17 **not merge multiple tomographic scans to create the claimed**
11:07:53 18 **models and the comparer or the controller of the ProMax 3D**
11:07:58 19 **did not compare the claimed models.**
11:08:01 20 Q. **So moving from slide 59 to slide 60, in summary, what**
11:08:07 21 **is your ultimate opinion as to whether the claims were**
11:08:10 22 **infringed by Planmeca?**
11:08:11 23 A. **My opinion is that they were not infringed, this is**
11:08:15 24 **just a redisplay of the slide I showed you earlier with the**
11:08:19 25 **claim elements that are not met by the ProMax 3D machines.**

11:08:23 1 Q. **And the highlighting here represents your opinions**
11:08:26 2 **that there is no densitometry, the model requirements are**
11:08:29 3 **not met and the comparing requirements are not met?**
11:08:32 4 A. **That's correct.**
11:08:34 5 Q. **I want to turn now, Dr. Pelc, to talk a little bit**
11:08:39 6 **about Planmeca's response to the Osseo letters. As part of**
11:08:43 7 **your analysis in this case, did you review the**
11:08:45 8 **correspondence between Osseo and Planmeca?**
11:08:48 9 A. **I did, yes.**
11:08:49 10 Q. **Were you in the courtroom when Dr. Massie testified**
11:08:52 11 **about that correspondence?**
11:08:53 12 A. **Yes.**
11:08:54 13 Q. **Were you in the courtroom when Mr. Pienkowski**
11:08:57 14 **testified about that correspondence?**
11:08:59 15 A. **Yes.**
11:09:00 16 Q. **Dr. Pelc, I would like you to turn in your notebook**
11:09:03 17 **to Tab 26, which I believe is in the second binder.**
11:09:32 18 A. **Yes.**
11:09:33 19 Q. **Dr. Pelc, is this part of the correspondence that you**
11:09:36 20 **reviewed?**
11:09:37 21 A. **Yes.**
11:09:38 22 Q. **And is this labeled at the top joint Exhibit 0013?**
11:09:44 23 A. **Yes.**
11:09:45 24 **MS. PESCHEL: Your Honor, I would like to move**
11:09:47 25 **joint Exhibit 13 into evidence.**

11:09:48 1 THE COURT: Any objection to 13?
11:09:52 2 MR. OSTROW: No objection.
11:09:56 3 THE COURT: JTX-13 is received.
11:09:59 4 (JTX Exhibit No. 13 was admitted into evidence.)
11:10:00 5 BY MS. PESCHEL:
11:10:00 6 Q. May I publish it to the jury, Your Honor?
11:10:03 7 THE COURT: Yes, you may.
11:10:04 8 BY MS. PESCHEL:
11:10:06 9 Q. Now, Dr. Pelc, I think this was talked about
11:10:10 10 yesterday, but if you know, if you don't know, that's fine,
11:10:13 11 but do you know what date that the top e-mail was sent?
11:10:18 12 A. I think Marraskuuta must be November or something.
11:10:24 13 Q. Thank you, here Mr. Tawast is responding that
11:10:32 14 Planmeca understand the patent relates to using dental or
11:10:34 15 orthopedic patient densitometry models, do you agree that
11:10:37 16 the '301 and '262 patent relate to using dental and
11:10:41 17 orthopedic patient densitometry models?
11:10:47 18 A. Yes.
11:10:47 19 Q. Mr. Tawast also says that Planmeca is not involved in
11:10:51 20 nor do we have any short term plans for at least going into
11:10:54 21 such applications. Is that consistent with your opinion
11:10:57 22 that the ProMax 3D systems did not do densitometry and did
11:11:00 23 not create the models required by the claims?
11:11:03 24 A. Yes. Planmeca was not involved in densitometry, at
11:11:08 25 least the ProMax 3D systems did not practice that. I don't

11:11:12 1 **know about their short term plans. But I take him at his**
11:11:17 2 **word.**
11:11:18 3 Q. **Mr. Tawast also notified Osseo that implementing CT**
11:11:23 4 **densitometry dates decades back. Is that consistent of your**
11:11:27 5 **knowledge of the field including the history you discussed**
11:11:30 6 **earlier in your testimony?**
11:11:31 7 A. **Yes.**
11:11:32 8 Q. **Are you aware of any additional communication between**
11:11:35 9 **the parties?**
11:11:38 10 A. **Yes.**
11:11:41 11 Q. **Dr. Pelc, can you turn to Tab 27 in your binder?**
11:11:51 12 A. **Yes.**
11:11:51 13 Q. **At Tab 27 is a document marked joint exhibit or**
11:11:57 14 **JX-16. Have you reviewed that as part of your analysis in**
11:12:00 15 **the case?**
11:12:00 16 A. **Yes.**
11:12:03 17 Q. **This has already been introduced into evidence.**
11:12:09 18 **Mr. Herndon, if you could put up JX-16 at page 3.**
11:12:12 19 **At page 3, it refers to the 2009 correspondence**
11:12:20 20 **and says Osseo Imaging presenting the same scope**
11:12:23 21 **interpretation of the Osseo patents. Do you see that?**
11:12:33 22 A. **Yes, I see it now. In the June 21st letter.**
11:12:42 23 Q. **Do you agree with respect to densitometry and**
11:12:46 24 **modeling that the court has construed the '301 patent model**
11:12:51 25 **term and the '374 patent model term have the same meaning?**

11:12:56 1 A. **The densitometry model information has the same**
11:13:00 2 **meaning, yes.**
11:13:00 3 Q. **And that would be in the '301 patent tomographic**
11:13:05 4 **densitometry model and in the '374 patent tomographic model?**
11:13:10 5 A. **That's correct.**
11:13:10 6 Q. **Mr. Tawast also says that Planmeca is unable to**
11:13:14 7 **recognize a single Osseo patent claim which would validly**
11:13:17 8 **cover any Planmeca product. Is that consistent with your**
11:13:21 9 **opinions in this case?**
11:13:27 10 A. **Yes.**
11:13:34 11 Q. **Mr. Herndon, can you put up the demonstrative for**
11:13:37 12 **Dr. Pelc at slide 56. Dr. Pelc, earlier we discussed that**
11:13:58 13 **part of your work in this case was to assess whether the**
11:14:02 14 **Osseo patents are valid or invalid. In making that**
11:14:05 15 **assessment, did you apply the same meaning to the claims**
11:14:08 16 **that you did in reaching the conclusion that the ProMax 3D**
11:14:11 17 **systems did not infringe the claims?**
11:14:12 18 A. **Yes.**
11:14:13 19 Q. **And when you made you're assessment with respect to**
11:14:17 20 **non-infringement, did you apply the meaning to the claims**
11:14:20 21 **from the Court's claim construction and what one of, a**
11:14:23 22 **person of ordinary skill in the art would have interpreted**
11:14:26 23 **for the rest of the claims?**
11:14:27 24 A. **That's right, what a person of skill in the art in**
11:14:30 25 **1999 would have interpreted the claims to mean.**

11:14:35 1 Q. **Now, we have heard -- let me move to slide 67.**

11:14:39 2 **We have heard discussions of the qualifications**

11:14:42 3 **of one of ordinary skill in the art. What is your opinion**

11:14:45 4 **as to the qualifications of a person of ordinary skill in**

11:14:48 5 **the art with respect to the Osseo patents in 1999?**

11:14:51 6 A. **In my opinion, a person of ordinary skill in the art**

11:14:56 7 **in 1999 would have had a graduate degree engineering or a**

11:15:02 8 **physical science with experience in densitometry and/or**

11:15:05 9 **tomographic imaging, and because I have worked with many**

11:15:09 10 **people who didn't have graduate degrees but are incredibly**

11:15:13 11 **talented, I also included as an alternative an under**

11:15:18 12 **graduate degree in engineering or physical science, but with**

11:15:24 13 **more experience, at least five years of combined experience**

11:15:27 14 **in densitometry and/or tomographic imaging.**

11:15:31 15 **And I also believe that the person would be**

11:15:35 16 **familiar with things like how do we generate x-rays and**

11:15:38 17 **detect them, computed tomography or x-ray tomosynthesis and**

11:15:44 18 **quantitative bone densitometry using x-rays.**

11:15:47 19 Q. **As of December of 1999, did you have at least the**

11:15:52 20 **qualification of one of ordinary skill in the arrested?**

11:15:56 21 A. **Yes.**

11:15:57 22 Q. **Dr. Pelc, I suspect given your background that that**

11:16:01 23 **we all heard about this morning, you may have possibly had**

11:16:04 24 **more qualifications as of December 1999. In all of your**

11:16:08 25 **analysis in this case the you apply the knowledge and skill**

11:16:11 1 of one of ordinary skill in the art?
11:16:12 2 A. I did.
11:16:13 3 Q. How does your definition of one of ordinary skill in
11:16:16 4 the art differ from Dr. Kia's?
11:16:18 5 A. It differs a little bit. His definition is a
11:16:22 6 bachelors degree in electrical or computer engineering. And
11:16:29 7 at least three years of experience in diagnostic imaging.
11:16:33 8 Q. As of December of 1999, did you have at least the
11:16:36 9 qualifications of one of ordinary skill in the art under
11:16:40 10 Dr. Kia's definition?
11:16:42 11 A. Yes.
11:16:42 12 Q. Dr. Pelc, can you please explain your invalidity
11:16:47 13 opinions at a very high level for the jury?
11:16:49 14 A. Yes. In my opinion, the, all the asserted claims are
11:16:54 15 obvious in light of the prior art, meaning the things that
11:16:58 16 the person of ordinary skill in the art would know from
11:17:01 17 previous publications or patents. And that also includes
11:17:07 18 the admissions by Osseo of what was known at the time and I
11:17:16 19 put together three combinations of references as examples of
11:17:23 20 how a person of ordinary skill in the art would find it
11:17:27 21 obvious to -- find the claim elements obvious. And the
11:17:32 22 first combination is the Webber patent, the paper by Cann
11:17:37 23 that we've talked about, and Dimaxis user manual, and the
11:17:44 24 second combination is patents by Guenther and Mazess and a
11:17:49 25 paper that's been called Fontevraud here in this litigation.

11:17:53 1

11:17:54 2 Q. **Dr. Pelc, could you also read opinions with invalid**

11:17:57 3 **with respect to written description and enablement?**

11:18:05 4 A. **Yes, I believe that the comparing limitations that we**

11:18:05 5 **talked about and they are in claim one of the '262 patent**

11:18:07 6 **and claim six of the '374 patent lack written description**

11:18:12 7 **and enablement. And that the energy source limitation in**

11:18:20 8 **claim one of the '262 patent lax enablement as to the use of**

11:18:23 9 **an electron beam to perform densitometry modeling.**

11:18:29 10 Q. **This is from the summary of your opinions on slide 58**

11:18:32 11 **and slide 59, what types of technology were known prior to**

11:18:36 12 **1999?**

11:18:37 13 A. **Yes. So these are the kind of things that the two**

11:18:41 14 **parties have agreed were known before 1999. On the left you**

11:18:47 15 **have hardware and systems, kinds of things that the parties**

11:18:51 16 **agreed were known. And on the right are software or**

11:18:57 17 **specific functions. So the parties have agreed that x-ray**

11:19:00 18 **equipment, x-ray sources, sensors, collimated x-ray beams,**

11:19:05 19 **input devices, everything that you see there, analog or**

11:19:09 20 **digital converters, computed tomography, all of those things**

11:19:13 21 **were known before 1999. And similarly placing a patient's**

11:19:18 22 **dental structure between an x-ray source and detector,**

11:19:23 23 **storing data on computers, CT reconstruction software,**

11:19:27 24 **Hounsfield units and densitometry, all of these were known**

11:19:30 25 **and the parties agreed to that.**

11:19:31 1 Q. And Dr. Pelc, just for the record, that would include
11:19:35 2 positioning motors, controllers, processors, memory devices
11:19:39 3 and output devices?
11:19:41 4 A. Yes, I'm sorry I didn't read all the things on the
11:19:45 5 left column but all of those were known and the parties
11:19:48 6 agreed to it.
11:19:48 7 Q. I know it was a lot on the slide. But ultimately the
11:19:52 8 parties have agreed that a lot of the words in the claims
11:19:55 9 are met by the prior art?
11:19:56 10 A. That's true.
11:19:57 11 Q. Is that a fair summary?
11:20:00 12 Dr. Pelc, can you turn to Tab 31 in your second
11:20:06 13 binder.
11:20:09 14 A. Yes.
11:20:12 15 Q. What is this document?
11:20:14 16 A. This is a -- the begun they are patent, and the 884
11:20:20 17 and it's labeled DX-8.
11:20:23 18 Q. Did you rely on the Guenther patent in your analysis
11:20:27 19 in this case?
11:20:27 20 A. I did.
11:20:29 21 MS. PESCHEL: Your Honor, at this time I would
11:20:30 22 like to move into evidence Defense Exhibit 8.
11:20:34 23 THE COURT: Any objection?
11:20:35 24 MR. OSTROW: No objection.
11:20:41 25 THE COURT: DTX-8 is received.

11:20:42 1 (DTX Exhibit No. 8 was admitted into evidence.)
11:20:44 2 BY MS. PESCHEL:
11:20:51 3 Q. Can you explain at a high level, Dr. Pelc, when
11:21:02 4 Guenther was filed and issued?
11:21:02 5 A. Yes. The Guenther patent was filed in February 1st
11:21:06 6 of 1995 and it issued March 19th of 1996. .
11:21:16 7 A. And the first inventor name is Guenther. And it's a
11:21:22 8 patent to a particular kind of panoramic x-ray machine.
11:21:27 9 Q. And this particular patent was assigned to Siemens,
11:21:31 10 correct?
11:21:32 11 A. That's right.
11:21:33 12 Q. If could go back to the demonstrative, Mr. Herndon.
11:21:38 13 I believe on your slide, Dr. Pelc, that you may point out
11:21:42 14 some of the figures from this patent with a little bit more
11:21:46 15 detail. Can you explain what you're showing here?
11:21:48 16 A. Yes. So these are figures 3 and 8 from the Guenther
11:21:53 17 patent. On the left you see that it has an x-ray source and
11:21:56 18 an x-ray detector or sensor. On the right in addition it
11:22:01 19 has a keyboard as an input device, a computer or controller
11:22:07 20 that is capable of performing calculations. And it has a
11:22:11 21 display.
11:22:12 22 Q. And what you were seeing on the left looks like it
11:22:16 23 might be specific for that dentomaxillofacial area is that
11:22:22 24 right?
11:22:22 25 A. That's right, you see the patient's dental structure

11:22:25 1 between the x-ray source and the detector.
11:22:29 2 Q. So these are sort of figures that show you at a high
11:22:34 3 level what the structure looked like; correct?
11:22:36 4 A. That's right.
11:22:37 5 Q. And then if we move to slide 71, can you explain what
11:22:41 6 you're showing here?
11:22:42 7 A. So this is more of a block diagram kind of view. You
11:22:51 8 see the x-ray sources, and this which is Figure 7 from
11:22:52 9 Guenther, it has a control unit that he, in the text
11:23:00 10 indicates has a microprocessor in it. It has four motors,
11:23:05 11 3, 4, that are controlled by the control unit. It has a
11:23:12 12 display and an operating panel that is an input device and
11:23:16 13 an output device.
11:23:23 14 Q. Dr. Pelc, do you have another example?
11:23:23 15 A. Yes. So these are figures from my '080 patent, just
11:23:32 16 to demonstrate that this hardware was known and in my '080
11:23:38 17 patent here you see the x-ray source producing a collimated
11:23:43 18 beam, the sensor is at the bottom, it has motors that I
11:23:48 19 don't highlight here that are able to both translate that
11:23:54 20 about the patient and also rotate that C arm, that supports
11:24:00 21 the x-ray source and detector can rotate.
11:24:03 22 And the system also has a computer and
11:24:08 23 controller which is both an input device and an output
11:24:12 24 device.
11:24:14 25 Q. Dr. Pelc, was there any discussion of prior art in

11:24:17 1 the specifications of the Osseo patents?
11:24:20 2 A. Yes.
11:24:20 3 Q. What did the Osseo patents say about tomography?
11:24:26 4 A. So early on in the text of the -- all of the Osseo
11:24:34 5 patents, it indicates that tomography or sexual radiography
11:24:38 6 techniques using scanning x-ray beams have previously been
11:24:42 7 employed for dental applications. So concedes that that
11:24:50 8 part of it was not new. And it list five references as
11:24:58 9 examples of that.
11:24:59 10 Q. Are you going to talk about any of those references
11:25:02 11 today?
11:25:02 12 A. Yes. The '686 patent which is listed last is the
11:25:11 13 Webber patent that we will be talking about. And the one
11:25:15 14 just before that -- no, I'm sorry. So that's the one. The
11:25:23 15 '686 patent is the Webber patent and we'll be talking about
11:25:27 16 that.
11:25:28 17 Q. Okay. Just for the record, on slide 73 we're showing
11:25:31 18 an excerpt from the '301 patent at column 1, line 61 to 67?
11:25:38 19 A. Yes, that's what this means, column one, lines 61 to
11:25:43 20 67.
11:25:43 21 Q. Then I believe on slide 74 you have an excerpt from
11:25:48 22 column two, lines 1 to 8. Why did you include this?
11:25:51 23 A. This is again from the Osseo patents. And they say
11:25:55 24 that in the medical field, densitometry procedures are used
11:26:00 25 for measuring bone mineral density or BMD by utilizing

11:26:07 1 scanning x-ray beams. And it gives three examples, the '080
11:26:12 2 patent, the '765 patent, and the RE162 patent.
11:26:20 3 Q. Is the '080 patent listed here your patent?
11:26:24 4 A. That's correct.
11:26:26 5 Q. Moving to slide 75, what do the Osseo patents admit
11:26:31 6 if anything about densitometry models being in the prior
11:26:39 7 art?
11:26:39 8 A. That it admits that fast computers are obviously
11:26:43 9 available, were available before 1999 with large memories
11:26:46 10 and that that has led to the digital eggs of x-ray images,
11:26:51 11 including for mapping BMD models. And that digital BMD
11:27:02 12 models, patient models are also used for comparison
11:27:02 13 purposes. In other words that the field was already
11:27:05 14 comparing models before and after, before and after it being
11:27:13 15 with the patient's own prior BMD histories, or a patient,
11:27:21 16 comparing a patient to a population. That's what it means
11:27:24 17 by standard models, what would be average for a person of
11:27:29 18 this age and gender.
11:27:32 19 Q. Do you have any disagreement with these aspects of
11:27:35 20 the Osseo patents in terms of what they're saying about what
11:27:39 21 was known and available as of 1999?
11:27:42 22 A. No, I don't disagree with that at all.
11:27:47 23 Q. Turning to slide 76, what did the Osseo patents say
11:27:51 24 about tomography and densitometry equipment?
11:27:55 25 A. That it seeks to provide a method of using or

11:28:02 1 utilizing commercially available tomography equipment, that
11:28:06 2 could be adapted to perform the method of the claims. And
11:28:11 3 in the second text you see existing densitometry equipment.
11:28:16 4 Q. And as you've testified today, tomography equipment
11:28:21 5 was known, and densitometry equipment was known by 1999?
11:28:25 6 A. That's right.
11:28:27 7 Q. And so these particular excerpts do come from the
11:28:34 8 '301 patent at column 3, lines 10 to 11, and column 3,
11:28:40 9 lines 18 to 20?
11:28:41 10 A. Yes.
11:28:41 11 Q. Slide 77, you have an excerpt from column 4 at 17 to
11:28:46 12 23. Why did you include this?
11:28:48 13 A. Well in the discussion in the Osseo patent about
11:28:50 14 x-ray equipment, it says that examples of x-ray equipment
11:28:55 15 adaptable for use with the present invention are disclosed
11:28:58 16 in U.S. patent, and you see there, that's my '080 patent,
11:29:04 17 and you see two other patents listed as examples of x-ray
11:29:11 18 equipment that could be adapted.
11:29:12 19 Q. And the x-ray equipment is what you have just
11:29:18 20 described a little earlier with respect to your own patents?
11:29:21 21 A. Right. The x-ray, usually in this case, x-ray
11:29:24 22 equipment means the x-ray source, the detector and the
11:29:27 23 things that hold them and moves them around.
11:29:31 24 Q. Dr. Pelc, were you in the courtroom when Dr. Massie
11:29:35 25 testified?

11:29:35 1 A. I was.
11:29:36 2 Q. Did you hear him make any admissions about the prior
11:29:39 3 art?
11:29:39 4 A. Well, he said that densitometry to diagnose
11:29:43 5 osteoporosis, breakdown or decalcification or
11:29:48 6 demineralization of bone was known. That tomography to
11:29:53 7 create 3D models was known. And that comparing past and
11:29:58 8 present x-ray images was normal practice. Was known.
11:30:05 9 Q. So that summary is on slide 78. Can you summarize
11:30:12 10 for the jury on slide 79 what all of these, what you just
11:30:17 11 discussed, how it relates to the claims?
11:30:21 12 A. Again as we have seen before on the left are the
11:30:25 13 asserted claims of the '301 patent, in the center the '262
11:30:30 14 patent and on the right the '374 patent, two claims. And if
11:30:34 15 we were to highlight on these, on the language of this, all
11:30:40 16 of the things that the two parties have agreed was known,
11:30:44 17 almost everything would be highlighted. And we're left
11:30:48 18 really with very few things on which there is any contention
11:30:52 19 as to whether or not they were known in the art.
11:31:00 20 Q. What are you showing on slide 80, and I believe it
11:31:03 21 may be something we have seen before?
11:31:05 22 A. Yes. So this is a slide that I showed you before.
11:31:09 23 This is the machine described in the Mozzo paper that was
11:31:16 24 commercialized as the NewTom 9000, devoted to
11:31:21 25 dentomaxillofacial imaging using the cone beam computed

11:31:27 1 **tomography. And clearly this was known before 1999 since**
11:31:32 2 **the paper was published in 1998.**
11:31:41 3 Q. **Now, when we look at this slide a little earlier, I**
11:31:44 4 **want to be clear, was 3D cone beam computed tomography known**
11:31:49 5 **in the art prior to 1999?**
11:31:54 6 A. **Yes, not only was cone beam computed tomography known**
11:31:58 7 **and that dates back to more than a decade prior to this, but**
11:32:01 8 **in fact it had already been used for dental imaging.**
11:32:04 9 Q. **And then again, you showed earlier, and I just want**
11:32:09 10 **to be clear that was dental densitometry using tomography**
11:32:15 11 **known before 1999?**
11:32:16 12 A. **Yes, both of these as I described earlier are**
11:32:19 13 **examples of papers before 1999 that demonstrate that**
11:32:26 14 **tomography was applied to dentistry. And I'm sorry, that**
11:32:33 15 **dental densitometry using tomography was applied in**
11:32:38 16 **dentistry before 1999.**
11:32:40 17 Q. **Dr. Pelc, how did all of this prior art inform your**
11:32:43 18 **invalidity opinion?**
11:32:44 19 A. **Yes. So the legal standard for obviousness is that**
11:32:55 20 **you can't get a patent -- the invention is not identical**
11:33:04 21 **disclosed in a single reference, you can't get a patent if**
11:33:07 22 **the differences between the subject matter taught to be**
11:33:10 23 **patented and/or the prior art and the prior art, excuse me**
11:33:22 24 **-- let me just start over again.**
11:33:24 25 **A patent may not be obtained even though the**

11:33:27 1 invention is not identically disclosed or described if the
11:33:31 2 differences between the subject matter sought to be patented
11:33:36 3 and the prior art are such that the subject matter as a
11:33:39 4 whole would have been obvious at the time of the invention
11:33:44 5 was made to a person of ordinary skill in the art to which
11:33:48 6 the subject matter pertains.
11:33:51 7 Q. Did you apply this understanding of obviousness in
11:33:56 8 your analysis in this case?
11:33:57 9 A. Yes, I did.
11:33:58 10 Q. And what is your understanding of Planmeca's burden
11:34:03 11 to prove obviousness?
11:34:04 12 A. Planmeca's burden to prove obviousness is clear and
11:34:10 13 convincing.
11:34:10 14 Q. Going from slide 82 to 83, are there factors to
11:34:14 15 consider when doing an obviousness analysis?
11:34:17 16 A. Yes. We need to consider the level of the person of
11:34:21 17 ordinary skill in the art at the time the invention was
11:34:24 18 made. The scope and content of the prior art. What
11:34:30 19 differences there are between the claimed invention and the
11:34:33 20 prior art. And secondary, what are called secondary
11:34:39 21 considerations.
11:34:39 22 Q. Dr. Pelc, what is your opinion as to whether there
11:34:43 23 are any relevant secondary considerations in this case?
11:34:45 24 A. I have not heard anyone voice that there are
11:34:48 25 secondary considerations. But, yes.

11:34:54 1 Q. **Just so that we're aware of what those might be, can**
11:34:58 2 **you tell us what secondary considerations are, it seems like**
11:35:06 3 **a term out of the air?**
11:35:07 4 A. **Yes, the secondary considerations that one should use**
11:35:10 5 **when deciding whether or not the patented claim is obvious**
11:35:17 6 **is commercial success, long-felt but unsolved need,**
11:35:25 7 **unsuccessful attempts by others to meet the need, copying of**
11:35:31 8 **the claimed invention, unexpected and superior results, that**
11:35:36 9 **is that the combination of elements leads to something**
11:35:41 10 **that's unexpected, acceptance and praise by others, and**
11:35:47 11 **independent invention by others.**
11:35:50 12 Q. **And Dr. Pelc, is it your understanding that there has**
11:35:53 13 **to be a nexus between these types of things if they're**
11:35:56 14 **present and the claimed invention?**
11:35:58 15 A. **That's right. So even if the -- for example, even if**
11:36:01 16 **the product accused is commercially successful, you have to**
11:36:09 17 **analyze whether the commercial success is related to the**
11:36:14 18 **inventive element, inventive element meaning the part of the**
11:36:18 19 **claim that's new, is that part of the claim that's new**
11:36:23 20 **leading to the commercial success. Is there a nexus between**
11:36:27 21 **the commercial success and the invention.**
11:36:31 22 Q. **And what is your opinion as to whether there is a**
11:36:34 23 **nexus between the success of the ProMax 3D systems and the**
11:36:38 24 **claimed invention?**
11:36:39 25 A. **I don't believe there is.**

11:36:46 1 Q. **I want to turn now, you said that you had two**
11:36:47 2 **examples of obviousness combinations?**
11:36:50 3 A. **Yes.**
11:36:50 4 Q. **I want to turn now to the first one which I believe**
11:36:53 5 **you said was a combination of a patent called Webber, a**
11:36:57 6 **scientific article called Cann and then the Dimaxis manual.**
11:37:02 7 A. **Yes. That's right.**
11:37:04 8 Q. **We touched on the state of the art at the time the**
11:37:11 9 **Osseo patents were filed. Did you do an element-by-element**
11:37:11 10 **analysis of obviousness to determine whether this**
11:37:15 11 **combination renders the asserted claims obvious?**
11:37:18 12 A. **Yes, I did.**
11:37:20 13 Q. **I want to talk at a high level with respect to the**
11:37:27 14 **combination that you're making. Can you start with the**
11:37:30 15 **Webber patent and let us know when that was filed and**
11:37:33 16 **issued?**
11:37:33 17 A. **Yes. The Webber patent was filed on December 13th,**
11:37:41 18 **1991. The inventor's name is Richard Webber. He worked at**
11:37:49 19 **Wake Forest University in the dental school. And it was**
11:37:56 20 **issued on May 25th, 1993.**
11:38:01 21 Q. **Webber has previously been admitted as joint**
11:38:05 22 **Exhibit 4. Can you give at a high level what Webber was**
11:38:08 23 **talking about in this patent?**
11:38:11 24 A. **Webber is talking about a patent, patenting in this**
11:38:18 25 **case, a system to do tomographic imaging: Tomographic**

11:38:28 1 imaging in dentistry it's called three-dimensional panoramic
11:38:33 2 dental radiography method and apparatus which avoids the
11:38:37 3 subject's spine.
11:38:38 4 Q. I think if I move from 86 to 87 you have a comparison
11:38:42 5 here. Can you explain this for the jury?
11:38:46 6 A. Sure. On the right is Figure 1 from the Osseo
11:38:50 7 patents showing -- and the color coding will become clearer
11:38:55 8 in a minute, but color coded some of the boxes. And on the
11:39:03 9 left are two figures from the Webber patent, Figure 7 and
11:39:10 10 Figure 8 from the Webber patent.
11:39:11 11 So you can see that the Webber patent as an
11:39:15 12 x-ray detector array at the top. That's 33. It has an
11:39:23 13 x-ray source, it has a motor to move them around. Here you
11:39:28 14 see the detector array in Figure 8. And the Osseo patents
11:39:34 15 have an x-ray source, a detector array, a motor, motors to
11:39:40 16 move the object in multiple directions and it has an A to D
11:39:47 17 converter. As we'll see, in the Webber system, the A to D
11:39:53 18 converter is inside of the detector array.
11:39:57 19 Q. Dr. Pelc, is it a fair assessment to say that the
11:40:03 20 hardware or structure of these two things have a lot of
11:40:07 21 similarities?
11:40:08 22 A. That's right, similar there is the computational
11:40:13 23 equipment in Webber, the computational equipment in the
11:40:16 24 Osseo patents, and output devices in them as well. And input
11:40:22 25 devices.

11:40:23 1 Q. **Moving on to slide 88 where you're showing the first**
11:40:30 2 **page of the scientific article we have been referring to as**
11:40:30 3 **the Cann or Cann 1980. Can you give at a high level an**
11:40:36 4 **explanation to the jury about what exactly this article was**
11:40:39 5 **discussing?**
11:40:40 6 A. **Yes. As I said earlier, it used a -- in fact a GE**
11:40:46 7 **scanner that had an x-ray source detector, motors,**
11:40:52 8 **controllers and all of that. And it produced computed**
11:40:56 9 **tomography images that were then converted to bone**
11:41:01 10 **densitometry using the technique that they developed of**
11:41:07 11 **quantitatively calculated tomography.**
11:41:10 12 Q. **I believe we talked about Webber initially you said**
11:41:13 13 **it was present, it was referenced in the Osseo patent. Was**
11:41:18 14 **the Cann 1980 article referenced at all in the Osseo patent?**
11:41:23 15 A. **No, it was not. And there is no discussion in the**
11:41:25 16 **Osseo patents of quantitatively calculated tomography at**
11:41:30 17 **all.**
11:41:30 18 Q. **Did the Patent Office consider the Cann 1980 article**
11:41:34 19 **when reviewing the applications for the Osseo patent?**
11:41:37 20 A. **No.**
11:41:37 21 Q. **What teachings would a person of ordinary skill in**
11:41:40 22 **the art consider from the Cann 1980 article on**
11:41:44 23 **quantitatively calculated tomography to add to the Webber**
11:41:47 24 **imaging system?**
11:41:48 25 A. **Well, in particular, adding the quantitative modeling**

11:41:53 1 component that Cann paper describes.
11:41:57 2 Q. Again, we're just trying to do a little summary
11:42:01 3 before we have to go element by element. On slide 89, you
11:42:05 4 have, it says Dimaxis overview. What's the purpose of this
11:42:09 5 article?
11:42:09 6 A. The Dimaxis was talked about yesterday. It was a
11:42:15 7 software package that Planmeca had for -- that allowed the
11:42:21 8 viewing of images, this is, as was described yesterday as
11:42:26 9 the software system or the viewing system before Romexis.
11:42:32 10 And one of the capabilities of Dimaxis was to display images
11:42:37 11 in color. And that's what's in that inset.
11:42:45 12 And what I am using as a reference is the user
11:42:48 13 manual for Dimaxis and this was published in November 1998.
11:42:54 14 Q. And I believe there is only one claim of the asserted
11:42:57 15 claims, claim seven of the '301 patent that requires color
11:43:01 16 coding. In 1999, before December of 1999, was it known in
11:43:07 17 the art to use color coding to represent digital images?
11:43:13 18 A. Yes, it was known. And it was used at times because
11:43:18 19 our eye is more sensitive to changes in color than to
11:43:22 20 changes in gray levels, so it makes intensity differences or
11:43:28 21 grayscale differences easier to appreciate.
11:43:33 22 Q. Dr. Pelc, can you explain to the jury why there would
11:43:37 23 have been a motivation to combine this Webber dental x-ray
11:43:42 24 equipment with the quantitative densitometry method
11:43:47 25 disclosed in the Cann 1980 article?

11:43:50 1 A. **Yes. And this is an important step in an obviousness**
11:43:54 2 **analysis that the person of ordinary skill in the art needs**
11:43:59 3 **to have, or might have, should have a motivation to combine**
11:44:06 4 **those references. The two systems that we're talking about**
11:44:12 5 **use similar x-ray equipment, x-ray sources, electronic**
11:44:16 6 **detectors, computers, motors. In the case of Webber, we**
11:44:24 7 **have seen some of the hardware components. In the case of**
11:44:27 8 **Cann, they're in the GE CT/T 7800 scanner that he used. I**
11:44:35 9 **also would like to point out that the Webber reference, the**
11:44:38 10 **one on the left which I'm using first because it's a dental**
11:44:43 11 **imaging system and a lot is being made of the patents for**
11:44:47 12 **dentistry, that the Webber paper references and teaches CT.**
11:44:57 13 **In fact, one of the Hounsfield patents is the first listed**
11:45:01 14 **patent on the front face of the Webber patent, and it has**
11:45:07 15 **several other CT references. So it would encourage the**
11:45:11 16 **person of skill in the art to think about other combinations**
11:45:18 17 **with CT.**
11:45:18 18 **Webber, in fact, has a figure of a scanner and**
11:45:20 19 **describes how CT scanners work.**
11:45:26 20 **So those are among the things that the person of**
11:45:29 21 **skill in the art -- I think demonstrates that a person of**
11:45:33 22 **skill in the art would be encouraged to combine these**
11:45:37 23 **things.**
11:45:37 24 **One other thing that I'll mention is that**
11:45:41 25 **Dr. Webber not only was known for his developments in dental**

11:45:47 1 imaging, but his work is cited in the medical imaging
11:45:52 2 community as well. Demonstrating that there really isn't a
11:45:59 3 difference between dental imaging and diagnostic or medical
11:46:06 4 imaging when it comes to how the technology works and so on.
11:46:08 5 Q. Dr. Pelc, can you explain to the jury why there would
11:46:12 6 have been a motivation to combine for one of ordinary skill
11:46:15 7 in the art as of December 1999 with the Webber and the
11:46:19 8 Dimaxis?
11:46:22 9 A. Yes, thank you. The Webber -- on the left is a --
11:46:28 10 some of the text from the Webber patent at column 10, lines
11:46:32 11 19 through 26. And Webber says the image may also be
11:46:36 12 projected on to a visual display such as a cathode ray tube
11:46:43 13 screen. And as of 1999, cathode ray tube screens used in
11:46:49 14 computer systems more likely than not were color. But as I
11:46:54 15 also said, use of color, pseudo color we call it in
11:47:00 16 diagnostic imaging or medical imaging was known as evidenced
11:47:05 17 by the Dimaxis system and user manual.
11:47:12 18 MS. PESCHEL: Your Honor, as a logistical issue
11:47:15 19 I'm about to start an element-by-element analysis. Would
11:47:18 20 you like me to continue?
11:47:20 21 THE COURT: No, I think this is probably a good
11:47:22 22 time to break for lunch. As long as the lawyers have
11:47:25 23 provided lunch appropriately on a timely basis. They have.
11:47:30 24 It's confirmed your lunch is ready, ladies and gentlemen.
11:47:32 25 So we'll take a forty-minute recess for lunch as

11:47:37 1 we previously have. We're in recess.

11:47:42 2 COURT CLERK: All rise.

11:47:43 3 (Jury leaving the courtroom at 11:47 a.m.)

11:48:10 4 THE COURT: Thank you for remaining standing.

11:48:15 5 We're in recess.

11:48:16 6 (A luncheon recess was taken.)

12:33:57 7 THE COURT: Please be seated. So during the

12:34:03 8 luncheon break some of the jurors were asking questions

12:34:07 9 about when we would be finished with the evidence, et

12:34:09 10 cetera. I would like the tell them as a group that we are

12:34:12 11 confident that we will submit this before the close of

12:34:15 12 business on Friday. Is that fair?

12:34:19 13 MR. OSTROW: Yes, Your Honor.

12:34:20 14 MS. PESCHEL: Yes, Your Honor.

12:34:21 15 THE COURT: I will tell them that now. Because

12:34:23 16 that's what we've told them from the beginning. And they

12:34:26 17 like us to confirm that. And then that means they may have

12:34:30 18 to come back on Monday, pretty much a guarantee we don't

12:34:36 19 give it to them by the close of business on Friday. If you

12:34:40 20 bring the jury out, Ms. Grimes.

12:34:53 21 (Jury entering the courtroom at 12:34 p.m.)

12:35:10 22 THE COURT: Please be seated, ladies and

12:35:12 23 gentlemen. Ladies and gentlemen of the jury, during the

12:35:14 24 lunch time I had some inquiries as to whether the lawyers

12:35:18 25 would be finished with the trial. It's our anticipation

12:35:21 1 that we will have the matters submitted to you for your
12:35:24 2 decision by Friday. The question is whether -- how late on
12:35:29 3 Friday afternoon it will be. But there is no question that
12:35:32 4 all the evidence will be presented and we'll give this
12:35:36 5 matter to you for your deliberation on Friday. But if it's
12:35:40 6 too late in the afternoon, you're going to have to come back
12:35:43 7 on Monday, okay. And that is kind of what we thought at the
12:35:47 8 very beginning but I just wanted to confirm that with you
12:35:50 9 and I have confirmed that with the lawyers as well.
12:35:53 10 Right now, Dr. Pelc is still on the stand. If
12:35:57 11 you would come forward, doctor. You may proceed,
12:36:24 12 Ms. Peschel.
12:36:25 13 MS. PESCHEL: Thank you, Your Honor.
12:36:26 14 BY MS. PESCHEL:
12:36:26 15 Q. Mr. Herndon, may we pull up slide 92 of the
12:36:32 16 demonstratives. PDX-4.
12:36:34 17 Dr. Pelc, we were just about to get into your
12:36:38 18 element by element analysis of invalidity with respect to
12:36:41 19 the first combination that you mentioned. I want to start
12:36:49 20 and maybe shortcut a little bit by giving some words that we
12:36:51 21 can use to describe these various claim elements.
12:36:54 22 So, is it okay with you if we call the
12:36:58 23 controller and computer requirement that and we're referring
12:37:01 24 to the '301 patent, a controller with a microprocessor and
12:37:05 25 memory device connected to the microprocessor with respect

12:37:08 1 **to the '262 patent, a computer including a digital memory**
12:37:12 2 **storing patient densitometry information and an input and**
12:37:15 3 **output and with respect to the '374 patent a controller with**
12:37:18 4 **a microprocessor and a memory device connected to the**
12:37:20 5 **microprocessor?**
12:37:21 6 A. **Yes, that would be fine.**
12:37:24 7 Q. **So what are you showing on slide 93?**
12:37:27 8 A. **So this is figures and texts from the Webber patent**
12:37:34 9 **showing the computer, it's saying that it's, for example, a**
12:37:39 10 **mini computer, it has a controller, it has memory, it has**
12:37:46 11 **input and output devices.**
12:37:48 12 Q. **Would that have had a microprocessor?**
12:37:50 13 A. **Yes.**
12:37:52 14 Q. **Dr. Pelc, do those disclosures meet the structural**
12:37:56 15 **requirement for the controller and computer required by the**
12:37:59 16 **Osseo patent claims?**
12:38:00 17 A. **Yes.**
12:38:00 18 Q. **We can check those off as disclosed?**
12:38:03 19 A. **Yes.**
12:38:03 20 Q. **Another element is an input device, specifically for**
12:38:07 21 **the '301 patent an input device connected to the**
12:38:10 22 **microprocessor for the '262 patent, an input, and for the**
12:38:13 23 **'374 patent, an input device connected to the**
12:38:17 24 **microprocessor. Can we call those an input device?**
12:38:20 25 A. **Sure.**

12:38:20 1 Q. **Where in Webber is an input device disclosed. I'm**
12:38:25 2 **showing slide 96?**
12:38:26 3 A. **Sure. And for the benefit of the jurors, they can**
12:38:30 4 **put the input device here can be the detector array which is**
12:38:36 5 **providing data or the keyboard or what have you, you have**
12:38:40 6 **the detector array there providing input.**
12:38:43 7 Q. **And you're showing figures 7 and 8?**
12:38:46 8 A. **Figures 7 and 8 and then from the text at column 10,**
12:38:51 9 **10 to 26, the signals from the detector array may be stored**
12:38:55 10 **in the controller, again making it clear that the controller**
12:38:58 11 **also has memory.**
12:39:00 12 Q. **And in your opinion does that meet the requirement**
12:39:04 13 **for an input or input device for the claims of the Osseo**
12:39:08 14 **patent?**
12:39:08 15 A. **Correct.**
12:39:09 16 Q. **Dr. Pelc, there is element called a positioning motor**
12:39:14 17 **specifically in the '301 patent, a positioning motor**
12:39:17 18 **connected to the microprocessor and moveable in response to**
12:39:19 19 **and from said microprocessor, and in the '374 patent, a**
12:39:23 20 **positioning motor connected to the microprocessor and**
12:39:25 21 **responsive to commands from said microprocessor, can we call**
12:39:29 22 **that a positioning motor for the rest of your testimony?**
12:39:31 23 A. **Yes. And the court has noticed that there is a word**
12:39:35 24 **missing here between to and from, and the court has said**
12:39:41 25 **that's signals.**

12:39:42 1 Q. **Thank you. Moving to slide 99, Dr. Pelc. What are**
12:39:47 2 **you showing with respect to Webber regarding positioning**
12:39:51 3 **motors?**
12:39:51 4 A. **So you see the positioning motor, it rotates that C**
12:39:56 5 **arm in figure 5. In Figure 7 from Webber, you see the motor**
12:40:03 6 **is connected to the controller. And you see text from**
12:40:09 7 **column 7, 10 to 17. And it says that the -- for**
12:40:18 8 **electronically controlling x-ray generation, by x-ray source**
12:40:24 9 **and the rotation of the motor.**
12:40:32 10 Q. **In your opinion, does Webber disclose the positioning**
12:40:32 11 **motor elements required by the '301 and '374 patent?**
12:40:36 12 A. **Yes.**
12:40:37 13 Q. **Moving to slide 101, Dr. Pelc, each of these patent**
12:40:43 14 **claims has some element or requirement for x-ray equipment,**
12:40:48 15 **specifically for the '301 patent, x-ray equipment including**
12:40:52 16 **an x-ray source and a detector array?**
12:40:54 17 A. **Yes.**
12:40:55 18 Q. **For the '262 patent a dental or orthopedic input**
12:41:00 19 **device including an energy source and an energy sensor, said**
12:41:03 20 **source and said sensor being placed with at least a portion**
12:41:06 21 **of the patient's dental or orthopedic structure there**
12:41:09 22 **between, said sensor transferring signals to the computer**
12:41:13 23 **input and said signals representing densitometry of the**
12:41:16 24 **patient's dental or orthopedic structure, and x-ray**
12:41:19 25 **equipment including an x-ray source, a detector array and a**

12:41:23 1 **restricted beam device for the '374 patent?**
12:41:26 2 Q. **Can we treat all of these devices together using the**
12:41:30 3 **term x-ray equipment?**
12:41:31 4 A. **Sure.**
12:41:31 5 Q. **Can you explain to us and maybe start with slide 1 or**
12:41:34 6 **2 wherein Webber the x-ray equipment requirements are met?**
12:41:39 7 A. **This is Figure 5 from Webber, and it says that there**
12:41:42 8 **is an x-ray source, this is numeral 32, and 43 is a**
12:41:50 9 **collimator which is a restricted beam device as we've**
12:41:54 10 **described. And Webber has arrays of detectors and the text**
12:42:01 11 **at column five, lines 24 to 30, you see collimated x-ray**
12:42:10 12 **source, a detector, such as a vertical, linear charge**
12:42:12 13 **coupled device array. And that's the detector.**
12:42:21 14 Q. **Looking at slide 102, what are you showing here?**
12:42:22 15 A. **This is an alternate detector in Webber, in the page**
12:42:28 16 **of the patent it's just below this, to make it clear that an**
12:42:33 17 **alternative embodiment of this, instead of a set of vertical**
12:42:38 18 **lines, you could just make a whole big 2D array of detector**
12:42:50 19 **pixels and put that here.**
12:42:50 20 Q. **And then in slide 103, what are you showing with**
12:42:51 21 **these references to x-ray equipment in Webber?**
12:42:59 22 A. **This is again showing the x-ray source collimated to**
12:43:03 23 **make five vertical lines of x-ray hitting the the detector**
12:43:07 24 **array. And that they rotate in a horizontal plane.**
12:43:14 25 Q. **What is in column seven lines 49 to 66 of Webber**

12:43:21 1 regarding x-ray equipment?
12:43:22 2 A. Well, it describes that these six vertical lines of
12:43:28 3 x-rays are produced from a single source, so it's a single
12:43:32 4 source using a six-way collimator and then a vertical
12:43:36 5 detector array having a plurality, here six, of linear
12:43:42 6 detector arrays, and also as shown is the rotation, I guess
12:43:49 7 that's this arrow here, that this thing can rotate around
12:43:53 8 the patient.
12:43:54 9 Q. And again, that's rotating around the head and neck
12:43:58 10 region of the patient?
12:43:59 11 A. That's right. That's right.
12:44:00 12 Q. And Dr. Pelc, you mentioned that there is a six-way
12:44:04 13 collimator. How is that relevant to the claim limitations?
12:44:09 14 A. The claim limitation that I think one of them talks
12:44:13 15 about a restricted beam device and so it's restricting the
12:44:17 16 beam, the collimator is doing the restricting.
12:44:21 17 Q. Moving from slide 103 to 104, what is your opinion as
12:44:26 18 to whether Webber discloses the x-ray equipment requirements
12:44:30 19 of the Osseo claim?
12:44:31 20 A. It does.
12:44:32 21 Q. All right. Dr. Pelc, I next want to look at the
12:44:35 22 claim limitations for converter and conversion means. In
12:44:38 23 the '301 patent it requires a conversion means for
12:44:42 24 converting a signal from said detector array, said
12:44:46 25 conversion meanings being connected to said detector array

12:44:49 1 **and to said microprocessor. And for the '374 patent, it**
12:44:52 2 **requires a convertor for converting a signal from said**
12:44:57 3 **detector array, said converter being connected to said**
12:45:01 4 **detector array and to said microprocessor and we refer to**
12:45:04 5 **those as the conversion means and the converter requirement?**
12:45:08 6 A. **Yes.**
12:45:09 7 Q. **Moving from 105 to 106, Dr. Pelc where is there**
12:45:15 8 **conversion means or a convertor?**
12:45:17 9 A. **The Court has construed conversion means to be a**
12:45:25 10 **analog to digital convertor, it's inside the detector array.**
12:45:27 11 **That's a conversion means, a converter is something that**
12:45:31 12 **somehow transforms signal here it says transforming means**
12:45:36 13 **to, in order to convert the signal from one to the other and**
12:45:41 14 **Webber is describing this transform step here in his block**
12:45:47 15 **diagram as being a converter. There is also a converter,**
12:45:53 16 **this is a display converter that's basically an interface**
12:45:57 17 **between the controller and the display device. So those are**
12:46:02 18 **all converters. And there is a conversion means in the**
12:46:05 19 **detector.**
12:46:11 20 Q. **So is it your opinion that the converter in**
12:46:14 21 **conversion means requirement of the asserted claims are met**
12:46:18 22 **by the claims disclosed in Webber?**
12:46:20 23 A. **Yes.**
12:46:20 24 Q. **Moving from slides 107 to 108, Dr. Pelc, there are**
12:46:24 25 **also requirements for an outlet device, sometimes it's**

12:46:27 1 called a display color monitor, for example in the '301
12:46:32 2 patent claim one it says an output device connected to said
12:46:35 3 microprocessor. In claim seven, it refers to an output
12:46:38 4 device includes a color monitor adapted to receive said
12:46:43 5 tomographical densitometry model output color coded to
12:46:47 6 represent densitometry. Can we refer to those as an output
12:46:50 7 device?
12:46:50 8 A. Yes.
12:46:50 9 Q. And then in the '262 patent it says an output device
12:46:54 10 connected to said computer output and communicating
12:46:57 11 densitometry model comparison information, and then in the
12:47:00 12 '374 patent, claim one, it requires an output device
12:47:04 13 connected to said microprocessor, can we also refer to those
12:47:12 14 takes an output device?
12:47:12 15 A. Yes.
12:47:12 16 Q. Dr. Pelc, moving from slide 108 to 109, where are
12:47:15 17 Webber are there disclosed output devices?
12:47:19 18 A. Webber has a, we talked about it earlier, it has a
12:47:22 19 visual display such as a cathode ray tube, that's numeral
12:47:29 20 54, you can see it here in the drawings in figures 7 and 8.
12:47:35 21 Q. Are there any disclosures in Webber that were
12:47:39 22 relevant to your obviousness analysis?
12:47:41 23 A. Webber says display 54 the design of these elements
12:47:45 24 are are well-known to those having skill in the art. I
12:47:48 25 agree with that completely.

12:47:50 1 Q. **Dr. Pelc, with respect to claim seven of the '301**
12:47:53 2 **patent, the claim language says that the output device**
12:47:56 3 **includes the color monitoring adapted to receive said**
12:48:00 4 **tomographical densitometry model output color coded to**
12:48:05 5 **represent densitometry. Does Webber have an explicit**
12:48:10 6 **description of color coding output?**
12:48:12 7 A. **Webber does not have an explicit one, it says the**
12:48:15 8 **display can be a cathode ray tube which as I mentioned**
12:48:19 9 **earlier more likely than not was a color display. But just**
12:48:22 10 **to make sure, make it clear, we can bring in the Planmeca**
12:48:28 11 **Dimaxis imaging software manual which teaches the -- how one**
12:48:34 12 **does pseudo color coding in order to apply that pseudo color**
12:48:40 13 **to grayscale image.**
12:48:42 14 Q. **Dr. Pelc, does this combination teach all of the**
12:48:45 15 **output device elements required by the Osseo patent claims?**
12:48:49 16 A. **Yes.**
12:48:49 17 Q. **So we can check those off?**
12:48:51 18 A. **Yes.**
12:48:54 19 Q. **All right. Dr. Pelc, in the '262 patent there is an**
12:49:02 20 **element that's not present in the other claims. It says**
12:49:02 21 **imaging software associated with said computer. Can we just**
12:49:05 22 **refer to that as imaging software?**
12:49:09 23 A. **Yes.**
12:49:09 24 Q. **Where in this Webber reference does it disclose**
12:49:13 25 **imaging software?**

12:49:14 1 A. **In many places, but you see some of that highlighted**
12:49:19 2 **here in text from Webber at various places, like the**
12:49:25 3 **computer can be used to render the image of a particular**
12:49:31 4 **structure of interest in proper focus, that's related to the**
12:49:35 5 **reconstruction that the computer is doing in the Webber**
12:49:39 6 **panoramic imaging. This means can it can have a**
12:49:45 7 **deconvolution algorithm which is computer algorithms,**
12:49:50 8 **software to synthesize true three dimensional representation**
12:49:58 9 **of the tissue, existing software have demonstrated that**
12:50:07 10 **tomosynthetic data can be processed into any desired two**
12:50:07 11 **dimensional projection, known tomosynthetic enhancement**
12:50:12 12 **techniques may be used, including computer core recollection**
12:50:16 13 **of artifacts, all of those are algorithm imaging software.**
12:50:20 14 Q. **Just so the record is clear, Dr. Pelc you were**
12:50:23 15 **referring on slide 114 to Webber at column 6 line 5464 to**
12:50:29 16 **67, column 72 to 6, column 89 to 14, column 9, 5 to 10 and**
12:50:36 17 **25 to 35?**
12:50:37 18 A. **That's correct.**
12:50:38 19 Q. **So can we check off the imaging software element as**
12:50:41 20 **having been met by Webber?**
12:50:43 21 A. **Yes.**
12:50:47 22 Q. **Dr. Pelc, all of the claims require densitometry,**
12:50:52 23 **correct?**
12:50:53 24 A. **That's correct.**
12:50:53 25 Q. **And we've discussed that this morning so if it's okay**

12:50:56 1 with you I'm just going to refer to everything highlighted
12:50:59 2 in red as having a densitometry requirement?
12:51:01 3 A. That's right.
12:51:04 4 Q. Now, on slide 117, I notice that you're making
12:51:08 5 reference too the Cann 1980 article. Can you explain that?
12:51:11 6 A. Yes. So by itself, Webber is not densitometry as the
12:51:16 7 court has construed the claim. So the person of skill in
12:51:24 8 the art would bring in the teaching from the Cann reference
12:51:26 9 to calculate the mineral equivalent for each vertebra in
12:51:31 10 terms of milligrams per milliliter of bone mineral,
12:51:41 11 potassium hydroxy.
12:51:41 12 Q. You were referring to slide 17 an excerpt from the
12:51:44 13 Cann 1980 article, page 495?
12:51:47 14 A. That's correct, yes. And just to guide the jury,
12:51:50 15 this line indicates that this slice, it's at that location,
12:51:58 16 and also to remind you these are the cross-sections of the
12:52:02 17 known standards that are used to calculate the bone mineral
12:52:09 18 equivalent.
12:52:09 19 Q. Dr. Pelc, what else is disclosed in the Cann 1980
12:52:13 20 article regarding densitometry?
12:52:17 21 A. So Cann in addition to describing the computed
12:52:27 22 tomography method validated, show the density and
12:52:33 23 reproducibility of the method. So you see that there, that
12:52:41 24 the data obtained in these five studies provided independent
12:52:48 25 information about the density and positioning

12:52:50 1 **reproducibility of the expected variation in the CT number**
12:52:54 2 **of calibration materials.**
12:52:59 3 Q. **Dr. Pelc, would it have been difficult for a person**
12:53:02 4 **of ordinary skill in the art as of December of 1999 to take**
12:53:07 5 **the quantitatively calculated computed tomography method of**
12:53:11 6 **the Cann 1980 article and applied it to the equipment that**
12:53:15 7 **we described for Webber?**
12:53:18 8 A. **The person of skill in the art would understand how**
12:53:20 9 **to combine those references into a single system.**
12:53:24 10 Q. **And then moving from slide 118 to 119, Dr. Pelc, the**
12:53:29 11 **densitometry elements of the Osseo patent claims met by the**
12:53:32 12 **disclosures in the Cann 1980 article?**
12:53:35 13 A. **Yes.**
12:53:39 14 Q. **Then Dr. Pelc in the non-infringement section of your**
12:53:42 15 **testimony we discussed the various model requirements of the**
12:53:45 16 **asserted claims. Can we refer to those here as the model or**
12:53:49 17 **model requirements?**
12:53:50 18 A. **Yes.**
12:53:51 19 Q. **And then all require densitometry; correct?**
12:53:55 20 A. **That's right.**
12:53:56 21 Q. **Can you explain to the jury wherein Webber there is**
12:54:00 22 **any description of these modeling requirements?**
12:54:05 23 A. **So Webber is a tomosynthesis system that produces**
12:54:13 24 **multiple slices and he says how to produce the, a three**
12:54:19 25 **dimensional model from it. Like here you see a true three**

12:54:24 1 dimensional representation of tissues. At column eight
12:54:30 2 lines 9 to 14. And it says that the process signals may be
12:54:36 3 transferred to a remote computer for remote analysis or
12:54:39 4 viewing. The image may also be projected on a visual
12:54:44 5 display such as a cathode ray tube, that remote computer can
12:54:50 6 process signals, do comparisons and the like.
12:54:54 7 Q. Okay. And now I believe I heard you earlier say that
12:54:58 8 Webber couldn't do densitometry and that's why we -- that's
12:55:01 9 why a person of ordinary skill in the art might look to the
12:55:04 10 Cann 1980 article. Could the same thing in terms of the
12:55:10 11 densitometry requirement of the modeling claims?
12:55:12 12 A. Yes, absolutely.
12:55:14 13 Q. Claim limitation.
12:55:16 14 So is it fair to say that in this example
12:55:19 15 combination you're giving for obviousness that the model
12:55:24 16 requirements are met?
12:55:24 17 A. Yes.
12:55:34 18 Q. Dr. Pelc, I believe this may be the last limitation
12:55:37 19 that we're walking through as an example there are a couple
12:55:41 20 --
12:55:41 21 A. I'm sorry, can I back up.
12:55:43 22 Q. Absolutely?
12:55:44 23 A. There is another component that's needed in the
12:55:46 24 modeling claim and that is merging information. And one of
12:55:50 25 the things that is in common is the use of dual energy for

12:55:56 1 his bone mineral method, although we haven't talked about
12:55:59 2 it, there is a description in Cann of using dual energy CT
12:56:04 3 for producing his bone mineral estimates. The combining of
12:56:11 4 the two individual energy data sets of Cann to produce the
12:56:17 5 model is the real merging of multiple tomographic data sets
12:56:23 6 that the claim calls for.
12:56:27 7 Q. Moving from slide 122 to 123, I believe the last set
12:56:33 8 of limitations are storing and comparing model requirements,
12:56:38 9 for example the '301 patent has a means for storing,
12:56:42 10 preexisting tomographic dental orthopedic densitometry
12:56:46 11 model, the '262 patent requires said computer creating
12:56:50 12 storing and comparing the three dimensional digital
12:56:54 13 densitometry model without the use of fiducial markers of
12:56:59 14 patient dental structure and the output device connected to
12:57:03 15 said computer output communicating densitometry model
12:57:06 16 comparison information?
12:57:07 17 A. The '374 patent also requires the controller to be
12:57:11 18 adapted for storing and in claim six of the '374 patent,
12:57:14 19 adapted to compare. Can we generally refer to those as the
12:57:18 20 storing and comparing limitations?
12:57:20 21 A. Yes.
12:57:22 22 Q. Where in Webber does it disclose either storing or
12:57:26 23 comparing?
12:57:26 24 A. So in this text that I think we saw earlier, the
12:57:30 25 signals of the detector array may be stored in the

12:57:33 1 **controller. So the controller has storage. And then --**
12:57:39 2 Q. **I'm sorry, let me go back just to 124. Just so we**
12:57:44 3 **know what you were pointing to. On the right is from**
12:57:48 4 **Webber, column ten, lines 10 to 23?**
12:57:51 5 A. **Yes. Yes.**
12:57:53 6 Q. **All right. And then what are you showing on slide**
12:57:56 7 **125?**
12:57:56 8 A. **Then in 125, this is from Webber at column 9, 5 to**
12:58:01 9 **10. Tissue changes can be quantitatively obtained, tissue**
12:58:08 10 **changes just to emphasize the word changes, can be**
12:58:11 11 **quantitatively obtained from careful comparison of existing**
12:58:16 12 **panoramic radiographs and those produced according to the**
12:58:20 13 **present invention, so the prior and the current.**
12:58:24 14 Q. **And then on slide 126, this is referencing again the**
12:58:30 15 **Cann 1980 article at joint Exhibit 5. What are you showing**
12:58:34 16 **here?**
12:58:35 17 A. **Yes. I talked about this earlier, so these are the**
12:58:39 18 **images from Cann that we saw before. And the table where he**
12:58:44 19 **reported not only Hounsfield Unit values for the three**
12:58:49 20 **vertebrae at three points in time, but also the mineral**
12:58:54 21 **content, that is the bone mineral density or bone density**
12:58:59 22 **quantitatively calculated at three points in time, allowing**
12:59:05 23 **a comparison, but in addition, Cann says the coefficient of**
12:59:12 24 **variations for calculated mineral content normalized to the**
12:59:16 25 **calibration solutions, that's his term for the standard is**

12:59:20 1 **2.8, and then similarly that's for the mineral content. And**
12:59:33 2 **then in addition, an interesting thing that they did is they**
12:59:33 3 **used two different GE 7800 scanners and they looked to see**
12:59:39 4 **how similar were the results for the same bones on two**
12:59:42 5 **different machines. And they said that that variation among**
12:59:49 6 **the two machines was less than two percent. So this is**
12:59:55 7 **quantitative comparison of the densitometry models.**
13:00:02 8 Q. **Dr. Pelc, is it your opinion that the combination of**
13:00:05 9 **Webber and Cann discloses the storing and comparing model**
13:00:09 10 **limitations of the Osseo patents?**
13:00:11 11 A. **Yes.**
13:00:14 12 Q. **And then as I'm showing on your slide 128, is it your**
13:00:19 13 **opinion that the -- we have walked through each of the**
13:00:23 14 **elements of the Osseo claims?**
13:00:24 15 A. **Yes.**
13:00:26 16 Q. **So in the combination of Webber and Cann, and with**
13:00:30 17 **respect to claim seven of the '301 patent, the Dimaxis user**
13:00:36 18 **manual are all the elements disclosed?**
13:00:39 19 A. **Yes.**
13:00:39 20 Q. **Did the combination of the Webber and Cann teachings**
13:00:44 21 **lead to predictable results?**
13:00:45 22 A. **Absolutely.**
13:00:45 23 Q. **Why?**
13:00:46 24 A. **Because there is nothing surprising about what the**
13:00:53 25 **combination would do, it would produce tomographic volume**

13:00:53 1 data in that -- from which one can calculate quantitatively
13:00:59 2 bone mineral density and the -- there is nothing surprising
13:01:05 3 in the combination.
13:01:07 4 Q. What is your opinion as to whether this combination
13:01:10 5 of references renders obvious the claims of the Osseo
13:01:13 6 patents?
13:01:13 7 A. I believe it does.
13:01:20 8 Q. Dr. Pelc, I believe you mentioned the second
13:01:22 9 combination. What are the references that you're going to
13:01:25 10 use in in second combination?
13:01:27 11 A. The Guenther patent that we talked about, the Mazess
13:01:31 12 patent that we will describe briefly and this paper that is
13:01:33 13 being called Fontevraud.
13:01:36 14 Q. Let's discuss the Guenther patent first because we
13:01:40 15 have already touched on it. So I'm showing on slide 131 the
13:01:44 16 Guenther patent which is Defense Exhibit 8. Can you tell us
13:01:48 17 when it was filed, when it was issued?
13:01:50 18 A. It was filed February 1, 1995, and issued March 19th
13:01:55 19 of 1996.
13:01:56 20 Q. Did the Patent Office have this Guenther patent
13:02:00 21 before it considered the Osseo patents?
13:02:02 22 A. I believe it did.
13:02:04 23 Q. The;884 patent?
13:02:08 24 A. Can we look at the front.
13:02:12 25 Q. Sure. If you turn to Tab 1, I believe?

13:02:21 1 Q. **Actually it's not tab one, can you turn to Tab 7 of**
13:02:24 2 **your binder there is JX-1 which is the '301 patent?**
13:02:28 3 A. **Thank you. I'm sorry, so the Massie patents cite two**
13:02:43 4 **other Guenther patents but not this one.**
13:02:45 5 Q. **Dr. Pelc, can you explain what the Guenther patent**
13:02:51 6 **title means?**
13:02:58 7 A. **Yes, the title of the patent is dental x-ray**
13:03:03 8 **diagnostic installation for producing panoramic x-ray**
13:03:04 9 **exposures of the skull of a patient.**
13:03:07 10 Q. **What is Guenther doing here?**
13:03:08 11 A. **So it's a dental panoramic machine with particular**
13:03:15 12 **features.**
13:03:17 13 Q. **Dr. Pelc, I'm going to draw your attention to Tab 36**
13:03:20 14 **of your second binder.**
13:03:24 15 A. **Yes.**
13:03:26 16 Q. **What is that?**
13:03:27 17 A. **That's a -- the Mazess '445 patent, DX-7.**
13:03:35 18 Q. **Did you use that in your invalidity analysis?**
13:03:38 19 A. **Yes, I did.**
13:03:40 20 **MS. PESCHEL: Your Honor, I would like to offer**
13:03:43 21 **into evidence defendants Exhibit 7.**
13:03:45 22 **THE COURT: Any objection to seven?**
13:03:46 23 **MR. OSTROW: No objection.**
13:03:48 24 **THE COURT: DX-7 is received.**
13:03:49 25 **(DX Exhibit No. 7 was admitted into evidence.)**

13:03:50 1 **BY MS. PESCHEL:**

13:03:54 2 Q. **Dr. Pelc, we're showing DX-7 on the screen. Can you**

13:03:57 3 **let us know what the dates of this patent filing and**

13:04:02 4 **issuance were?**

13:04:06 5 A. **Yes the patent itself was filed on December 1, 2000,**

13:04:11 6 **but claims priority to March 30, 1999.**

13:04:25 7 Q. **And that's in the related U.S. application data?**

13:04:29 8 A. **Right here.**

13:04:29 9 Q. **Can you explain what a division is?**

13:04:33 10 A. **Yes, I'm not a lawyer but my understanding of**

13:04:37 11 **divisions is an inventor submits a patent and the Patent**

13:04:47 12 **Office says your claims are in different fields, you have to**

13:04:47 13 **divide the patent and choose one or the other. And correct**

13:04:53 14 **me if I'm wrong, so a division, a division of that would be**

13:04:59 15 **the specification but with a different set of claims.**

13:05:02 16 Q. **Did the Patent Office consider the Mazess '445 patent**

13:05:08 17 **when it was looking at Osseo's patent claims?**

13:05:11 18 A. **No.**

13:05:11 19 Q. **Who was Richard Mazess?**

13:05:13 20 A. **Richard Mazess is the Mazess I talked about earlier,**

13:05:17 21 **he was my under graduate research advisor.**

13:05:20 22 Q. **Just for the record, the number of this patent --**

13:05:23 23 A. **He's still alive.**

13:05:25 24 Q. **The number of this patent is U.S. patent number**

13:05:29 25 **6315;445; correct?**

13:05:31 1 A. **Yes.**

13:05:31 2 Q. **All right. And then if you could turn to Tab 37 in**

13:05:37 3 **your binder.**

13:05:38 4 A. **Yes.**

13:05:45 5 Q. **What is this document?**

13:05:47 6 A. **This is a paper presented at the conference in**

13:05:54 7 **Fontevraud, France by Genant and Cann and others and it's**

13:06:00 8 **JX-0008.**

13:06:04 9 **MS. PESCHEL: Your Honor, I would like to move**

13:06:06 10 **into evidence joint Exhibit 8.**

13:06:08 11 **THE COURT: Any objection to eight?**

13:06:10 12 **MR. OSTROW: No objection.**

13:06:11 13 **THE COURT: JX-8 is received.**

13:06:14 14 **(JX Exhibit No. 8 was admitted into evidence.)**

13:06:15 15 **BY MS. PESCHEL:**

13:06:17 16 Q. **Now, Dr. Pelc, you mentioned that this patent came**

13:06:21 17 **out of a workshop. Can you explain that a little bit more?**

13:06:24 18 A. **Sure. A workshop is like a conference, tends to be**

13:06:29 19 **more interactive and researchers come together to share**

13:06:34 20 **ideas and results. And this happens to be a workshop on**

13:06:39 21 **bone and soft tissue densitometry using computed tomography.**

13:06:42 22 **And you'll see it's actually the further one. There were**

13:06:52 23 **presumably three before this. It was held in the,**

13:06:52 24 **Fontevraud, France in 1964 and this is from the published**

13:07:02 25 **proceedings which are publishing of the abstracts of the**

13:07:04 1 research that was presented there. It actually appeared in
13:07:08 2 this journal, the journal of computer assisted tomography in
13:07:13 3 1985.
13:07:14 4 Q. If we could zoom out a little bit, Mr. Herndon. Who
13:07:17 5 were the authors on this article?
13:07:20 6 A. So the first two authors, they'll be listed here, are
13:07:30 7 Genant and Cann, who we've talked about. They were the same
13:07:36 8 two people who were the authors of the Cann 1980 paper, with
13:07:40 9 a few other collaborators who were involved at the
13:07:44 10 department of radiology at the University of California at
13:07:48 11 San Francisco.
13:07:52 12 Q. So we were showing the jury the actual references,
13:08:00 13 and I just want to take a step back and talk about just an
13:08:04 14 overview of each of those.
13:08:06 15 Now, Mazess is titled densitometry adapter for
13:08:10 16 compact x-ray fluoroscopy machine. What kind of
13:08:15 17 densitometry was disclosed in this patent?
13:08:16 18 A. So one of the goals of the Mazess patent is to take
13:08:22 19 an existing fluoroscopy system which is shown here and use
13:08:28 20 it for densitometry. And he does this using dual energy.
13:08:32 21 Q. And then on slide 133 with respect to Fontevraud,
13:08:37 22 it's titled bone and soft tissue densitometry using computed
13:08:41 23 tomography. What kind of densitometry is disclosed in this
13:08:44 24 article?
13:08:45 25 A. Yes. This is using the same technique that was shown

13:08:49 1 in the previous paper, but on a different scanner, they're
13:08:55 2 now using a newer model, the GE 9800 scanner, and you see
13:09:01 3 images both this lateral x-ray like image and a
13:09:05 4 cross-section, and here are the standards of the patient.
13:09:10 5 And it reported -- it's an update of the report, of the
13:09:16 6 research that they've conducted on quantitatively calculated
13:09:21 7 tomography for bone mineral determination. Among the things
13:09:24 8 that the paper reports is that the method has by then
13:09:32 9 implemented, been implemented at 150 sites. And as I
13:09:33 10 mentioned, at their cite they used a GE 9800 scanner to
13:09:38 11 determine bone mineral density in milligrams per cubic
13:09:43 12 centimeter.
13:09:43 13 Q. Do you have any experience with the GE 9800 scanner?
13:09:47 14 A. Quite a bit. That's the scanner that I helped design
13:09:50 15 when I was at GE.
13:09:53 16 Q. And in the Fontevraud article did they determine bone
13:09:59 17 density in milligrams per cubic centimeter?
13:10:03 18 A. Yes, they did.
13:10:04 19 Q. Dr. Pelc what are you showing on slide 134?
13:10:07 20 A. So on the right is the text from the Fontevraud paper
13:10:13 21 and it says recent improvements in CT scanner technology
13:10:19 22 with the GE CT 9800 scanner have produced increased
13:10:25 23 precision and reduced radiation exposure. And this is the
13:10:29 24 picture of the 9800, gantry the patient goes into the
13:10:35 25 opening and the operator console of the scanner.

13:10:38 1 Q. And now the portion of Fontevraud that you read or
13:10:45 2 pointed to on page 602 says recent improvements. How recent
13:10:49 3 was that in our timeline?
13:10:51 4 A. Well, this was presented in 1984, and -- well, so
13:10:59 5 it's not recent compared to 1999. I would say the 9800 had
13:11:04 6 been out for a year or so.
13:11:08 7 Q. Dr. Pelc, what motivation would a person of ordinary
13:11:11 8 skill in the art prior to 1999 have to combine these
13:11:15 9 references?
13:11:15 10 A. Much like what we talked about with the previous
13:11:19 11 combination, the hardware are the same sort of components.
13:11:26 12 All of them use electronic detectors. They all have
13:11:33 13 computers. And these are the same field that dental imaging
13:11:34 14 and the body imaging fields are the same. And there is no
13:11:39 15 unexpected results.
13:11:40 16 Q. Are you aware of anything in the art that suggested
13:11:45 17 you cannot do tomography modeling in dentistry in noon 99?
13:11:50 18 A. No, in fact as we already saw it had already.
13:11:52 19 Q. Are you aware of anything that would suggest you
13:11:55 20 could not combine the teachings of the tomography reference
13:11:57 21 regarding the structure of an imaging device with those of a
13:12:03 22 densitometry reference like Mazess?
13:12:06 23 A. No.
13:12:06 24 Q. Would the knowledge of one of skill in the art have
13:12:07 25 contributed to the motivation to combine these references?

13:12:10 1 A. **Certainly, because a person of skill in the art would**
13:12:12 2 **know about these machines, a person of skill in the art, as**
13:12:18 3 **long as the publications are in her or his field, is**
13:12:23 4 **familiar with them.**
13:12:26 5 Q. **Dr. Pelc, what motivation would a person of ordinary**
13:12:29 6 **skill in the art prior to 1999 have to combine the scanning**
13:12:36 7 **device of Guenther with the calculations in densitometry**
13:12:36 8 **techniques taught in Fontevraud?**
13:12:38 9 A. **Yeah. This is an interesting additional motivation**
13:12:41 10 **to combine. The motivation that's in Mazess is let's take**
13:12:47 11 **an existing device and modify it, primarily with software**
13:12:51 12 **but not entirely to do new things without greatly impacting**
13:12:56 13 **the footprint and other things about this. So the**
13:13:01 14 **combination would entail replacing the detector in Guenther**
13:13:06 15 **with an area detector which by 1999 were widely available,**
13:13:11 16 **and then changing the software that controls the x-ray**
13:13:17 17 **exposure and the way the signals are processed.**
13:13:23 18 Q. **And then at slide 137, you have an excerpt from**
13:13:28 19 **Fontevraud at page 604. What is the purpose of referencing**
13:13:34 20 **the excerpt?**
13:13:35 21 A. **This is from the writing by Genant and Cann**
13:13:41 22 **colleagues, they say that many of the advanced CT scanners**
13:13:45 23 **worldwide may be modified for quantitative CT measurements**
13:13:50 24 **at relatively little cost. They're telling you this is easy**
13:13:53 25 **to implement.**

13:13:57 1 Q. **Alright, Dr. Pelc. It's now the point in time where**
13:14:00 2 **we need to walk through each element and show where it's met**
13:14:04 3 **in the references. Would it be okay if we used the same**
13:14:08 4 **nomenclature that we used for the other combinations to kind**
13:14:12 5 **of shortcut that a little bit for the jury?**
13:14:15 6 A. **I think that would be a good idea.**
13:14:17 7 Q. **With the respect to the controller and computer**
13:14:20 8 **requirements, where are those disclosed in Guenther as shown**
13:14:23 9 **on slide 139?**
13:14:24 10 A. **So you see in Figure 7 of Guenther, there is a**
13:14:29 11 **control unit numeral 36. There is a computer that includes**
13:14:38 12 **the display device at, I think the computer is numeral eight**
13:14:43 13 **and the display screen is 48.**
13:14:47 14 Q. **And then on slide 140, it appears you have some**
13:14:50 15 **excerpts from the Mazess patent, Mazess '445. What are you**
13:14:55 16 **showing here?**
13:14:57 17 A. **So this is the, in Figure 6 of Mazess, you see the**
13:15:02 18 **computer that's controlling things. And has the ability to**
13:15:08 19 **do image processing. And the Mazess says the computer**
13:15:14 20 **contained in the shelf on the cart, I guess is pointing to a**
13:15:18 21 **different image. In any case, there is a computer 22.**
13:15:23 22 Q. **Dr. Pelc, what is your opinion as to whether the**
13:15:26 23 **controller and computer requirements of the Osseo patent**
13:15:29 24 **claims are met by by these references?**
13:15:33 25 A. **They are met.**

13:15:35 1 Q. **Now, the next element that we discuss was input**
13:15:39 2 **device. Wherein Guenther is there a disclosure of input**
13:15:43 3 **devices?**
13:15:44 4 A. **There is an input device here in the keyboard of the**
13:15:47 5 **computer on Figure 8 on the right and in Figure 7 you see**
13:15:51 6 **position sensors that are sending to the control unit the**
13:15:56 7 **computer information about the position of the various**
13:16:00 8 **things that are being controlled by the motors, or moved by**
13:16:03 9 **the motors.**
13:16:04 10 Q. **And as I move from slide 142 to 143, Dr. Pelc, does**
13:16:11 11 **Mazess also disclose an input device?**
13:16:13 12 A. **Yes, in addition to the keyboard that's on the lower**
13:16:16 13 **left, you see the CCD camera that's part of the detector of**
13:16:23 14 **Mazess and it's connected to the computer, the computer 22**
13:16:28 15 **through the image processing to do the image processing.**
13:16:33 16 Q. **What is your opinion as to whether these disclosures**
13:16:36 17 **are sufficient to meet the input device requirements of the**
13:16:40 18 **Osseo patent claims?**
13:16:41 19 A. **My opinion is they're met.**
13:16:45 20 Q. **All right. Dr. Pelc, another requirement of the**
13:16:47 21 **Osseo patent claims is for a positioning motor. Which**
13:16:50 22 **reference in this example combination discloses positioning**
13:16:54 23 **motors?**
13:16:54 24 A. **Certainly Guenther has positioning motors as we saw.**
13:16:58 25 **You see them there in Figure 7 and in the text from column**

13:17:02 1 four, lines 54 to 64.
13:17:04 2 Q. Does that positioning motor have a connection to a
13:17:07 3 microprocessor?
13:17:07 4 A. It does. It does and it says that the control unit
13:17:11 5 35 contains control electronics 36 having a microprocessor
13:17:17 6 by means of which four adjustment motors are controlled.
13:17:21 7 Q. Does that mean it's responsive to commands from that
13:17:24 8 microprocessor?
13:17:24 9 A. Yes.
13:17:26 10 Q. Dr. Pelc, what is your opinion as to whether the
13:17:29 11 positioning motor requirements of the Osseo patent claims
13:17:31 12 are met?
13:17:32 13 A. They are met.
13:17:34 14 Q. All right. What about x-ray equipment, wherein
13:17:37 15 Guenther are there disclosures of the required x-ray
13:17:41 16 equipment?
13:17:41 17 A. So in Guenther in this figure you can see the x-ray
13:17:46 18 source here in number five on the right. And the detector
13:17:51 19 array that is in opposite on the other side of the patient.
13:17:56 20 And the x-ray source has a collimator. And it says here it
13:18:03 21 has an x-ray source as well as an x-ray pick up unit six,
13:18:08 22 and that it says further that digital x-ray means, like a
13:18:19 23 CDD line sensor can, can be be used. So it's got digital
13:18:22 24 detectors.
13:18:22 25 Q. In the Guenther device is the patient's dental or

13:18:25 1 **orthopedic structure being placed in between the source and**
13:18:29 2 **the sensor?**
13:18:29 3 A. **It is.**
13:18:30 4 Q. **And just for the record, the portions that you were**
13:18:34 5 **pointing to on slide 147 were from the Guenther patent at**
13:18:40 6 **Figure 3 and column two, lines 43 to 51?**
13:18:45 7 A. **That's correct, thank you.**
13:18:47 8 Q. **Oh slide 148, it appears you have some excerpts for**
13:18:50 9 **the Mazess patent. What are you showing here?**
13:18:52 10 A. **Yes. This is from Mazess Figure 6, we can see the**
13:18:57 11 **detector is here, and the x-ray source --I'm sorry, I**
13:19:03 12 **shouldn't say here. The detector is 82 and 84. And the**
13:19:08 13 **x-ray source is 72. And the x-ray sensor is an image**
13:19:17 14 **intense fire coupled to a CDD camera, so in contrast to the**
13:19:23 15 **Guenther detector, this is a large area detector.**
13:19:28 16 Q. **And then on the right of slide 148 you have a column**
13:19:33 17 **16 lines 1 to 9 you have highlighted x-ray source 322**
13:19:37 18 **projects a cone beam of x-ray radiation. Why do you have**
13:19:42 19 **that highlighted?**
13:19:42 20 A. **Just to emphasize the fact that it has a cone beam.**
13:19:46 21 **You can also see the cone beam in the drawing. That goes**
13:19:54 22 **along with that area detector, the image intensifies.**
13:19:57 23 Q. **Does an x-ray source that produced a cone beam of**
13:20:02 24 **x-ray radiation require a restricted beam device?**
13:20:06 25 A. **Yes.**

13:20:08 1 Q. **So Dr. Pelc, is it your opinion that the x-ray**
13:20:11 2 **equipment requirements are met by the disclosures you just**
13:20:21 3 **discussed?**
13:20:21 4 A. **Yes.**
13:20:21 5 Q. **Moving on to the conversion and converting means**
13:20:22 6 **requirement on slide 150, you have an excerpt from column**
13:20:27 7 **two lines 43 of 61 of Guenther. What are you showing here?**
13:20:32 8 A. **Yes, as I read earlier from the same text, I believe,**
13:20:37 9 **we have a digital x-ray means, a CDD line sensor that has an**
13:20:42 10 **A to D converter in it. And in Mazess, we have a CDD**
13:20:47 11 **camera, at 84 and that similarly, has an A to D converter in**
13:20:54 12 **it, and in the text from column six, lines 38 to 67, you can**
13:21:02 13 **just see emphasizing it that the camera provides digital**
13:21:07 14 **radiation values.**
13:21:09 15 Q. **Why do you say that the camera provides digital**
13:21:13 16 **radiation values means there is a converter?**
13:21:16 17 A. **Well something must have taken the image in the**
13:21:20 18 **imaging intensifier which is analog and converted it to**
13:21:25 19 **digital values, and that's the digitization step that's**
13:21:31 20 **happening in the CDD camera.**
13:21:32 21 Q. **Dr. Pelc, what is your opinion as to whether these**
13:21:36 22 **disclosures in Guenther and Mazess meet the conversion and**
13:21:40 23 **converting requirements of the '301 and '374 patent?**
13:21:43 24 A. **They do.**
13:21:44 25 Q. **Dr. Pelc the final hardware element we discussed**

13:21:47 1 earlier was the output device. Where in Guenther is an
13:21:50 2 output device disclosed?
13:21:52 3 A. So in Guenther we have a display here. And you can
13:21:59 4 see -- I'm sorry, here and ten, in Figure 7, and also in 48
13:22:08 5 is the output device in Figure 8.
13:22:18 6 Q. All right. And moving from slide 153 to 154, what
13:22:18 7 about in Mazess are there output devices disclosed?
13:22:22 8 A. Yes. Mazess also has an output device. You can see
13:22:26 9 a display here, number 18 in Figure 6. And the text that
13:22:31 10 goes along with it at columns four, lines 22 to 34 say that
13:22:37 11 it's a video monitor, and the video monitor can very well be
13:22:45 12 a color monitor, and generally would be at the time of the
13:22:48 13 invention.
13:22:50 14 Q. Would one of ordinary skill in the art in 1999 have
13:22:54 15 thought that an output device like the Mazess video monitor
13:22:59 16 would be able to display color images?
13:23:01 17 A. I think it's likely that a person of skill in the art
13:23:04 18 would know that that can be a color monitor, but if you
13:23:07 19 wanted to, you can bring in the Dimaxis user manual at this
13:23:11 20 point.
13:23:11 21 Q. And again, was it common as of 1999 to have software
13:23:16 22 to do color coding or imaging and models?
13:23:19 23 A. Yes, as demonstrated by the Dimaxis user manual.
13:23:27 24 Q. Dr. Pelc, for the Osseo claim requirements relating
13:23:31 25 to an output device, what is your opinion as to whether

13:23:34 1 these references disclose all those requirements?
13:23:39 2 A. They do.
13:23:40 3 Q. Dr. Pelc, do Guenther or Mazess disclose imaging
13:23:45 4 software?
13:23:45 5 A. They do. This is from Guenther on the left of the
13:23:49 6 slide from column five, lines 15 to 21, you see that he
13:23:54 7 talks about the apparatus having image processing, which is
13:23:59 8 an example of that. And from Mazess, in the abstract, he
13:24:06 9 says software loaded into the associated digital imaging
13:24:10 10 fluoroscopy equipment provides necessary correction of the
13:24:14 11 images for the quantitative accuracy needed for bone
13:24:20 12 densitometry.
13:24:20 13 Q. Dr. Pelc, for the imaging software requirement of the
13:24:23 14 '262 patent, what is your opinion as to whether that's met?
13:24:26 15 A. That is met.
13:24:29 16 Q. Dr. Pelc, the next claim requirement is densitometry.
13:24:32 17 Where is it met in this example combination?
13:24:35 18 A. Well, as we've talked previously about quantitative
13:24:39 19 computed tomography, the quantitative CT, QCT method uses
13:24:46 20 the standards to convert the measured Hounsfield units to
13:24:50 21 quantitative -- to quantitative mineral content using
13:24:58 22 calculations.
13:24:59 23 Q. And you're showing on slide 158, the Fontevraud
13:25:04 24 article at page 602. And you have highlighted bone mineral
13:25:08 25 content milligrams per cubic centimeter, what is that?

13:25:12 1 A. **Right. So this is the caption to this figure, and**
13:25:18 2 **the whole section says an oval region of interest centered**
13:25:22 3 **in the vertebral body is used for determining calcius bone**
13:25:28 4 **mineral content milligrams per centimeter cubed?**
13:25:32 5 Q. **Is that a measure of bone density in mass per volume?**
13:25:36 6 A. **Yes.**
13:25:36 7 Q. **I believe you also testified earlier that Mazess**
13:25:39 8 **relates to densitometry, does Mazess disclose densitometry**
13:25:42 9 **as required by the Court's claim construction?**
13:25:44 10 A. **Yes. It does. It quantifies bone density using dual**
13:25:52 11 **energy.**
13:25:53 12 Q. **All right. And on slide 159, you're showing excerpts**
13:25:56 13 **from column 18, lines 24 to 32. And column 20, lines 46 to**
13:26:02 14 **63. Are those both indications that Mazess is calculating**
13:26:08 15 **bone density?**
13:26:08 16 A. **Yes. That's correct.**
13:26:13 17 Q. **Now with respect to the densitometry disclosures that**
13:26:18 18 **we just talked about in Mazess and Fontevraud, would one of**
13:26:25 19 **skill in the art at this time in December of 1999 been**
13:26:28 20 **familiar with both the detection and the quantitatively**
13:26:35 21 **calculated computed tomography to do densitometry?**
13:26:35 22 A. **Yes.**
13:26:36 23 Q. **And would they have been motivated to combine those**
13:26:39 24 **with then current imaging devices?**
13:26:42 25 A. **Yes.**

13:26:43 1 Q. **Dr. Pelc what is your opinion as to whether the**
13:26:46 2 **disclosures in Fontevraud and Mazess meet the requirement**
13:26:53 3 **for the Osseo claims for densitometry?**
13:26:53 4 A. **They do.**
13:26:56 5 Q. **Now the next requirement is for the model terms,**
13:27:00 6 **model requirements. Dr. Pelc, what is Guenther is relevant**
13:27:05 7 **to these modeling terms?**
13:27:06 8 A. **Guenther is a tomographic method, it is making**
13:27:12 9 **panoramic tomograms, this is from claim one of Guenther, and**
13:27:17 10 **you can see he is calling them panoramic tomograms.**
13:27:22 11 Q. **Would a person of ordinary skill in the art in**
13:27:23 12 **December of 1999 combine the teachings from either of the**
13:27:27 13 **densitometry references you described, would they have**
13:27:30 14 **created a system that meets the model requirements of the**
13:27:33 15 **claim?**
13:27:33 16 A. **Yes. And one of ordinary skill in the art if**
13:27:36 17 **necessary could bring the tomographic method of Fontevraud**
13:27:43 18 **as well.**
13:27:49 19 Q. **So, Dr. Pelc, in your opinion, are the modeling**
13:27:53 20 **requirements of the claims met by this combination?**
13:27:56 21 A. **They are. As I mentioned, the method would use dual**
13:28:02 22 **energy which is brought by the Mazess reference, that's the**
13:28:05 23 **merging information from multiple tomographic scans. And**
13:28:09 24 **you would have multiple tomographic scans when you rotated**
13:28:14 25 **the Guenther gantry with Mazess's dual energy -- area**

13:28:21 1 **detector.**

13:28:27 2 Q. **Dr. Pelc, the claims also require the storing and**

13:28:29 3 **comparing comparing elements that we discussed earlier.**

13:28:31 4 **Wherein Guenther is there evidence of storing or comparing**

13:28:34 5 **models?**

13:28:35 6 A. **Well, it says that here in column five, lines 15 to**

13:28:41 7 **21, such a combination is advantageous particularly given an**

13:28:46 8 **apparatus having digital image processing, but you would**

13:28:51 9 **need to have memory, is that what we're talking about.**

13:28:53 10 Q. **The storing, I believe?**

13:28:54 11 A. **Storing, so the digital image processing would**

13:28:58 12 **require memory and storing.**

13:29:05 13 Q. **Moving from slide 163 to 164, on slide 164 you're**

13:29:11 14 **showing the Mazess patent and an excerpt from column 20**

13:29:15 15 **lines 26 to 63. What are you showing here?**

13:29:17 16 A. **Yeah. So now we're on to to comparing part of**

13:29:22 17 **storing and comparing. And what Mazess says is that he, at**

13:29:28 18 **this point in the patent, he's described a way to define a**

13:29:32 19 **region in which he will calculate bone density. And it says**

13:29:39 20 **that that technique will locate reproducibly a particular**

13:29:45 21 **region of the forearm or the OS Calcis, the OS Calcis is the**

13:29:50 22 **heel. And so the reason that you would want too**

13:29:53 23 **reproducibly locate a particular region is so that the**

13:30:00 24 **comparison makes sense. It's really well-known in your**

13:30:03 25 **field that if you want to track tissue over time,**

13:30:08 1 **reproducibly identifying the tissue is essential, otherwise**
13:30:13 2 **you're comparing Apples and oranges.**
13:30:16 3 Q. **Dr. Pelc, is it your opinion that the combination of**
13:30:18 4 **references you just discussed would have rendered obvious**
13:30:26 5 **the storing and comparing model requirements of the claims**
13:30:26 6 **of the Osseo patent?**
13:30:26 7 A. **Yes.**
13:30:26 8 Q. **And then after going through each of these references**
13:30:29 9 **and their disclosures on an element by element basis, what**
13:30:32 10 **is your opinion as to whether the combination of Guenther,**
13:30:35 11 **Mazess and Fontevraud render obvious the asserted claims?**
13:30:39 12 A. **They do.**
13:30:40 13 Q. **And then I believe with respect to claim seven of the**
13:30:45 14 **'301 patent, you also mentioned that to the extent there was**
13:30:48 15 **any issue with the color coding, you could add in the**
13:30:51 16 **Dimaxis manual, would that combination have rendered obvious**
13:30:56 17 **claim seven of the '301 patent?**
13:30:58 18 A. **That's correct.**
13:31:00 19 Q. **Dr. Pelc, in addition to prior art invalidity, did**
13:31:04 20 **you consider invalidity for other reasons?**
13:31:07 21 A. **I did.**
13:31:08 22 Q. **I'm on slide 168 now. There is something called**
13:31:13 23 **written description. Can you explain to the jury what that**
13:31:18 24 **is?**
13:31:18 25 A. **Yes. Written description issue has to do with making**

13:31:19 1 **sure that the written description is sufficient for the**
13:31:24 2 **person of skill in the art to be assured that the inventor**
13:31:30 3 **had possession of the invention.**
13:31:36 4 Q. **And on slide 169, it appears you have the comparing**
13:31:40 5 **limitation highlighted. What is your opinion as to whether**
13:31:44 6 **the '262 and 34 patents provide written descriptions support**
13:31:52 7 **for the comparing limitations?**
13:31:52 8 A. **I believe they do not.**
13:31:52 9 Q. **If they lacked written description support, are those**
13:31:55 10 **claims invalid?**
13:31:55 11 A. **That's correct.**
13:31:58 12 Q. **Now, I believe we may have heard a little bit about**
13:32:01 13 **claim scope in this case. For the written description**
13:32:04 14 **requirement, does it require that you describe the whole**
13:32:07 15 **scope of the claims?**
13:32:08 16 A. **Yes. So if a claim has broad scope, the entire**
13:32:13 17 **scope, the entire breath of the scope has to be enabled.**
13:32:17 18 Q. **Right. That's enablement?**
13:32:21 19 A. **Sorry, has to be described well enough that a person**
13:32:24 20 **of skill in the art would appreciate that the inventor had**
13:32:28 21 **possession.**
13:32:32 22 Q. **All right. On slide 170, you have an excerpt from**
13:32:36 23 **the '374 patent at column two, lines 22 to 32. How does**
13:32:41 24 **that impact your opinion about the lack of written**
13:32:47 25 **description and comparing requirement?**

13:32:49 1 A. **The Osseo patents describe two kinds of comparing,**
13:32:52 2 **here in the background of the invention it's talking about**
13:32:57 3 **digital BMD patient models are also used for comparison**
13:33:01 4 **purposes with standard models with patients's own prior BMD**
13:33:07 5 **histories.**
13:33:09 6 Q. **And what does that -- can you describe what that**
13:33:12 7 **means?**
13:33:12 8 A. **Here, we really aren't sure whether the comparison is**
13:33:18 9 **with respect to the whole model, so if you think of the**
13:33:21 10 **model as being the 3D array, that 3D image, is that what**
13:33:28 11 **we're supposed to be comparing, what the computer is**
13:33:31 12 **supposed to be comparing, one 3D volume with another 3D**
13:33:35 13 **volume, or is it parameters of the model. A parameter of**
13:33:39 14 **the model would be like what Cann does, he draws a region of**
13:33:44 15 **interest and calculates the bone mineral in one vertebra, so**
13:33:50 16 **he are we comparing two -- one number from one model with**
13:33:55 17 **one number of the other model which is easy to do, the**
13:33:59 18 **computer can readily do that, and in fact was widely done in**
13:34:03 19 **the field. Or are we comparing models which is much harder**
13:34:08 20 **to do, and in my opinion in 1999, the person of skill in the**
13:34:13 21 **art needed a lot of help to understand how to, the computer**
13:34:19 22 **is supposed to compare these 3D models. So that's the**
13:34:26 23 **breath of the claim.**
13:34:27 24 Q. **Now, Dr. Pelc, if Osseo was to stand up and show you**
13:34:34 25 **for example, Figure 6(A) and 6(B) of the '262 patent, would**

13:34:39 1 that provide written description for the comparing
13:34:41 2 limitations of the '374 patent?
13:34:46 3 A. Oh, yes, I see your point. No, because the '262
13:34:53 4 patent was a continuation in part, and it had additional
13:35:00 5 material added. Additional material was added when the '262
13:35:03 6 patent was filed. So you can't use the text that's in the
13:35:08 7 '262 patent that is not in the '374 patent to argue that
13:35:14 8 there was adequate written description in the '374 patent
13:35:18 9 because the text wasn't there.
13:35:20 10 Q. And then that was slide 173, I want to move to slide
13:35:25 11 175. Can you talk a little bit about why is it your opinion
13:35:28 12 that the comparing requirements in the '262 patent claim one
13:35:32 13 are not met -- are not- there is no written description
13:35:36 14 support for them in the Osseo patents?
13:35:38 15 A. So, what it says here, just below the highlighted
13:35:43 16 section, the computer 104 also includes comparison software
13:35:48 17 which is adapted for digitally comparing baseline and
13:35:53 18 patient specific dental and orthopedic densitometry models.
13:35:57 19 But it doesn't say anything about how that adapting is
13:36:02 20 supposed to be done. Think of adapting as programing. You
13:36:05 21 have to take this computer and program it to do this digital
13:36:13 22 comparing, but there is no description about how the
13:36:17 23 comparing step is supposed to be done.
13:36:21 24 Q. Dr. Pelc, what is your opinion as to whether the
13:36:25 25 comparing requirement in the Osseo claims lack written

13:36:29 1 **description?**
13:36:30 2 A. **I believe it lacks written description for the full**
13:36:32 3 **breath of comparing them.**
13:36:34 4 Q. **All right. And with respect to enablement as shown on**
13:36:42 5 **slide 176, first, did you reach an opinion regarding whether**
13:36:43 6 **or not the claims contain the comparing limitations are**
13:36:48 7 **invalid for lack of enablement?**
13:36:50 8 A. **Right. So enablement is a term that says that the**
13:36:56 9 **description in the patent is sufficient that a person of**
13:37:00 10 **skill in the art doesn't require undue experimentation to**
13:37:05 11 **figure out what it is that the invention is supposed to do.**
13:37:10 12 **That would enable the invention. And in my opinion, the**
13:37:19 13 **'262 patent does not enable the source limitation with**
13:37:23 14 **respect to the electron beam source.**
13:37:26 15 Q. **I think that might be a different one, but let's talk**
13:37:29 16 **about enablement with respect to the comparing limitation**
13:37:32 17 **first?**
13:37:32 18 A. **Oh, I'm sorry.**
13:37:34 19 Q. **Okay. So are there factors that you would consider**
13:37:38 20 **in terms of a lack of enablement analysis?**
13:37:42 21 A. **Yes. We should take into consideration the quantity**
13:37:48 22 **of experimentations required, the amount and direction of**
13:37:52 23 **guidance presented in the patent, the presence or absence of**
13:37:56 24 **working examples, the nature of the invention, the state of**
13:38:00 25 **the prior art at the time, the relative skill of those in**

13:38:03 1 the art, predictability or unpredictability of the art and
13:38:08 2 the breath of the claims.
13:38:10 3 Q. Just with respect to the comparing limitations, on
13:38:13 4 slide 178, why is it your opinion that those lack
13:38:18 5 enablement?
13:38:19 6 A. Because with respect to comparing full models, the
13:38:24 7 person of skill in the art in 1999 did not know how to
13:38:28 8 program the computer to do that comparison, it would require
13:38:32 9 undue experimentation.
13:38:35 10 Q. All right. Now, Dr. Pelc, you mentioned a lack of
13:38:39 11 enablement for electron beam source. Move from slide 179 to
13:38:47 12 180, can you describe what you're talking about in terms of
13:38:49 13 an electron beam source?
13:38:51 14 A. Yeah. So here you see claim one of the '262 patent,
13:38:56 15 and the -- that clause calls for an energy source, and the
13:39:01 16 reason that the language was changed from x-ray source to
13:39:06 17 energy source is that in the '262 patent, additional matter
13:39:11 18 was brought in to describe the possibility of doing this
13:39:15 19 with an electron beam source. And we will show pictures of
13:39:20 20 that soon. But I want to --
13:39:24 21 Q. I apologize. But did you apply the same standard for
13:39:29 22 enablement that you applied as to the comparing limitations?
13:39:32 23 A. Yes.
13:39:32 24 Q. And so moving to slide 182 which I think is a
13:39:36 25 substance of your argument, can you explain why you think

13:39:39 1 there is a lack of enablement with respect to energy source?
13:39:42 2 A. Yes. This is Figure 4-A from the '262 patent and it
13:39:46 3 says that here is the electron beam source and a detector on
13:39:51 4 the other side of the jaw, and the beam is the dotted line
13:39:56 5 going between them.
13:39:57 6 This picture was shown before and Dr. Massie who
13:40:02 7 showed it said he thought an electron beam source was an
13:40:07 8 x-ray source, a type of x-ray source. But what the patent
13:40:11 9 says is that the beam source and the sensor are both placed
13:40:18 10 externally whereby the electron beam passes through the
13:40:22 11 patient. The patient is being probed not by x-rays by but
13:40:29 12 an electron beam.
13:40:31 13 Q. Does that make any sense to you?
13:40:32 14 A. Frankly, no.
13:40:35 15 Q. Can you explain why using an electron beam source
13:40:39 16 would be different than an x-ray source?
13:40:42 17 A. Well in order to have an electron beam, the electrons
13:40:45 18 would have to penetrate the object. These would have to be
13:40:49 19 very, very energetic electrons in order to be able to pass
13:40:53 20 all the way from one side of the jaw to the other. In doing
13:41:01 21 so, electrons traveling that path would deliver a huge
13:41:06 22 amount of radiation to the patient. From a technical point
13:41:08 23 of view, creating, focusing and steering such an electron
13:41:12 24 beam would require very significant amounts of power,
13:41:18 25 powerful magnets, but the specification says that this

13:41:20 1 electron beam source could be intraoral and wireless.
13:41:25 2 Frankly, it's not believable.
13:41:28 3 Q. Dr. Pelc, with someone reading the speaks -- would a
13:41:31 4 person of ordinary skill in in the art as of December of
13:41:38 5 1999 been able to read the disclosures, the written
13:41:40 6 specification of the '262 patent and understand how to
13:41:42 7 implement an electron beam source as the energy source in
13:41:49 8 the claim -- in claim one?
13:41:49 9 A. No.
13:41:51 10 Q. Dr. Pelc, can you summarize for the jury your
13:41:59 11 invalidity opinions?
13:41:59 12 A. Yes. I believe all the asserted claims are obvious
13:41:59 13 in light of the prior art, including admissions by Osseo and
13:42:04 14 the the combinations that I showed, Brummer -- I'm sorry,
13:42:08 15 that's the wrong combination. I think all of the claims are
13:42:16 16 obvious.
13:42:16 17 Q. Dr. Pelc, I want to move on quickly to the last piece
13:42:20 18 of work that you did in this case. Were you asked to
13:42:24 19 provide some technical guidance with respect to information
13:42:27 20 that the damages expert for Planmeca would need to use?
13:42:31 21 A. Yes.
13:42:34 22 Q. On slide 188, can you explain your understanding of
13:42:39 23 what technological apportionment is?
13:42:41 24 A. Yes. And this comes up with a patent is for not an
13:42:48 25 entirely new machine but rather an improvement to a machine.

13:42:51 1 And the patentee must show what the improvement has added to
13:42:55 2 the usefulness of the machine. The process of apportionment
13:42:59 3 is the separation of the benefits of the improvement from
13:43:03 4 other benefits that are really due to prior art or other
13:43:07 5 things that are known. And the goal is to determine the
13:43:11 6 incremental value attributable to the inventive element.
13:43:16 7 So, for example, suppose I invent a new kind of car tire,
13:43:21 8 and I patent it and the claim says an automobile with an
13:43:27 9 engine, a transmission, and four wheels with said wheels
13:43:32 10 having tires. The automobile, the engine, the transmission,
13:43:37 11 the wheels, those are known. The inventive element is my
13:43:43 12 new tires. And I cannot be entitled to royalties on the
13:43:47 13 entire car or the value of the entire car when what I did
13:43:52 14 was make an improvement on the tires.
13:43:54 15 Q. Dr. Pelc, I think you just gave a great summary of
13:43:58 16 apportionment overall. Did you look at the value or the
13:44:02 17 money aspect of apportionment?
13:44:05 18 A. No, I looked at the technical side of things, at the
13:44:09 19 technical apportionment, rather than economic apportionment.
13:44:14 20 I'm not a damages expert.
13:44:16 21 Q. And then as Mr. Blok testified yesterday, as part of
13:44:19 22 any damages analysis, you must assume that there is
13:44:24 23 infringement and the patent claims are valid. Based on your
13:44:29 24 testimony today, do you agree that there is infringement and
13:44:31 25 that the patent claims are valid?

13:44:34 1 A. **No, I still believe strongly that the patent is not**
13:44:37 2 **valid and is not infringed, but for purposes of this**
13:44:42 3 **analysis, I assume that it is valid and infringed.**
13:44:46 4 Q. **Now, Dr. Pelc, were you here when Dr. Kia testified?**
13:44:51 5 A. **Yes.**
13:44:52 6 Q. **And as shown on slide 189, did you see his feature**
13:44:57 7 **analysis?**
13:44:57 8 A. **I did.**
13:44:59 9 Q. **Do you agree with his feature analysis?**
13:45:01 10 A. **No, I do not.**
13:45:04 11 Q. **Let's look at his feature analysis. Can you explain**
13:45:07 12 **at a high level before going feature by feature what some of**
13:45:13 13 **the problems with his analysis was?**
13:45:15 14 A. **Well, Dr. Kia omitted a large number of features in**
13:45:20 15 **the ProMax system, and what that does is overinflate the**
13:45:24 16 **apparent value of the features that he did consider because**
13:45:27 17 **those other features have value. Amount them are a variety**
13:45:32 18 **of reconstruction algorithms that are in the ProMax system**
13:45:37 19 **and as we've heard, Dr. Massie did not invent reconstruction**
13:45:42 20 **algorithms. There is a flat panel sensor and pulsed**
13:45:46 21 **exposures that are important to reduce radiation.**
13:45:49 22 **Dr. Massie didn't invent those. ProFace, that we talked**
13:45:53 23 **about, that's the combination of a face image with cone beam**
13:45:58 24 **CT. Jaw motion, and a variety of other things, all of the**
13:46:08 25 **non-3D imaging modes, bite wings, panoramic imaging and**

13:46:15 1 cephalometry, they are a part of the product but not covered
13:46:17 2 by the invention.
13:46:17 3 Q. Dr. Pelc, I notice on this list there may be some
13:46:22 4 optional features, did you include those because some of the
13:46:25 5 accused systems would have been sold with those optional
13:46:29 6 features?
13:46:29 7 A. That's right.
13:46:30 8 Q. Let's start at the very first feature that Dr. Kia
13:46:35 9 discussed, the 3D cone beam computed tomography model scan.
13:46:39 10 Did Dr. Massie invent 3D cone beam computed tomography?
13:46:43 11 A. No, he did not.
13:46:45 12 Q. Does Dr. Kia's attribution of a hundred percent of
13:46:50 13 the weight of this feature account for other party's
13:46:55 14 contributions?
13:46:55 15 A. It does not.
13:46:57 16 Q. Do you know what the 3D model scan feature is?
13:47:00 17 A. Well, actually the 3D model scan feature is the
13:47:04 18 scanning of a model, not of the patient, but a model of the
13:47:11 19 patient's jaw and teeth. So actually when you scan a 3D
13:47:17 20 model, you don't have the patient's dental structure and it
13:47:20 21 makes no sense to measure bone density.
13:47:24 22 Q. So on -- let's see. On slide 192, let's look at the
13:47:32 23 volume stitching. What is your opinion as to whether
13:47:35 24 Dr. Kia appropriately apportioned the volume stitching
13:47:39 25 feature on his analysis?

13:47:41 1 A. **Well, Dr. Kia gives this a ten percent weight and**
13:47:46 2 **gives the entirety of that weight as covered by the asserted**
13:47:49 3 **claims. But the Osseo patent doesn't describe volume**
13:47:53 4 **stitching. It doesn't even describe 3D cone beam CT.**
13:47:58 5 Q. **Let's look at the third line on slide one flea. Open**
13:48:03 6 **patient positioning. Should that be attributed to the**
13:48:06 7 **asserted claims of Osseo's patents?**
13:48:08 8 A. **No, first of all, as we saw in the presentation by**
13:48:12 9 **Mr. Muller, the open patient positioning was known and**
13:48:17 10 **implemented by Planmeca before the filing date of this**
13:48:21 11 **patent. -have we also saw the same idea of the open patient**
13:48:26 12 **positioning with the C arm hanging down vertically in the**
13:48:30 13 **Guenther patent. So open patient positioning was known in**
13:48:35 14 **the prior art.**
13:48:36 15 **In addition, the Osseo patents say that we --**
13:48:39 16 **that the intent is to implement his method on commercially**
13:48:43 17 **available tomography equipment. If you do that, you can't**
13:48:47 18 **claim the value of that commercially available tomography**
13:48:51 19 **equipment.**
13:48:53 20 Q. **All right. And then the fourth feature listed in his**
13:48:58 21 **table is SCARA technology. Why should he not have allocated**
13:49:04 22 **a hundred percent of that feature to the Osseo patent?**
13:49:07 23 A. **Again, the SCARA technology was implemented by**
13:49:10 24 **Planmeca well before the filing date of the invention.**
13:49:16 25 Q. **And then, Dr. Pelc, were you asked to perform any**

13:49:19 1 other technical analysis?
13:49:21 2 A. Yes. So I looked at which features are included in
13:49:27 3 the basic Romexis software and which ones are not included.
13:49:33 4 I'm sorry, the basic system and which once are not included
13:49:37 5 in an upgrade. The features not included in the upgrade may
13:49:42 6 be not included either because the parts are already there,
13:49:46 7 or because they don't come with the standard software
13:49:54 8 package.
13:49:54 9 Q. And did you discuss this distribution of features as
13:49:56 10 to whether they were included in the upgrade or not with
13:49:59 11 Mr. Bone, Planmeca damages expert?
13:50:03 12 A. Yes.
13:50:03 13 Q. And the included features as shown on your slide 195
13:50:11 14 would have been 3D CBCT imaging, stitching, AINO noise
13:50:14 15 removal, Planmeca calm, Planmeca ARA, ROI or region of
13:50:19 16 interest and the flat panel sensor?
13:50:22 17 A. Yes.
13:50:23 18 Q. Now, Dr. Pelc, in your opinion was the feature
13:50:26 19 analysis of Dr. Kia sufficient to separate the value of the
13:50:30 20 alleged infringement in the Osseo patents from the prior art
13:50:33 21 features or features unrelated to those patents?
13:50:36 22 A. Yes.
13:50:38 23 Q. The feature analysis of Dr. Kia was sufficient to do
13:50:41 24 that?
13:50:41 25 A. No, no, I'm sorry, it was not.

13:50:43 1 Q. **What would have been a better approach?**
13:50:46 2 A. **So the question one should ask is what value did the**
13:50:51 3 **Osseo patents add, in particular the inventive element of**
13:50:55 4 **the Osseo patents add and that value must exclude what was**
13:51:00 5 **in the prior art which as we saw was an extensive list.**
13:51:05 6 Q. **And with respect to technological apportionment, did**
13:51:09 7 **you perform your own analysis to attempt to isolate the**
13:51:13 8 **alleged value of the inventive elements?**
13:51:15 9 A. **Yes, I did.**
13:51:16 10 Q. **What were your conclusions as to the value added?**
13:51:20 11 A. **So what I ended up concluding is that -- because the**
13:51:29 12 **Massie patents did not invent hardware, I concluded that the**
13:51:33 13 **inventive element must be implemented in software. So I**
13:51:37 14 **looked for a software module that could embody or represent**
13:51:43 15 **that. It can't be the reconstruction PC software because**
13:51:48 16 **that implements the Feldkamp algorithm and that was known as**
13:51:53 17 **we know. They can't be the things that are standard in the**
13:52:00 18 **3D software because Dr. Massie did not invent 3D cone beam**
13:52:05 19 **CT. And the 3D standard software therefore is not relevant**
13:52:12 20 **here.**
13:52:12 21 **So given the assumption of infringement and**
13:52:15 22 **validity, I chose the superimposition problem as the best**
13:52:20 23 **representative of the value added.**
13:52:23 24 Q. **All right. Dr. Pelc, just briefly with respect to**
13:52:28 25 **non-infringing alternatives, are you familiar with that**

13:52:31 1 concept?
13:52:32 2 A. Yes.
13:52:33 3 Q. Do you have any examples of non-infringing
13:52:35 4 alternatives that would apply to this case?
13:52:37 5 A. Yes. The Mozzo systems the NewTom 9000 is a
13:52:49 6 non-infringing alternatives since it predates the patents.
13:52:52 7 MS. PESCHEL: No further questions, Your Honor.
13:52:55 8 THE COURT: This is as good a place as any to
13:52:58 9 take our afternoon recess, ladies and gentlemen. So let's
13:53:02 10 take ten.
13:53:03 11 COURT CLERK: All rise.
13:53:05 12 (Jury leaving the courtroom at 3:53 p.m.)
13:53:25 13 THE COURT: So the record should reflect we're
13:53:28 14 outside the presence of the jury. You may be seated, ladies
13:53:31 15 and gentlemen. My jury instruction calvary has landed from
13:53:40 16 the Philadelphia airport. So do we have a set of something
13:53:46 17 she can look at?
13:53:49 18 MR. QURESHI: I will find out.
13:53:53 19 THE COURT: Whatever you got, give it to me,
13:53:57 20 okay, and then we'll go from there. So let's take ten.
13:54:01 21 (A brief recess was taken.)
14:08:46 22 THE COURT: Please be seated. So what's the
14:08:51 23 jury instruction report?
14:08:53 24 MR. FEINLAND: Your Honor, we're just putting in
14:08:56 25 footnotes with your changes, we're moving the common parties

14:08:59 1 and we are get them to you very shortly.

14:09:05 2 Just let you know there is not many

14:09:09 3 disagreements.

14:09:09 4 THE COURT: Would you e-mail it to me.

14:09:11 5 MR. FEINLAND: Sure.

14:09:13 6 THE COURT: And I don't want to press you too

14:09:15 7 much, but whether do you think you'll have it to me, before,

14:09:19 8 during, or when? Our next break isn't scheduled until after

14:09:28 9 3 o'clock.

14:09:28 10 MR. FEINLAND: I'm going to send it to the other

14:09:30 11 side in about ten minutes and they already sent us our

14:09:33 12 revision and I assume we'll probably send it over to you

14:09:37 13 right after that.

14:09:38 14 THE COURT: It might be less than half an hour.

14:09:41 15 MR. FEINLAND: Should be.

14:09:44 16 MR. GOLDEN: Your Honor for what it's worth some

14:09:46 17 of the least amount of disputes I have ever seen in a lot of

14:09:49 18 different cases working on jury instructions.

14:09:51 19 THE COURT: I have noticed that as well. And

14:09:54 20 that's what I was talking about when I said that there was a

14:09:57 21 high level of professionalism working between you and I

14:10:02 22 appreciate that. You haven't disappointed me yet but I'm

14:10:07 23 waiting.

14:10:11 24 MR. DIETRICH: Your Honor I'm in the process of

14:10:12 25 typing an e-mail to you to provide that draft. And I just

14:10:16 1 want to let the court know that some of the red lines and
14:10:19 2 there is not very many are actually agreed. And so I just
14:10:23 3 wanted to be able to show the changes to the Court's draft
14:10:27 4 easily, so maybe at the charge conference we can just tell
14:10:30 5 you that's agreed or not agreed. There is not going to be a
14:10:33 6 lot here, Your Honor, there really isn't?
14:10:36 7 THE COURT: I just want a visual copy so that my
14:10:39 8 clerk can work on the draft so that when we come back out
14:10:42 9 here for the discussion for jury instructions that we're
14:10:48 10 pretty close, as close as we can be.
14:10:51 11 MR. DIETRICH: Okay. Would the court like a
14:10:53 12 paper copy as well?
14:10:54 13 THE COURT: Yes. But I think I'll leave it to
14:10:56 14 my clerk to print it for me and then that way hopefully
14:11:02 15 we'll all be on the same page with everybody else. Thank
14:11:06 16 you.
14:11:07 17 All right. Go get the jury.
14:11:11 18 (Jury entering the courtroom at 2:11 p.m.)
14:11:34 19 THE COURT: Please be seated, ladies and
14:11:36 20 gentlemen.
14:11:41 21 Dr. Pelc, if you would return to the witness
14:11:45 22 stand.
14:11:58 23 Cross-examination, counsel.
14:12:04 24 MR. OSTROW: Thank you, Your Honor.
14:12:05 25 BY MR. OSTROW:

14:12:06 1 Q. **Good afternoon, Dr. Pelc.**
14:12:09 2 A. **Good afternoon.**
14:12:09 3 Q. **My name it Seth Ostrow, one of the attorneys**
14:12:12 4 **representing Osseo, you may recall we met before?**
14:12:15 5 A. **I recall.**
14:12:16 6 Q. **And that was in the context of your deposition,**
14:12:19 7 **correct?**
14:12:19 8 A. **That's correct.**
14:12:20 9 Q. **And that was roughly about three years ago, do you**
14:12:23 10 **remember that?**
14:12:23 11 A. **I think it was in 2019.**
14:12:25 12 Q. **Right. September, so we're almost on the three-year**
14:12:30 13 **anniversary of your deposition. You have a transcript of**
14:12:32 14 **your deposition in one of the binders your attorney gave**
14:12:36 15 **you, or Planmeca attorneys, right? I think it's behind**
14:12:40 16 **Tab 4 of giant book number one.**
14:12:49 17 A. **Yes.**
14:12:50 18 Q. **I just want to make sure you have it there because to**
14:12:54 19 **the extent issues come up, I might have to refer to it?**
14:12:57 20 A. **I'll just close the book for now.**
14:13:00 21 Q. **For now, yes. Thank you.**
14:13:02 22 **Dr. Pelc, on direct examination you took us**
14:13:14 23 **through your background which is long and quite impressive.**
14:13:19 24 **I just wanted to ask you a few specific questions about your**
14:13:23 25 **background. Okay?**

14:13:24 1 A. **Sure.**
14:13:25 2 Q. **You went through your educational background, we got**
14:13:28 3 **these slides that you used for that purpose. During your --**
14:13:32 4 **any of your degrees, did you take any courses focused on**
14:13:38 5 **dental imaging?**
14:13:40 6 A. **No.**
14:13:41 7 Q. **What about dental care, dentistry, anything like**
14:13:45 8 **that?**
14:13:46 9 A. **No.**
14:13:50 10 Q. **Go to the next slide, John. On the next slide you**
14:13:53 11 **went through your work history which started with your work**
14:13:57 12 **at General Electric medical systems. When you were at**
14:14:00 13 **General Electric medical systems, I think you talked about**
14:14:02 14 **working on some computed tomography machines, correct?**
14:14:06 15 A. **Yes, among other things.**
14:14:08 16 Q. **And that was for medical imaging, correct?**
14:14:12 17 A. **Yes. Although they were used for nondestructive**
14:14:19 18 **testing also.**
14:14:19 19 Q. **What does that mean?**
14:14:21 20 A. **Actually our scanners were used by GE aviation to**
14:14:26 21 **scan turbine blades to see whether the turbine blades were**
14:14:31 22 **good enough to be in an airplane engine.**
14:14:37 23 Q. **Okay. That's interesting. Thank you, did you do any**
14:14:39 24 **work in designing of machines focused on dental imaging?**
14:14:43 25 A. **No.**

14:14:44 1 Q. **Let's move on to your work teaching at Stanford**
14:14:49 2 **University. So you were in the department of radiology,**
14:14:53 3 **right, you were an associate professor then a full**
14:14:56 4 **professor, do I get that right?**
14:14:57 5 A. **That's correct.**
14:14:58 6 Q. **And as part of this, you were teaching courses to**
14:15:03 7 **medical students?**
14:15:04 8 A. **To physicians.**
14:15:08 9 Q. **So people who had already graduated medical school?**
14:15:12 10 A. **That's right.**
14:15:12 11 Q. **And this was to MD's, these courses?**
14:15:16 12 A. **Yes.**
14:15:17 13 Q. **Did you teach any courses specifically to dentists,**
14:15:20 14 **D.D.S's?**
14:15:22 15 A. **No.**
14:15:24 16 Q. **And your work at the -- let's go to the next slide.**
14:15:31 17 **You then talked about some of your under**
14:15:34 18 **graduate and then your graduate research and you certainly**
14:15:38 19 **did a lot with respect to computed tomography and**
14:15:43 20 **tomosynthesis and so forth. Did any of this research focus**
14:15:47 21 **on dental imaging?**
14:15:48 22 A. **No, they were used for dental imaging but they didn't**
14:15:51 23 **focus on dental imaging.**
14:15:53 24 Q. **They were used by you for dental imaging?**
14:16:02 25 A. **They were used by me to image the region of the mouth**

14:16:03 1 and jaw, yes. In addition, they were used by others in
14:16:11 2 dental imaging, yes.
14:16:14 3 Q. When you say they were used, this was research,
14:16:19 4 right?
14:16:19 5 A. That's right.
14:16:20 6 Q. So you're talking about the science behind said
14:16:24 7 computed tomography, that later got applied to dental
14:16:26 8 imaging, is that what you mean?
14:16:28 9 A. That and also the systems I helped concrete at GE
14:16:33 10 medical systems were used to image the head and mouth of
14:16:39 11 patients.
14:16:39 12 Q. Okay. We'll talk a little bit more about that in a
14:16:42 13 bit. But as far as your research as a student and a
14:16:47 14 graduate student and then your work at GE, you were not
14:16:50 15 specifically researching or designing anything for dental
14:16:54 16 imaging purposes; right? That's what you told me at your
14:16:59 17 deposition right?
14:17:00 18 A. Yes, specific for dental imaging, no.
14:17:04 19 Q. Let's go to slide seven. On slide seven, you got a
14:17:12 20 very large number of, impressively large number of articles
14:17:15 21 here. So you were an author on 220 peer reviewed journal
14:17:21 22 articles and then you also were an author on 360 research
14:17:24 23 papers, that's cumulative, those don't overlap, right?
14:17:28 24 A. So, the cumulative would be the sum of the two.
14:17:32 25 Q. That's what I meant?

14:17:34 1 A. **Yes. So in addition to the 220 are the 360.**

14:17:38 2 Q. **So it's 580 total, right?**

14:17:41 3 A. **Yeah, it's now a little more than that.**

14:17:43 4 Q. **But at least at the time?**

14:17:45 5 A. **That's right.**

14:17:46 6 Q. **Were any of those articles specifically focused on**

14:17:49 7 **dental imaging?**

14:17:50 8 A. **No.**

14:17:55 9 Q. **I see you have listed here some courses that you have**

14:17:59 10 **taught, x-ray computed tomography, so forth. Did you ever**

14:18:04 11 **teach any courses on dental imaging?**

14:18:06 12 A. **No.**

14:18:07 13 Q. **Next slide.**

14:18:08 14 **And then finally I'm not sure the jury saw this,**

14:18:14 15 **but this is the slide about your 95 patents; right?**

14:18:17 16 A. **Yes.**

14:18:17 17 Q. **You're an inventor on 95 patents?**

14:18:19 18 A. **That's correct.**

14:18:20 19 Q. **Were any of those patents specifically focused on**

14:18:23 20 **improvement in dental imaging?**

14:18:25 21 A. **No.**

14:18:26 22 Q. **If I were to do a search, say the word teeth, you**

14:18:32 23 **know, in any field of your 95 patents, how many patents**

14:18:36 24 **would come up?**

14:18:37 25 A. **I have no idea.**

14:18:37 1 Q. **Would it surprise you that the answer is 0?**
14:18:40 2 A. **No.**
14:18:41 3 Q. **Because you didn't really do any work on dental**
14:18:44 4 **imaging systems; right, that's why it wouldn't surprise you?**
14:18:48 5 A. **I suspect that if you did that same search looking**
14:18:50 6 **for gallbladder you might also find 0.**
14:18:54 7 Q. **Okay. How about the word dental, how many times do**
14:18:57 8 **you think that comes up in your 95 patents?**
14:18:59 9 A. **I don't know.**
14:19:00 10 Q. **Would it surprise you that the word appears once in**
14:19:03 11 **all 95 patents?**
14:19:04 12 A. **No.**
14:19:06 13 Q. **And if the appearance of that word, I think a patent**
14:19:11 14 **you mentioned detecting foreign objects, you used dental**
14:19:15 15 **filling as an example, does that ring a bell?**
14:19:18 16 A. **Yes, it's not a detecting foreign objects, it was to**
14:19:24 17 **improve the quality of images in the jaw due to the**
14:19:28 18 **detrimental effects of fillings on CT scan.**
14:19:32 19 Q. **But other than that one patent where that word**
14:19:35 20 **appears, you're not surprised to find out that the word**
14:19:39 21 **never appears anywhere else, right?**
14:19:40 22 A. **No.**
14:19:41 23 Q. **You know Dr. Massie patents the word dental is all**
14:19:47 24 **over the place, right?**
14:19:48 25 A. **Yes.**

14:19:52 1 Q. **Do you know if all teeth are made of the same**
14:19:58 2 **material composition?**
14:19:59 3 A. **No.**
14:20:00 4 Q. **You don't know?**
14:20:01 5 A. **That's correct.**
14:20:02 6 Q. **Do you know what teeth are made of?**
14:20:05 7 A. **I know that teeth have a bone core, they have an**
14:20:11 8 **enamel outer surface.**
14:20:12 9 Q. **What material is in that bone core?**
14:20:15 10 A. **The bone core has cells, it has hydroxyapatite**
14:20:23 11 **mineral.**
14:20:23 12 Q. **Is that it?**
14:20:25 13 A. **I don't know exhaustively what's in bone, in the**
14:20:29 14 **teeth.**
14:20:29 15 Q. **In the teeth. You consider teeth a type of bone,**
14:20:32 16 **though, right?**
14:20:33 17 A. **I consider teeth as having bone.**
14:20:35 18 Q. **Right. Okay. So let's get our terminology. My bad.**
14:20:40 19 **So teeth also have roots in them, so if we exclude the**
14:20:45 20 **nerves, if we exclude the soft tissue like the nerves, you**
14:20:49 21 **consider what's left as being bone; right?**
14:20:52 22 A. **At least bony.**
14:20:57 23 Q. **You told me in your deposition that you did, but I'll**
14:21:00 24 **take that, that's fine, I'll take that for today.**
14:21:03 25 **Do you know the accuracy needed in imaging**

14:21:08 1 **techniques in dental machines in order to be useful to**
14:21:12 2 **dentists?**
14:21:15 3 A. **The accuracy of what?**
14:21:18 4 Q. **Of a dental imaging device, how accurate it has to be**
14:21:23 5 **to provide data that a dentist can rely on?**
14:21:26 6 A. **How accurate does it have to be in what?**
14:21:28 7 Q. **In imaging, in whatever it's imaging.**
14:21:32 8 A. **You mean like dimensionally?**
14:21:35 9 Q. **In terms of let's say x-rays, right, so x-rays that**
14:21:39 10 **have linear attenuation and the dentist will look at it,**
14:21:43 11 **right, but that's not a hundred percent accurate, you need**
14:21:47 12 **to explain some issues, artifacts and so forth. Do you have**
14:21:50 13 **an idea of how accurate the images have to be for the**
14:21:54 14 **dentist to be able to rely on it?**
14:21:56 15 A. **Your question is not very precise. If you used the**
14:22:01 16 **word accuracy, you have to have a measurement that the**
14:22:04 17 **accuracy refers to. What aspect of the image are you asking**
14:22:09 18 **me the accuracy about?**
14:22:12 19 Q. **Let's talk about grayscale values, grayscale?**
14:22:15 20 A. **Grayscale values.**
14:22:17 21 Q. **Yes. Do you have an idea of how accurate the**
14:22:20 22 **grayscale has to be in the image for the dentist to be able**
14:22:23 23 **to rely on it?**
14:22:25 24 A. **I don't think it has to be very accurate in grayscale**
14:22:30 25 **images.**

14:22:30 1 Q. **Do you know what the number is?**
14:22:32 2 A. **I think as long as the interesting structures are**
14:22:36 3 **within the dynamic range of the image, you'll be okay.**
14:22:41 4 Q. **Do you know if there is a standard in the dental**
14:22:44 5 **industry what accuracy the machines have to have?**
14:22:47 6 A. **Accuracy in what?**
14:22:48 7 Q. **The same thing I just asked you sir?**
14:22:51 8 A. **In grayscale imaging?**
14:22:53 9 Q. **Yes?**
14:22:54 10 A. **I don't know a specific specification, no.**
14:22:56 11 Q. **What about bone density measurements, do you know how**
14:22:58 12 **accurate bone density measurements have to be in dental**
14:23:03 13 **imaging machines to be reliable to dentists?**
14:23:06 14 A. **No.**
14:23:07 15 Q. **You never worked on any dental imaging machines,**
14:23:11 16 **right, is that part of the reason?**
14:23:14 17 A. **No, that's not why, I actually researched this and I**
14:23:18 18 **couldn't find any reference that described how accurate the**
14:23:21 19 **bone density of teeth have to be.**
14:23:22 20 Q. **When did you research this?**
14:23:23 21 A. **Oh, in preparation for this, and I could not find a**
14:23:27 22 **particular reference.**
14:23:28 23 Q. **You did it -- I do recall you and I had this**
14:23:33 24 **discussion during your deposition so you went and tried to**
14:23:36 25 **research it afterwards, is that what you are saying?**

14:23:39 1 A. **No, that's not what I am saying, I said that I**
14:23:42 2 **researched it.**
14:23:46 3 Q. **You spent some time discussing one of your patents**
14:23:50 4 **that was cited by Dr. Massie, do you remember that?**
14:23:53 5 A. **Yes.**
14:23:53 6 Q. **The '080 patent?**
14:23:56 7 A. **Yes.**
14:23:56 8 Q. **Can we take a look at that, I think it's behind**
14:23:59 9 **Tab 11 of your binder. Hang on. It's Tab 10. DX-4.**
14:24:16 10 A. **Yes.**
14:24:17 11 Q. **Does this patent have anything to do with dental**
14:24:20 12 **imaging?**
14:24:31 13 A. **Like you said I would be surprised if the word dental**
14:24:37 14 **appears. I would not go so far to say that it has nothing**
14:24:42 15 **to do with dental imaging.**
14:24:49 16 Q. **Is this patient that you see here, this is Figure 5,**
14:25:07 17 **is this patient having their teeth imaged?**
14:25:10 18 A. **The apparatus that you see there scans in the, so,**
14:25:20 19 **here you see a three dimensional coordinate system, and this**
14:25:25 20 **structure scans -- can scan from head to foot. So at the**
14:25:30 21 **time of this drawing, it looks like maybe the x-ray beam is**
14:25:39 22 **going through the thigh.**
14:25:41 23 Q. **Go back to Figure 1, please, 238.**
14:25:47 24 **What is shown here in Figure 1 of your patent?**
14:25:54 25 A. **So, we see a scan through the body, just**

14:26:04 1 representative.
14:26:05 2 Q. So that thing in the middle, I think either 16 or 22,
14:26:11 3 that's the patient's spine, right?
14:26:13 4 A. That's right.
14:26:14 5 Q. And the area around that is what, the part of the
14:26:16 6 abdomen?
14:26:18 7 A. That depends on where you are. What we know for sure
14:26:23 8 is that these are the arms, so imagine laying down, you see
14:26:28 9 the 20.
14:26:29 10 Q. Okay?
14:26:30 11 A. 20 are the arms.
14:26:31 12 Q. 20 are the arms?
14:26:33 13 A. Those are the arms. So it's somewhere in the body
14:26:37 14 where you have both vertebral bodies and arms.
14:26:42 15 Q. But no teeth, right?
14:26:44 16 A. Not this cross-section.
14:26:46 17 Q. Are there any images of actual -- are there any
14:26:49 18 images in your patent that show what your machine would
14:26:57 19 generate, the machine that you patented?
14:27:06 20 A. No.
14:27:07 21 Q. Why not?
14:27:11 22 A. Well, my understanding is the purpose of the figures
14:27:14 23 are to help teach the invention, and it wasn't necessary to
14:27:19 24 have a picture of the final image to teach the invention.
14:27:24 25 Q. Okay. That's not just a rule for your patent, right,

14:27:27 1 **that's the general rule for all patents. Would you agree?**
14:27:29 2 A. **That is my understanding.**
14:27:31 3 Q. **So the fact that Dr. Massie's patents don't have**
14:27:34 4 **images of teeth, the same answer applies, you agree it was**
14:27:39 5 **not necessary?**
14:27:40 6 A. **It wasn't necessary if the patent was taught**
14:27:44 7 **sufficiently.**
14:27:45 8 Q. **Okay. And if could go back to slide nine. So it**
14:28:07 9 **doesn't quite say it here, although I think this came out**
14:28:11 10 **during your direct. This is an excerpt from one of**
14:28:14 11 **Dr. Massie's patents; right?**
14:28:17 12 A. **Yes.**
14:28:18 13 Q. **And the image on the left, I know, I can recognize**
14:28:22 14 **this, the '301 patent, and then its it's an excerpt, so in**
14:28:28 15 **Dr. Massie's patents, he included information that in the**
14:28:31 16 **medical field, densitometry procedures are used for**
14:28:35 17 **measuring bone morphology density by utilizing scanning**
14:28:41 18 **x-ray beam techniques and he gives some examples including**
14:28:44 19 **your patent, that's what happened here, right?**
14:28:46 20 A. **Yes.**
14:28:46 21 Q. **And this was because it's in his patent that means it**
14:28:50 22 **was in his patent application?**
14:28:52 23 A. **Yes.**
14:28:53 24 Q. **It couldn't be in the patent if it wasn't in the**
14:28:56 25 **application?**

14:28:57 1 A. **That's correct.**

14:28:58 2 Q. **And because it was in the application, that means**

14:29:01 3 **that the patent examiner at the U.S. Patent Office read this**

14:29:05 4 **or had it available to read; correct?**

14:29:08 5 A. **Yes.**

14:29:10 6 Q. **Which means that the patent examiner was told by**

14:29:15 7 **Dr. Massie that he could look at these things, including**

14:29:18 8 **your patent?**

14:29:20 9 A. **Yes.**

14:29:22 10 Q. **So he came clean with the Patent Office that he knew**

14:29:26 11 **about this stuff including your patent?**

14:29:28 12 A. **With respect to densitometry.**

14:29:30 13 Q. **Okay. But your patent is listed something that the**

14:29:34 14 **examiner could go look at?**

14:29:36 15 A. **Yes.**

14:29:37 16 Q. **He was aware of it?**

14:29:38 17 A. **I'm sorry?**

14:29:39 18 Q. **The examiner was aware of it?**

14:29:40 19 A. **Yes.**

14:29:56 20 Q. **Sorry, just trying to find the slide. Give me a**

14:30:00 21 **second.**

14:30:01 22 **We'll continue with that point a little later.**

14:30:15 23 **Let's go to slide 13. This slide and I think the next one**

14:30:23 24 **are a list of materials you reviewed. Right?**

14:30:27 25 A. **A general description.**

14:30:29 1 Q. General description. Is there anything that's --
14:30:33 2 even in the general sense that's missing from either this
14:30:36 3 slide or the next one, we could call it up if you don't have
14:30:40 4 a hard copy. There you go. Is there any major category of
14:30:45 5 materials that you reviewed that's just not on this list?
14:30:56 6 A. As I said, I looked at the -- I read the patent
14:30:59 7 history as well as the patents.
14:31:03 8 Q. Okay. What else? Well, Mr. Ostrow, nothing comes to
14:31:34 9 mind but if you tell me what you're thinking of, I'll tell
14:31:38 10 you if I looked at it?
14:31:39 11 Q. I'm going to take you up on that offer. How about
14:31:42 12 source code, did you review any source code?
14:31:45 13 A. No.
14:31:45 14 Q. Why not?
14:31:46 15 A. Because Dr. Kia never presented an argument related
14:31:53 16 to source code. I had the source code available, and I did
14:32:01 17 not need source code to understand his arguments, so I did
14:32:05 18 not see a need to actually read the source code.
14:32:08 19 Q. What about to understand how the ProMax system or
14:32:13 20 Romexis software works, would it not have been helpful to
14:32:16 21 review the source code for that purpose?
14:32:20 22 A. I read the deposition transcripts and I had
14:32:26 23 discussions with Mr. Pienkowski and Mr. Muller, and as I
14:32:33 24 said, I read the manuals and I believed those sources at
14:32:39 25 their word.

14:32:40 1 Q. Okay. So that was enough for you to form the basis
14:32:43 2 of your opinion?
14:32:44 3 A. About how the machines worked, yes.
14:32:47 4 Q. Right. Thank you. That's what I meant, but I
14:32:50 5 appreciate the clarification.
14:32:51 6 What about using the machine, using a ProMax
14:32:55 7 machine, it's not on here. Did you ever use one?
14:32:59 8 A. I have not used one, no.
14:33:01 9 Q. You didn't go to Finland and just walk in their
14:33:05 10 office and just start using it?
14:33:07 11 A. I did not. The only time I have personally used a
14:33:12 12 dental x-ray machine was in my training, I did some
14:33:17 13 experiments on a panoramic machine.
14:33:20 14 Q. Your training, your training for what?
14:33:24 15 A. My studies, my graduate training, I had a course on
14:33:31 16 radiological physics that included, if you want to go to the
14:33:36 17 slide that talks about my education, you can tell you where
14:33:39 18 it was?
14:33:39 19 Q. I think we'll minimize it, I think the jury has seen,
14:33:44 20 around 1976, that's when you got your masters at Harvard, is
14:33:50 21 that what you're referring to?
14:33:51 22 A. In that era I had courses on radiological imaging
14:33:56 23 which included dental imaging. Your question was did I have
14:34:00 24 courses that focused on dental imaging, they certainly
14:34:05 25 included dental imaging and we did experiments on a

14:34:08 1 panoramic x-ray machine.
14:34:10 2 Q. So the last time you used a dental imaging machine
14:34:14 3 was almost 50 years ago?
14:34:18 4 A. Not quite, but that's the last time I personally
14:34:22 5 operated one.
14:34:22 6 Q. I'm sorry, 48, 47, something like that. You
14:34:31 7 concluded it wasn't necessary to use one of the ProMax
14:34:34 8 machines with the Romexis software in order to understand
14:34:37 9 how the system work and to give your opinion, right?
14:34:41 10 A. That's correct.
14:34:42 11 Q. Even though you're working with them and you could
14:34:46 12 have just gone to Hoffman estates or Finland and looked at
14:34:51 13 it, you chose not to do that, right?
14:34:54 14 A. No. And I can clarify that if you like.
14:34:59 15 Q. No, I think we all understand fine. Thank you.
14:35:02 16 If your attorney wants you to clarify it, she'll
14:35:07 17 give you that option.
14:35:09 18 A. I understand.
14:35:17 19 Q. Let's go to slide 19. This is one of the devices
14:35:38 20 that you discussed during your direct, do you remember this?
14:35:41 21 A. Yes.
14:35:41 22 Q. Is this a dental imaging machine?
14:35:45 23 A. No.
14:35:51 24 Q. Okay. Let's go to slide 21. I'm sorry, I didn't
14:35:57 25 mean -- were you saying something?

14:35:59 1 A. **So the -- I don't think I talked about this, but this**
14:36:05 2 **particular CT scanner had what we call a water bag. It was**
14:36:14 3 **certainly not an advantage of the machine that the patient's**
14:36:18 4 **head is inserted in the machine, it can only image heads,**
14:36:22 5 **and a bag was inflated, the patient's head goes into a**
14:36:31 6 **flexible bag that then is inflated with water. And that**
14:36:35 7 **limited the machine to scanning you know, roughly down to**
14:36:40 8 **the eyes. So depending on the angulation you might have**
14:36:46 9 **been able to catch some of the other jaw, but certainly not**
14:36:50 10 **down to the chin. On the other hand this machine because it**
14:36:57 11 **was available was often used for experiments on a variety of**
14:37:02 12 **objects not inside the person. So people could have brought**
14:37:07 13 **mandibles and used it to image teeth and it would have done**
14:37:10 14 **so quite well.**
14:37:12 15 Q. **As far as you know, that was never done?**
14:37:15 16 A. **I did not look for such papers, but I actually would**
14:37:20 17 **be surprised if it wasn't.**
14:37:23 18 Q. **Okay. I appreciate that.**
14:37:26 19 **Let's go to slide 22. Dr. Pelc, slide 22 was --**
14:37:40 20 **you introduced us to this Cann article; right?**
14:37:43 21 A. **Yes.**
14:37:44 22 Q. **Okay. And this Cann article you say teaches bone**
14:37:53 23 **densitometry and quantitative computed tomography?**
14:37:57 24 A. **Yes.**
14:37:57 25 Q. **And the title of the article is precise measurement**

14:38:00 1 **of vertebral mineral content using computed tomography, do**
14:38:04 2 **you see that?**
14:38:04 3 A. **Yes.**
14:38:04 4 Q. **What is vertebral mineral content?**
14:38:08 5 A. **It's the bone mineral content of the vertebra, the**
14:38:12 6 **vertebra, that is one of the vertebra.**
14:38:17 7 Q. **I'm sorry, I was looking down I didn't see where you**
14:38:20 8 **pointed?**
14:38:21 9 A. **This laser pointer is not very reliable. That bone**
14:38:25 10 **that you see there.**
14:38:27 11 Q. **Talk me through it.**
14:38:29 12 A. **Yes, that's it.**
14:38:31 13 Q. **This?**
14:38:31 14 A. **That's a cross-section of a vertebra.**
14:38:34 15 Q. **What's a vertebra?**
14:38:36 16 A. **It's one of the bones in the spine.**
14:38:38 17 Q. **So it's not -- that's not a tooth, these aren't**
14:38:42 18 **teeth?**
14:38:42 19 A. **That is not a tooth. It would be quite abnormal to**
14:38:46 20 **have a tooth there.**
14:38:49 21 Q. **There being in your spine?**
14:38:52 22 A. **Yes.**
14:38:53 23 Q. **So this was a machine for measuring spines, and this**
14:38:57 24 **is I think you introduced this for the idea of quantitative**
14:39:02 25 **computed tomography; right?**

14:39:03 1 A. **That's right.**
14:39:04 2 Q. **In part. Just explain, you may have explained this**
14:39:07 3 **already, how did quantitative computed tomography work?**
14:39:11 4 A. **So the area that you're interested in is scanned.**
14:39:21 5 **Multiple slices so it's three dimensional tomographic. And**
14:39:27 6 **at the same time that you are scanning the object that you**
14:39:31 7 **are interested in, you scan objects whose mineral content**
14:39:34 8 **you know. And then you take the reconstructed values in the**
14:39:43 9 **region of the object that you're interested in and you**
14:39:46 10 **compare them with the known values of the known standards**
14:39:50 11 **you put in, and from that, calculate quantitatively the bone**
14:39:58 12 **mineral content.**
14:40:00 13 Q. **Why is it necessary as part of this process to use**
14:40:03 14 **the object of known density to scan them, why is that**
14:40:09 15 **important to do as part of this process?**
14:40:12 16 A. **Because as I mentioned, the scanner measures a**
14:40:19 17 **quantity that is the linear attenuation coefficient. And**
14:40:22 18 **the linear attenuation coefficient is not bone density. It**
14:40:28 19 **is not quantitatively calculated bone density. And if you**
14:40:31 20 **need to get from the measurement that the scanner provides**
14:40:38 21 **to quantitatively calculated bone density or bone density or**
14:40:43 22 **bone mineral density, you need to have some way of going**
14:40:47 23 **from the thing that is not bone density to what is bone**
14:40:51 24 **density. And they -- and that's done through this**
14:40:57 25 **referencing to the known standards.**

14:41:00 1 Q. **And why is it that for these kinds of images that the**
14:41:07 2 **linear attenuation coefficient doesn't in and of itself**
14:41:11 3 **represent bone density, can you explain the science behind**
14:41:14 4 **that?**
14:41:14 5 A. **Yes. The linear attenuation coefficient never equal**
14:41:18 6 **bone density.**
14:41:19 7 Q. **So why?**
14:41:22 8 A. **Because bone density is mass per unit volume, and the**
14:41:29 9 **linear attenuation coefficient is a parameter of the tissue**
14:41:32 10 **that determines, that describes the rate at which the x-ray**
14:41:38 11 **beam is reduced in intensity as it travels through that**
14:41:43 12 **material, they're just different.**
14:41:45 13 Q. **If someone was imaging just the bone, just the spine**
14:41:49 14 **without it being -- from a skeleton, let's say, sorry to get**
14:41:54 15 **morbid, but I got to make the point, so if someone was**
14:41:57 16 **imaging just the skeleton using CT, would that alone be able**
14:42:05 17 **to be an assessment of bone density?**
14:42:08 18 A. **No.**
14:42:08 19 Q. **Why not?**
14:42:09 20 A. **Because you're measuring different things.**
14:42:12 21 **Mr. Ostrow, suppose I ask you how long is your car, and you**
14:42:18 22 **answer, my car weighs 2000 pounds. What you're telling me**
14:42:24 23 **is the weight of your car. But I asked you how long is your**
14:42:29 24 **car. They're related, they might even be proportional, but**
14:42:34 25 **they're different.**

14:42:36 1 Q. I don't think that's a good example with due respect?
14:42:40 2 A. Do you want me to give you another one?
14:42:42 3 Q. I'll give you one, how about if someone asked me how
14:42:47 4 long my car is and instead of giving that length, tell them
14:42:50 5 if I stand ten feet away and I shine a light, the shadow is
14:42:54 6 12 feet, how about that, and then make them derive the
14:42:59 7 length from that, right?
14:43:00 8 A. Well, first of all, if you stand ten feet away, the
14:43:04 9 shadow will be determined by the height of the car not the
14:43:08 10 length of the car.
14:43:09 11 Q. I'm talking about the length of the shadow. You
14:43:13 12 asked -- your example is length?
14:43:15 13 A. I see.
14:43:16 14 Q. So if I shine my flashlight and I let the person know
14:43:20 15 how far I am, how bright the light is, they know what the
14:43:23 16 parameter is, they can derive the length of the car right?
14:43:28 17 A. Let me clarify yours.
14:43:29 18 Q. Sir yes or no, before you clarify, I listened to your
14:43:33 19 hypothetical, can you just answer my hypothetical, you could
14:43:37 20 do it, right?
14:43:38 21 A. If you measured the length of the shadow of the car,
14:43:42 22 you could infer the length of the car.
14:43:44 23 Q. Thank you. Now, you were going to say?
14:43:46 24 A. Yes, the difference is the shadow of the car is
14:43:50 25 determined entirely by the length of the car. The linear

14:43:55 1 **attenuation coefficient is not determined entirely by the**
14:43:58 2 **density.**
14:43:59 3 Q. **Okay. We'll come back, let's put a pen in that if we**
14:44:05 4 **could?**
14:44:05 5 A. **That's your job.**
14:44:06 6 Q. **I know, I'm putting a pen on that issue because I**
14:44:11 7 **want to come to that chart in a minute. I just want to**
14:44:15 8 **finish this. This article you're doing, you introduced this**
14:44:18 9 **as sort of the background of the state of the art, right?**
14:44:22 10 A. **I used this several times in my presentation.**
14:44:24 11 Q. **This was the Cann article that you used in**
14:44:29 12 **combination with Webber, I think**
14:44:34 13 A. **Yes.**
14:44:34 14 Q. **But standing alone, you are not taking the position**
14:44:38 15 **or expressing the the opinion that this Cann article**
14:44:41 16 **anticipates any of the claims of the Osseo patents, right?**
14:44:44 17 A. **I did not present any anticipation arguments.**
14:44:47 18 Q. **At all?**
14:44:47 19 A. **That's correct.**
14:44:48 20 Q. **So if your opinion, you did not find anything that**
14:44:51 21 **anticipated Dr. Massie's patents?**
14:44:53 22 A. **That's not what I said. What I said is I did not**
14:44:57 23 **make any arguments of anticipation.**
14:44:59 24 Q. **Well, wouldn't you have if you had found, if you had**
14:45:02 25 **them?**

14:45:04 1 A. You know, those are decisions that lawyers have to
14:45:07 2 make.
14:45:07 3 Q. I mean, anticipation is a better case than
14:45:11 4 obviousness, right?
14:45:13 5 A. So I understand, yes.
14:45:14 6 Q. So presumably if you had a good -- if you had a good
14:45:18 7 case for anticipation, which means something, the patent was
14:45:21 8 not new at all, you would have presented that instead of
14:45:25 9 just combining references as you did, right?
14:45:30 10 A. Mr. Ostrow, I did not present any anticipation
14:45:34 11 arguments.
14:45:36 12 Q. Okay. So let's go to slide 23. This is another
14:45:43 13 article or actually it's two articles PX-98, right, and
14:45:50 14 PX-100 that you put on the screen in your presentation?
14:45:53 15 A. Yes.
14:45:53 16 Q. Same question generally, so these articles, you're
14:45:57 17 not taking the position that these articles anticipate
14:46:02 18 Dr. Massie's claims?
14:46:04 19 A. I did not make an anticipation argument with either
14:46:07 20 of these references.
14:46:09 21 Q. And unless my memory is bad, you also didn't use
14:46:16 22 these in your obviousness arguments, correct?
14:46:18 23 A. That's correct.
14:46:21 24 Q. Slide 24.
14:46:25 25 And this was another article that you presented,

14:46:29 1 **the Mozzo 1998?**
14:46:32 2 A. **Mozzo.**
14:46:34 3 Q. **Mozzo, sorry. Sorry, same question, you introduced**
14:46:42 4 **this for purposes of some sort of background of the state of**
14:46:47 5 **art, right?**
14:46:47 6 A. **Yes.**
14:46:47 7 Q. **You're not giving an opinion today that Dr. Massie's**
14:46:50 8 **patents are either not anticipated or obvious over this**
14:46:59 9 **reference; correct?**
14:46:59 10 A. **Well, the problem with that is there are so many**
14:47:04 11 **possible combination of references that one could put**
14:47:04 12 **together, I easily could put together an obviousness**
14:47:07 13 **argument with this reference.**
14:47:09 14 Q. **But you didn't?**
14:47:09 15 A. **I didn't.**
14:47:11 16 Q. **And so your opinion your opinion today does not**
14:47:16 17 **include any argument that Dr. Massie's patents were obvious**
14:47:19 18 **over the Mozzo reference, correct?**
14:47:22 19 A. **That's correct. Alone or in combination with**
14:47:25 20 **anything.**
14:47:26 21 Q. **Right. So it's just background material?**
14:47:30 22 A. **That's how I used it today.**
14:47:46 23 Q. **Let's go to slide 27. This was another slide you**
14:47:53 24 **used to help explain -- I'm sorry, 27. Tomography, right,**
14:47:59 25 **slide 27?**

14:48:00 1 A. **Yes.**

14:48:01 2 Q. **And you see how the red lines that are coming out of**

14:48:06 3 **the, I guess the x-ray energy source, right, these red lines**

14:48:12 4 **represent one collimated beam, is that what this means?**

14:48:19 5 A. **All of those lines are coming -- are part of one**

14:48:24 6 **collimated beam.**

14:48:26 7 Q. **Because it says, the text says take images from**

14:48:30 8 **multiple source positions, but I think what you intended was**

14:48:34 9 **these dotted lines -- what would you call this, x-ray**

14:48:39 10 **source, energy source, what would you call that?**

14:48:41 11 A. **That's like an -- that's what an x-ray tube looks**

14:48:44 12 **like.**

14:48:45 13 Q. **X-ray tube?**

14:48:46 14 A. **Uh-huh.**

14:48:47 15 Q. **So this x-ray tube, the idea of what you're saying is**

14:48:51 16 **that it would be moved to different positions, right?**

14:48:54 17 A. **That's right. You would take images like that from**

14:48:57 18 **the source at different positions and probably be moving the**

14:49:01 19 **detector with it.**

14:49:01 20 Q. **The detector is here, P?**

14:49:04 21 A. **That's right.**

14:49:06 22 Q. **So this would also move around like in the back?**

14:49:09 23 A. **Perhaps. There are some tomography techniques where**

14:49:13 24 **it moves and some tomography techniques where it's standing**

14:49:17 25 **still.**

14:49:17 1 Q. How many images would have to be taken in order to
14:49:20 2 get sort of a 3D view of some part of what's being imaged?
14:49:26 3 A. Well, we heard in this trial that the Planmeca system
14:49:31 4 uses 400, I think it was. I would say hundreds.
14:49:41 5 Q. Hundreds, to what, to image the entire set of the
14:49:45 6 cylinder, ball, I forgot my geometry, whatever that is. So
14:49:53 7 you image the whole set of this, you need hundreds of these
14:49:58 8 images, right? But what if I just wanted-- I'm sorry, let's
14:50:01 9 just ask that question, is that what you meant?
14:50:03 10 A. Sir, I was going to clarify that it depends on the
14:50:07 11 kind of tomography that you're taking. So typically for
14:50:10 12 tomosynthesis, we use tens, tens of frames over a more
14:50:17 13 limited angular excursion. For computed tomography when we
14:50:25 14 go all the way around, typically we use hundreds to even
14:50:29 15 thousands.
14:50:30 16 Q. But again what I was asking was, you would use
14:50:37 17 hundreds or thousands of such images if you're trying to
14:50:38 18 capture everything that's in this cube, right?
14:50:44 19 A. If you wanted good tomography over that entire cube,
14:50:47 20 that's right.
14:50:47 21 Q. What if you only cared about some small subset like a
14:50:52 22 portion of the sphere, you wouldn't have to do hundreds or
14:50:56 23 thousands of images, right?
14:50:58 24 A. You probably do, and I think we need to clarify that.
14:51:07 25 You want to image, I don't know what to call that, let's

14:51:12 1 call it the red egg, okay?
14:51:16 2 Q. Yes.
14:51:17 3 A. So if you wanted to image the red egg, the problem
14:51:23 4 that you have is that in some directions the red egg is seen
14:51:29 5 through the blue cylinder, and in other directions it's seen
14:51:33 6 through the green columns and in other directions it's seen
14:51:37 7 through the orange object. So if you need to separate all
14:51:43 8 of them, it's -- even though you may be interested only in
14:51:47 9 the red egg, you need hundreds to thousands of views.
14:51:57 10 Q. Okay. Now, during your deposition, you may recall
14:52:10 11 you and I talked about similar issues about the number of
14:52:14 12 scans that would be needed or images to makeup a tomographic
14:52:19 13 scan, do you remember that?
14:52:21 14 A. I do.
14:52:22 15 Q. And do you remember what your answer was then?
14:52:27 16 A. No. I mean, I do, but if you're going to ask me
14:52:32 17 about it, I would like to look at the transcript.
14:52:51 18 Q. Okay. I'll have that for you in just a moment. What
14:53:03 19 I'm thinking about is on page 132 of your deposition
14:53:07 20 transcript, 132.
14:53:10 21 A. And can you remind me what tab my deposition
14:53:13 22 transcript is?
14:53:15 23 Q. I want to say four.
14:53:19 24 A. Yes. And page?
14:53:21 25 Q. 132?

14:53:27 1 A. **Yes.**
14:53:29 2 Q. **And so there is a series of questions and answers**
14:53:32 3 **that began on sort of on line 7 or so. Do you see that? I**
14:53:40 4 **asked you, I said, I am asking you could there be five of**
14:53:44 5 **those different measurements that combined to be a**
14:53:48 6 **tomographic scan, do you see that? I'm just trying to make**
14:53:57 7 **sure you're --**
14:53:59 8 A. **I see where you are.**
14:54:00 9 Q. **And then you said you would describe a technique and**
14:54:03 10 **I asked you to answer and then if you go down, I asked**
14:54:07 11 **again, a subset of the measurements together applied, could**
14:54:11 12 **that constitute one tomographic scan as you understand the**
14:54:16 13 **term, do you see that at the bottom, line 21 to 24?**
14:54:20 14 A. **I'm sorry, 21 to 24.**
14:54:23 15 Q. **Yes.**
14:54:29 16 A. **Yes. I see that question.**
14:54:33 17 Q. **Then your answer was, I'm starting on line 25, so 5**
14:54:37 18 **or 10 or 15 of them can constitute a tomosynthesis scan and**
14:54:48 19 **to me that is tomographic. Do you see that?**
14:54:50 20 A. **Yes.**
14:54:50 21 Q. **I'll use the high end of that, 15 of the scans**
14:54:54 22 **whether that constitutes tomography, is that what you said?**
14:54:59 23 A. **That's what I said.**
14:55:00 24 Q. **And then do you want to change that answer now?**
14:55:06 25 A. **No, I will say that those five or say 15 could**

14:55:11 1 constitute a tomosynthesis scan, yes.
14:55:17 2 Q. And you said, and and to me that is tomography?
14:55:20 3 A. That is correct.
14:55:21 4 Q. And then I asked you whether use the Feldkamp
14:55:24 5 algorithm, whether if the system combines one set of those
14:55:27 6 with another set of those, you would agree that satisfies
14:55:32 7 merging formations for multiple tomographic scans, right?
14:55:35 8 A. That was your question.
14:55:37 9 Q. Right. And then there is a long answer here, I'm
14:55:40 10 happy to read the whole thing, but at the bottom of it, I'm
14:55:43 11 happy to do it, the bottom of it it says the answer is yes,
14:55:47 12 in most cases it would be called a tomosynthesis scan, it's
14:55:52 13 limited angle tomography, do you see that?
14:55:59 14 A. Yes, I see that. And I disagree with it.
14:56:04 15 Q. Okay. Well that's what you said under oath when I
14:56:12 16 asked you the first time?
14:56:13 17 A. That's right.
14:56:14 18 Q. Okay. So now you're saying you were wrong?
14:56:18 19 A. I think in the context of this trial, in the context
14:56:21 20 of this issue where we are trying to ascertain whether or
14:56:30 21 not a machine merges information from multiple tomographic
14:56:35 22 scans, what you are using -- I'm sorry, what you are doing
14:56:39 23 is deleting -- is deleting the meaning of the claim.
14:56:47 24 Q. In your deposition, you said that 15, again, I'm
14:56:51 25 using the high end of the numbers you gave, 15 tomosynthesis

14:56:57 1 scans, that would be a tomography, and then if I did another
14:57:02 2 15 and then I used Feldkamp algorithm to merge those
14:57:06 3 together, that's my merged tomographic model, that's what
14:57:11 4 you said?
14:57:11 5 A. It is, but you are using it to take one tomographic
14:57:14 6 scan and artificially call it multiple tomographic scans, if
14:57:19 7 that was true, why would the court have said that the claim
14:57:23 8 requires merging multiple tomographic scans, it would be any
14:57:27 9 tomographic scan, the court would not have needed to say
14:57:31 10 multiple, merging of multiple tomographic scans.
14:57:35 11 Q. Why not, that's what the patent says? I'm confused
14:57:40 12 --
14:57:40 13 A. What you did.
14:57:41 14 Q. Were you at the Markman hearing?
14:57:43 15 A. Of course not.
14:57:44 16 Q. Okay. So you don't know what Judge Stark was
14:57:47 17 thinking when he wrote this?
14:57:48 18 A. No. I'm reading what he said. But what you are
14:57:51 19 doing, sir, is taking one tomographic scan and for purposes
14:57:56 20 of arguing infringement are breaking it into multiple
14:58:01 21 tomographic scans so that you could then merge them again.
14:58:06 22 Q. No, sir. What I am doing is telling you, telling
14:58:10 23 everybody what you said under oath so that everybody knows
14:58:14 24 the context. You said under oath in a conference room, no
14:58:18 25 pressure, you said whatever you wanted, that 15, 15 scans of

14:58:26 1 **tomography merged with another 15 scans, that's tomographic**
14:58:31 2 **model, that's what you said.**
14:58:32 3 A. **As an answer to a hypothetical.**
14:58:36 4 Q. **Now we're in the real world, so the answer doesn't**
14:58:40 5 **change. Sorry.**
14:58:47 6 **Let's go because I sense we're going to lose the**
14:58:52 7 **thread of this. 45, please. Do you remember this slide,**
14:58:58 8 **you put this up about converting, a method that you had of**
14:59:02 9 **converting Hounsfield units to linear attenuation**
14:59:07 10 **coefficients?**
14:59:07 11 A. **Yes.**
14:59:07 12 Q. **And so you gave this table. Where does this table**
14:59:11 13 **come from. It says NIST. Do you see that?**
14:59:15 14 A. **Yes.**
14:59:15 15 Q. **Is that where the table comes from?**
14:59:17 16 A. **Yes.**
14:59:18 17 Q. **What's NIST?**
14:59:19 18 A. **The national institute of standards and technology.**
14:59:22 19 Q. **So this is like the U.S. government's version of**
14:59:25 20 **science, more or less, science from the U.S. government?**
14:59:29 21 A. **No, no, the U.S. government interestingly, it's under**
14:59:33 22 **the department of commerce, and the goal of this is to**
14:59:40 23 **encourage commerce by providing information about science**
14:59:43 24 **and technology and among the things that they do is provide**
14:59:47 25 **information about material properties, how measurements are**

14:59:52 1 to be made. They're the people, for example, that define
14:59:55 2 what a meter is, what a second is, so on.
14:59:58 3 Q. So the national institute of standards, they put out
15:00:01 4 this table?
15:00:03 5 A. They have --there is a website that contains mass
15:00:13 6 attenuation coefficient of all elements and a number of
15:00:16 7 different compounds or materials like water, blood, soft
15:00:22 8 tissue, polystyrene or cortical bone each of which has
15:00:26 9 multiple elements in it. So all of that information is
15:00:29 10 available from this, and it's a compilation of measurements
15:00:35 11 and calculations that were done over many years.
15:00:39 12 Q. Okay. So of whatever was in the NIST table, you
15:00:43 13 selected this subset and presented it here; right?
15:00:46 14 A. That's correct.
15:00:47 15 Q. And you have a, you know, a picture here of a tooth;
15:00:54 16 right?
15:00:54 17 A. Yes.
15:00:55 18 Q. It has a cavity, I'm no dentist but that's what it
15:00:59 19 looked like to me. And the tooth, I know we talked about
15:01:02 20 this before, it's sort of the enamel right?
15:01:06 21 A. That's right.
15:01:07 22 Q. And then the bone, what we agree is bone, the gray
15:01:11 23 part?
15:01:12 24 A. The gray part, I think is the bone. I believe that
15:01:16 25 as an Osseo graphic.

15:01:19 1 Q. **Okay. And this red stuff in the middle, that's the**
15:01:23 2 **nerve?**
15:01:24 3 A. **The root or whatever is in the inside of the tooth,**
15:01:27 4 **that's right. Or the nerve and tissue that's inside the**
15:01:31 5 **tooth.**
15:01:31 6 Q. **The tissue. And this tissue here, this is soft**
15:01:34 7 **tissue, right?**
15:01:35 8 A. **I think so.**
15:01:37 9 Q. **You're not sure?**
15:01:38 10 A. **That's right.**
15:01:41 11 Q. **Do you know the difference between soft tissue and**
15:01:44 12 **hard tissue?**
15:01:45 13 A. **Very much so.**
15:01:46 14 Q. **But you don't know that much about teeth, is that why**
15:01:49 15 **you're not sure?**
15:01:50 16 A. **That's correct.**
15:01:50 17 Q. **Let's take it as a given that this is soft tissue.**
15:01:54 18 **The patents in this case, are they measuring soft tissue or**
15:01:57 19 **density or bone density?**
15:01:59 20 A. **Bone density.**
15:02:00 21 Q. **Only bone density, right?**
15:02:01 22 A. **Yes.**
15:02:02 23 Q. **So the patents in this case don't care about this?**
15:02:05 24 A. **Yes.**
15:02:06 25 Q. **Okay. The patents in this case are only caring about**

15:02:09 1 the density of this gray material, and maybe the enamel if
15:02:16 2 he considers that hard tissue, right?
15:02:17 3 A. Yes.
15:02:18 4 Q. Now, you presented this table and I think -- I may
15:02:21 5 butcher your walk through so please correct me, I suspect
15:02:26 6 you will anyway, but it's fine. So you tried to explain
15:02:30 7 that the reason why the linear attenuation coefficient can
15:02:36 8 represent density, be density, is because there is also this
15:02:41 9 mass attenuation coefficient, is that the purpose of this?
15:02:43 10 A. The exercise I was going through was can I convert,
15:02:50 11 computationally convert Hounsfield units to density. Okay?
15:02:57 12 And what you said is you first have to convert Hounsfield
15:03:00 13 units to linear attenuation coefficient, and then if you
15:03:04 14 happen to have that and also the mass attenuation
15:03:08 15 coefficient, the ratio would give you density.
15:03:14 16 Q. And if I understood correctly, your point was that
15:03:18 17 because the variability of what's in -- what's being
15:03:23 18 measured, right, the anatomy being measured and the energy
15:03:28 19 levels that it -- there is too much variability to figure
15:03:31 20 this out based on just the linear attenuation coefficient
15:03:34 21 alone, is that right?
15:03:35 22 A. Yeah. And actually there are two points that I want
15:03:38 23 to make. That's one of them. The other is if you wanted to
15:03:43 24 calculate bone density, you would still have to go through
15:03:47 25 the exercise of doing this calculation. And there is no

15:03:51 1 evidence that the Planmeca machine does anything like this.
15:03:55 2 Q. That's if you wanted to calculate density as mass
15:03:59 3 over volume, right?
15:03:59 4 A. That's if you wanted to calculate quantitatively bone
15:04:05 5 density.
15:04:05 6 Q. Remember your example with the car and the shadow?
15:04:08 7 A. Yes.
15:04:08 8 Q. The calculation of the length of the shadow, that's a
15:04:11 9 quantitative calculation, right?
15:04:13 10 A. What units did you measure the length of the shadow
15:04:17 11 in when you went through that hypothetical?
15:04:20 12 Q. Whatever units, people measure length in, I didn't
15:04:24 13 care?
15:04:25 14 A. Feet, for example.
15:04:25 15 Q. Sure?
15:04:26 16 A. And that would give you the length of the car in
15:04:29 17 feet. Both are length measures so you would a length
15:04:33 18 measure and you, from one length measure you got to another
15:04:37 19 length measure. We know how to do that. Linear attenuation
15:04:41 20 coefficient and density are different. That's much more
15:04:44 21 like the example that I gave you about the length of the car
15:04:47 22 and the weight of the car. They're not the same.
15:04:50 23 Q. Right. Okay.
15:04:51 24 We'll come back to that in a second, I don't
15:04:55 25 want to lose the thread of this.

15:04:57 1 So your point was that you know because there is
15:05:01 2 water, water affects -- has an affect on the mass
15:05:09 3 attenuation coefficient, and blood has this affect on mass
15:05:11 4 attenuation attenuation, is that what this table is showing?
15:05:15 5 A. No.
15:05:15 6 Q. Then what is the point of the water, blood, soft
15:05:19 7 tissue, so forth?
15:05:20 8 A. If you wanted to know what this table tells us is
15:05:24 9 that the mass attenuation coefficient of water at 40 keV is
15:05:29 10 .2683.
15:05:32 11 Q. Now, the bony part of the tooth, does that have any
15:05:37 12 water?
15:05:37 13 A. Yes.
15:05:38 14 Q. How much?
15:05:39 15 A. I think quite a bit.
15:05:40 16 Q. Yeah?
15:05:41 17 A. Yeah.
15:05:41 18 Q. When is the last time you looked it up?
15:05:44 19 A. So actually I did look that up. If you look up the
15:05:48 20 composition of bone, there is certainly a fair amount of
15:05:54 21 mineral in the bone, but from what I know, it's only about
15:06:00 22 20 percent of the mass of the bone. The rest of the mass of
15:06:03 23 bone is not mineral.
15:06:04 24 Q. I'm asking you about tooth?
15:06:06 25 A. Well, I think it's similar.

15:06:11 1 Q. **Okay. I don't want to testify but when I goggled it,**
15:06:14 2 **it said 1.4 percent, would that surprise you that water**
15:06:18 3 **makes up, just the bony part, not the root?**
15:06:21 4 A. **And what about other soft tissues and proteins.**
15:06:26 5 Q. **I'm asking one question at a time right now?**
15:06:29 6 A. **But the problem --**
15:06:30 7 Q. **I'm asking you if you know, if you knew how much**
15:06:34 8 **water was in bone and it sounds like I'm not sure that we**
15:06:38 9 **got an answer here, but from what I know it's very small but**
15:06:42 10 **I guess you can't confirm that?**
15:06:44 11 A. **That's right, I can't confirm it. But what I can**
15:06:47 12 **tell you is that the mass of mineral in the bone depends on**
15:06:55 13 **what else is in the bone and the bone is not mineral, it**
15:07:00 14 **also -- it's not just mineral. And as the bone**
15:07:04 15 **demineralizes, the amount of minerals given the name,**
15:07:10 16 **demineralizing, the bone doesn't entirely disappear, it gets**
15:07:16 17 **filled in with other materials, right. And so the chemical**
15:07:27 18 **composition of bone depends to the state of mineralization.**
15:07:28 19 Q. **You keep saying bone, I'm asking you about teeth.**
15:07:31 20 **You're sure that's what happens as teeth because there is a**
15:07:33 21 **hole here?**
15:07:34 22 A. **That's because it cracked.**
15:07:36 23 Q. **So you can't just-he this hole is this crack?**
15:07:41 24 A. **I'm sorry.**
15:07:43 25 Q. **I've asked you before if you knew about teeth, so I'm**

15:07:46 1 **asking you now what you're saying about bones, I'm asking**
15:07:50 2 **you whether it applies to teeth? Do you actually know what**
15:07:55 3 **happens when demineralization occurs in the tooth?**
15:08:00 4 A. **My understanding is that when demineralization occurs**
15:08:04 5 **in the tooth, the composition of the tooth changes in terms**
15:08:08 6 **of the fraction by weight of different elements?**
15:08:12 7 Q. **And the density changes?**
15:08:14 8 A. **Yes.**
15:08:16 9 Q. **So is there soft tissue in the bones?**
15:08:22 10 A. **There are proteins and other things in the bone.**
15:08:25 11 Q. **How much?**
15:08:25 12 A. **I don't know.**
15:08:26 13 Q. **How about blood, is there blood in the bone, of the**
15:08:29 14 **tooth I'm asking? If you know, how much?**
15:08:34 15 A. **I don't know. I don't.**
15:08:36 16 Q. **And polystyrene, how much polystyrene is there in the**
15:08:40 17 **bone?**
15:08:40 18 A. **0, those are just meant to be exemplary to show that**
15:08:49 19 **in the range of materials that one might consider, the mass**
15:08:54 20 **attenuation coefficient changes.**
15:08:56 21 Q. **Do you know what energy level dental machines do**
15:08:59 22 **their scans at?**
15:09:00 23 A. **Well, that's a complication. I know that the**
15:09:04 24 **Planmeca machine, for example, operates if I remember**
15:09:11 25 **correctly between x-ray tube voltage of 55 KVP up to over a**

15:09:20 1 **hundred. But that is not what that number is.**

15:09:23 2 Q. **What is that number?**

15:09:28 3 A. **That is the energy of monoenergetic photons which the**

15:09:34 4 **x-ray tube does not emit and the Planmeca machine does not**

15:09:37 5 **have.**

15:09:37 6 **The problem, and I didn't get into this, the**

15:09:43 7 **light coming out of these light bulbs is not a single color.**

15:09:49 8 **As we know, if we take a prism, it will break that white**

15:09:53 9 **light into a range of colors. I'm not going to talk about**

15:10:00 10 **lasers.**

15:10:03 11 **Now similarly the x-rays coming out of the x-ray**

15:10:06 12 **tube are more like white light. They contain a whole range**

15:10:11 13 **of energies. See when the Planmeca system or any dental or**

15:10:16 14 **medical diagnostic machine shines x-rays through the person,**

15:10:21 15 **they are not of a single energy. They have a whole range of**

15:10:25 16 **energies. 40 keV is not a bad estimate for the lower end,**

15:10:31 17 **it could be lower, it could be down to 30 or 25. And at the**

15:10:35 18 **upper end, it may go up to 120 or than 140. So think of**

15:10:41 19 **that as a light beam that has colors that go from red to**

15:10:48 20 **violet. As the light goes through water, some of of you may**

15:10:55 21 **have an understanding of this an appreciation or have seen**

15:10:59 22 **it personally, as you go deeper in water, everything is**

15:11:06 23 **bluer. That's because the red light is absorbed at the**

15:11:09 24 **surface and very little red light goes down. If you're down**

15:11:15 25 **at 20 or 30 feet, there is very little red light getting**

15:11:20 1 through.

15:11:20 2 The same thing happens with x-rays. So the

15:11:24 3 lower energy x-rays get attenuated much more easily than the

15:11:30 4 high energy x-rays. So why do I bring this up? Because

15:11:38 5 when you put the person's head in the scanner or any object,

15:11:40 6 different parts of the object are being probed by x-rays of

15:11:44 7 different energies. And what you need to do this

15:11:48 8 calculation is the mass attenuation coefficient for the

15:11:53 9 x-rays that gave you the measurement. And you don't know

15:11:57 10 what it is.

15:11:58 11 Q. So these, keV values are not determined by the energy

15:12:05 12 of the x-ray beam?

15:12:07 13 A. What do you mean by the energy of the x-ray beam.

15:12:10 14 Q. You said this was a different energy, I'm trying to

15:12:13 15 understand what you just said. This is a different energy

15:12:15 16 than what comes out, like you said the lights and all that?

15:12:18 17 A. Right. So with light, we talk about breaking it into

15:12:22 18 colors and each color has a wavelength. The same thing is

15:12:26 19 true of x-rays, the x-ray tube emits x-rays of a whole range

15:12:30 20 of wavelengths, a very broad range of wavelengths, actually

15:12:34 21 much broader than the range of wavelengths of visible light.

15:12:40 22 Instead of characterizing them which the wavelength, we

15:12:43 23 characterize them by the energy. And that I forget,

15:12:48 24 somebody at the beginning of the trial wondered whether we

15:12:52 25 would get into quantum mechanics.

15:12:54 1 Q. **That was me?**

15:12:55 2 A. **Here we are. And the energy of the photon is related**

15:12:58 3 **to the wavelength in an inverse fashion. The wavelength**

15:13:02 4 **determines the energy precisely, and because there is a**

15:13:06 5 **whole range of wavelengths, there are also a whole range of**

15:13:11 6 **energies.**

15:13:13 7 **The way you operate the x-ray tube effects the**

15:13:19 8 **range of colors, but never gives you all photons of the**

15:13:24 9 **single color, never.**

15:13:27 10 Q. **Okay. Does it give you at least an average of the**

15:13:32 11 **photons?**

15:13:34 12 A. **The average depends on how much tissue you have gone**

15:13:38 13 **through.**

15:13:39 14 Q. **Okay. So when it comes to teeth, you know how much**

15:13:44 15 **tissue you have gone through because teeth generally have a**

15:13:48 16 **certain size, right?**

15:13:49 17 A. **You're missing the point.**

15:13:51 18 Q. **In a dental imaging system?**

15:13:53 19 A. **Yes.**

15:13:54 20 Q. **It's known how much tissue has been gone through?**

15:13:57 21 A. **No.**

15:13:58 22 Q. **Why not?**

15:13:59 23 A. **Because you also went through the back of the head**

15:14:02 24 **and all the tissue in between, it's not just the tooth. By**

15:14:06 25 **the time the x-rays have gone through the tooth, they have**

15:14:09 1 already gone through a bunch of tissue, and oh, by the way,
15:14:13 2 before they get to your detector they are going to be going
15:14:16 3 through more tissue, so somehow you would have to compensate
15:14:19 4 for all of that, and there is nothing in the accused machine
15:14:22 5 that does that.
15:14:23 6 Q. This is related to the densitometry issue, the reason
15:14:28 7 you presented this, right?
15:14:29 8 A. No, this is related to -- no, it's related to the --
15:14:33 9 yes, the densitometry in the sense that densitometry is
15:14:36 10 supposed to be quantitatively calculated bone density.
15:14:47 11 Q. Can you go to slide 43. Right before this, you gave
15:15:05 12 these two examples, examples of ways of doing densitometry,
15:15:12 13 dual energy x-rays or QCT, right?
15:15:16 14 A. Yes, that's right. And I said that there is no
15:15:22 15 evidence of the ProMax 3D systems doing either.
15:15:25 16 Q. Have you ever tested a dental imaging device to
15:15:30 17 determine whether -- what was done for QCT meaning using a
15:15:36 18 reference density model as you described earlier, whether
15:15:38 19 that's needed in order to determine density, have you ever
15:15:42 20 tested that for a dental machine?
15:15:44 21 A. I have not done that, but there are papers analyzing
15:15:49 22 QCT, actually analyzing cone beam CT that say that the
15:15:56 23 grayscale values are not measures of bone density.
15:16:00 24 Q. I'm sorry, that's not what I asked. So let me just
15:16:03 25 try it again, make sure the answer is clear. I'm asking

15:16:07 1 **whether you have ever tested a dental machine or read --**
15:16:12 2 **I'll give you, read about someone who tested a dental**
15:16:16 3 **machine who concluded one way or the other whether the**
15:16:20 4 **reference object was needed when it came to dental imaging**
15:16:23 5 **as opposed to say abdominal imaging or spinal imaging?**
15:16:27 6 A. **I have not.**
15:16:28 7 Q. **Were you here when Dr. Kia described his work at**
15:16:35 8 **sciences?**
15:16:35 9 A. **Yes.**
15:16:35 10 Q. **Were you paying attention when he discussed that he**
15:16:37 11 **did that exact test, did you listen to that?**
15:16:40 12 A. **Yes. What would be convincing would be, and what**
15:16:46 13 **scientists have done with respect to both DEXA and QCT, at**
15:16:52 14 **the end of the day, you need to show me a graph that says**
15:16:56 15 **that whatever you do is a measure of bone density. And I**
15:17:02 16 **have not seen the evidence that that is true.**
15:17:05 17 Q. **Okay. But you didn't work at Imaging Science with**
15:17:08 18 **Dr. Kia, right?**
15:17:09 19 A. **I did not.**
15:17:15 20 Q. **The first other type of method here, the dual energy**
15:17:21 21 **x-rays, the ProMax 3D systems use dual energy x-rays?**
15:17:25 22 A. **Yes.**
15:17:26 23 Q. **You testified several times about the court claim**
15:17:31 24 **construction order?**
15:17:32 25 A. **Yes.**

15:17:32 1 Q. **Do you remember whether the court was asked to**
15:17:34 2 **consider whether the Massie patents are limited in use of**
15:17:37 3 **dual energy x-rays?**
15:17:38 4 A. **Yes.**
15:17:38 5 Q. **Do you remember what the court said about that?**
15:17:40 6 A. **The court said that the claims are not limited to**
15:17:45 7 **dual energy methods, but they are limited to quantitatively**
15:17:52 8 **calculated bone density.**
15:17:52 9 Q. **In other words, as long as we could show that there**
15:17:55 10 **was a quantitatively calculated of bone density in some way,**
15:17:58 11 **it didn't have to be this way, dual energy x-rays?**
15:18:01 12 A. **That's correct. As long as what you show is that**
15:18:04 13 **it's quantitatively calculated bone density.**
15:18:06 14 Q. **And thank you for saying that, I don't have to pull**
15:18:11 15 **up the court's construction, I'm happy not to do that.**
15:18:13 16 **And you admit that even these two things are**
15:18:17 17 **just examples of ways of doing densitometry, you're not**
15:18:20 18 **saying these are the only two ways, right?**
15:18:22 19 A. **These are the two ways that are known in the field**
15:18:25 20 **currently.**
15:18:27 21 Q. **Except maybe by Imaging Sciences who has another way**
15:18:30 22 **that Dr. Kia did right?**
15:18:36 23 A. **Which as far as I know is not broadly accepted by the**
15:18:40 24 **community, there are other ways that are not x-ray based for**
15:18:43 25 **measuring quantitatively calculated bone density.**

15:18:45 1 Q. But that's not relevant here because we're talking
15:18:48 2 about x-rays?
15:18:48 3 A. That's why I said there are only these two.
15:18:51 4 Q. Well, at least as examples, these are not the only
15:18:56 5 two, they're just examples?
15:18:57 6 A. The reason that I said examples is precisely because
15:19:01 7 the court said that the claims are not limited to DEXA, and
15:19:08 8 that it just has -- it is limited to quantitatively
15:19:12 9 calculated bone density.
15:19:14 10 Q. Let's move ahead to slide 56. This was a slide that
15:19:32 11 we used to address this issue of comparing, right, comparing
15:19:35 12 models?
15:19:36 13 A. I didn't.
15:19:37 14 Q. Now, these are images from Planmeca, I think Romexis
15:19:45 15 user manuals, right, is that where this came from?
15:19:49 16 A. I believe so, yes.
15:19:50 17 Q. I can't really see the -- anyway, thank you. PX-90.
15:20:00 18 So that's a Romexis user manual, that's been admitted into
15:20:04 19 evidence.
15:20:05 20 So you were making the point about the computer
15:20:08 21 not comparing, is that what this was here for?
15:20:13 22 A. That's right.
15:20:13 23 Q. ProMax 3D did not compare, right?
15:20:15 24 A. And that the comparison is not quantitative.
15:20:18 25 Q. Let's break that down. Let's start with just the

15:20:22 1 **comparing part?**
15:20:23 2 A. **Sure.**
15:20:24 3 Q. **The portion of the manual says that the manual**
15:20:27 4 **fitting, it says volumes can be manually fitted by adjusting**
15:20:32 5 **the position and rotation?**
15:20:34 6 A. **Yes.**
15:20:34 7 Q. **Do you understand what that is saying is that the**
15:20:37 8 **user manually can sort of move these two models that they're**
15:20:42 9 **lined up in a way that he can do a comparison, is that what**
15:20:45 10 **manual fitting is?**
15:20:47 11 A. **Manual means that the user can move them until they**
15:20:51 12 **are registered is the word we use or aligned sufficient for**
15:20:58 13 **their need.**
15:20:59 14 Q. **The same word Dr. Kia used so let's stick with that.**
15:21:04 15 **So that's manually fitting. Then there is a second option,**
15:21:09 16 **automatic fitting. Do you see that?**
15:21:11 17 A. **Yes.**
15:21:13 18 Q. **The automatic fitting it says for automatic fitting**
15:21:20 19 **three common points must defined whether the dialogue is**
15:21:22 20 **first opened, the before volume is shown on the right,**
15:21:25 21 **select the after volume. It seems like there are more**
15:21:28 22 **instructions since this is number one, it goes to number**
15:21:31 23 **three, add three common points marked in red, green and blue**
15:21:35 24 **on the image and the surfaces in both volumes by clicking on**
15:21:39 25 **the right mouse, suitable points vary, so forth, do you see**

15:21:44 1 that?
15:21:44 2 A. Yes.
15:21:45 3 Q. In this case, the user, this is the user putting red,
15:21:49 4 green and blue on the image, right?
15:21:50 5 A. Yes.
15:21:51 6 Q. And what happens after that?
15:21:52 7 A. The computer takes the user input and aligns the
15:22:01 8 three points so that the three points overlap on the two
15:22:08 9 data sets, they end up in the same location in the two data
15:22:13 10 sets.
15:22:15 11 Q. So that's the computer doing something as part of the
15:22:19 12 comparison?
15:22:20 13 A. Based on the operator's instruction of what the
15:22:24 14 operator thinks is needed for alignment.
15:22:29 15 Q. Okay. Computers usually operate based on the
15:22:31 16 operator's instruction, right, isn't that how they work? I
15:22:36 17 mean, users tell computers to do things and then they do it,
15:22:39 18 that's how they work?
15:22:40 19 A. No, some things computers do automatically without
15:22:44 20 you asking them.
15:22:44 21 Q. Because someone told it to, a programmer, right?
15:22:47 22 A. Exactly.
15:22:49 23 Q. Okay. Let's go -- so you said there were two aspects
15:22:54 24 of why you think there wasn't comparing. One was about what
15:22:57 25 the computer was doing and then you also said something

15:23:00 1 about it not being quantitative, right?
15:23:03 2 A. So far we don't have any comparative, right, all we
15:23:06 3 did was attempt to align the two volumes. So we haven't
15:23:12 4 even gotten to comparing. But the comparing according to
15:23:15 5 the claim construction has to be quantitatively comparing.
15:23:19 6 Q. Where do you see that in the claim construction? If
15:23:22 7 it's helpful, I guess we're going to have to do it, but the
15:23:27 8 claim construction is behind Tab 5. And then in your
15:23:32 9 binder. And then the Court's opinion on it is behind Tab 6.
15:23:38 10 A. Thank you.
15:23:40 11 Q. And if it helps just to get through this a little
15:23:43 12 faster, I believe the section you're -- or the section we
15:23:47 13 were talking about on page 14 of the Court's ruling?
15:23:51 14 A. On page 14?
15:23:53 15 Q. 14, at least -- you can look anywhere you want,
15:23:56 16 that's where I think we're supposed to be looking.
15:24:04 17 A. Yes. So what I -- are you looking at the --
15:24:11 18 Q. I'm sorry?
15:24:11 19 A. Are you looking at the document, sir.
15:24:13 20 Q. Yes, I am?
15:24:14 21 A. And you can see that plaintiffs suggested one
15:24:18 22 definition, defendants suggested a different definition and
15:24:22 23 the court decided no construction is necessary.
15:24:25 24 Q. Right?
15:24:26 25 A. But -- but, what follows is -- Your Honor, can I read

15:24:32 1 **from this?**

15:24:33 2 **THE COURT: That's between you two.**

15:24:35 3 Q. **Yes.**

15:24:35 4 A. **Yes, I can read from this?**

15:24:38 5 **MR. OSTROW: Your Honor, I'm just being careful**

15:24:40 6 **to abide by the pretrial order in aspect of not doing any**

15:24:44 7 **motions.**

15:24:45 8 **THE COURT: Okay.**

15:24:46 9 **THE WITNESS: And the court says, "the only**

15:24:49 10 **issue is I won't name, a request to insert a quantitative**

15:24:56 11 **element." In other words somebody said the comparison needs**

15:24:59 12 **to be quantitative.**

15:25:01 13 Q. **Can I just break in here for a second?**

15:25:03 14 A. **No. You asked me a question, I'm trying to give you**

15:25:07 15 **an answer.**

15:25:07 16 Q. **But you misread what's there, it's not somebody said,**

15:25:12 17 **it says the only issue is the defendants request, Planmeca**

15:25:16 18 **is the defendant?**

15:25:16 19 A. **Yeah.**

15:25:16 20 Q. **Planmeca asked the court in their proposed**

15:25:19 21 **construction to say that the comparison had to be**

15:25:21 22 **quantitative?**

15:25:22 23 A. **Yes.**

15:25:22 24 Q. **And the judge said the only issue is that, their**

15:25:26 25 **request, but he declined to put it in, and said the claim,**

15:25:30 1 the word needs no construction, he does say this
15:25:34 2 quantitative element is already embodied in the Court's
15:25:37 3 construction of tomographic model and densitometry model.
15:25:43 4 In other words, the court is saying the models have to be
15:25:45 5 quantitative, but the comparison, did he not limit the
15:25:48 6 comparison to have to be quantitative. Right? There is no
15:25:52 7 construction that says the comparison has to be
15:25:55 8 quantitative, correct?
15:25:55 9 A. Well, so you and I disagree on this. You're right of
15:25:59 10 what the court said is this quantitative element is already
15:26:03 11 embodied in the Court's construction of tomographic model
15:26:07 12 and densitometry model. To me, this -- since the court
15:26:11 13 didn't go on to say the comparison need not be quantitative,
15:26:16 14 that's what you said, to me as a person of skill in the art,
15:26:19 15 this says that the comparison needs to be quantitative.
15:26:22 16 Q. But the judge never actually said that?
15:26:24 17 A. Nor did the judge say what you said.
15:26:27 18 Q. Okay. We can agree to disagree, I guess.
15:26:31 19
15:26:34 20 MR. OSTROW: Your Honor, I'm probably going to
15:26:36 21 move on to another subject, what do you want to do.
15:26:39 22 THE COURT: This is a good place to stop. Let's
15:26:41 23 take ten, ladies and gentlemen.
15:26:43 24 COURT CLERK: All rise.
15:26:44 25 (Jury leaving the courtroom at 3:26 p.m.)

15:26:51 1 (A brief recess was taken.)

15:38:53 2 COURT CLERK: All rise.

15:38:55 3 THE COURT: How long do you think you're going

15:38:57 4 to go?

15:38:57 5 MR. OSTROW: About another hour.

15:39:00 6 THE COURT: Then hen you have some follow-up

15:39:02 7 questions. So we may end the day with the doctor? All

15:39:06 8 right. If we're lucky.

15:39:09 9 MR. OSTROW: Trying to.

15:39:10 10 (Jury entering the courtroom at 3:39 p.m.)

15:39:17 11 THE COURT: Please be seated, ladies and

15:39:19 12 gentlemen. You may continue your examination, Mr. Ostrow.

15:39:33 13 MR. OSTROW: Thank you, Your Honor.

15:39:34 14 BY MR. OSTROW:

15:39:36 15 Q. John, put up slide 35.

15:39:42 16 Dr. Pelc, this is one of the slides you walked

15:39:45 17 through during your direct, and your theory as I understood

15:39:49 18 it was that what you call Osseo's interpretation or

15:39:54 19 misreading, whatever you want to call it of the claims and

15:39:57 20 the constructions, reads on prior art, that's the point of

15:40:05 21 this slide, right?

15:40:05 22 A. With respect to that element.

15:40:05 23 Q. With respect to that element? I see. So you're not

15:40:08 24 taking the position that you have done an analysis

15:40:12 25 comparing, doing an element by element comparison of the

15:40:16 1 **claims of Dr. Massie's patents against say, the NewTom**
15:40:20 2 **system, correct?**
15:40:20 3 A. **That is correct.**
15:40:20 4 Q. **The way you did with Webber and Guenther**
15:40:24 5 **combinations?**
15:40:25 6 A. **That's correct.**
15:40:26 7 Q. **Thank you for clarifying that. If you go to slide**
15:40:32 8 **36. Same question here, this is another slide where you**
15:40:41 9 **have taken the position that Osseo's interpretations reads**
15:40:44 10 **on prior art and here you show the Klemetti article, same**
15:40:49 11 **question, so I just want to be clear, you're not -- you**
15:40:54 12 **didn't introduce an element by element analysis of how any**
15:40:58 13 **of Dr. Massie's claims would read on Klemetti, correct?**
15:41:02 14 A. **I did not. And again, the intent here was whether or**
15:41:08 15 **not with respect to the claim elements that I think you are**
15:41:13 16 **misinterpreting, it would read on the prior art, again with**
15:41:20 17 **respect to that element.**
15:41:21 18 Q. **With respect to that element?**
15:41:23 19 A. **That's right.**
15:41:24 20 Q. **But we don't know about whether the other, there is**
15:41:26 21 **nothing in your opinion about whether all the elements would**
15:41:30 22 **be met?**
15:41:30 23 A. **But given that that interpretation I think is**
15:41:32 24 **incorrect it would be fruitless to do an element by element**
15:41:36 25 **analysis.**

15:41:36 1 Q. I'm not -- you don't have to answer that to me, I'm
15:41:39 2 just asking what you did. But I think it's clear now.
15:41:44 3 Thank you.
15:41:44 4 I think during, when I was asking you earlier,
15:41:48 5 you said that there was no evidence of the ProMax 3D system
15:41:55 6 doing any kind of densitometry; correct?
15:41:55 7 A. That's correct.
15:42:02 8 MR. OSTROW: Your Honor, I would like to hand
15:42:03 9 the witness an article for impeachment purposes.
15:42:09 10 THE COURT: You may.
15:42:20 11 BY MR. OSTROW:
15:42:20 12 Q. Dr. Pelc, I just handed you an article, I'm not going
15:42:24 13 to be able to introduce this into evidence and publish it to
15:42:28 14 the jury. Sorry about that. We'll read some relevant
15:42:30 15 portions, you see this is a published article called
15:42:38 16 technology transfer innovative solutions in medicine, 2019,
15:42:38 17 that's just the header where it came from?
15:42:40 18 A. Yes.
15:42:41 19 Q. And do you agree that the title of the article is
15:42:44 20 Delayed Union of Mandibular Fractures Analysis of 74
15:42:49 21 Clinical Cases?
15:42:49 22 A. Yes.
15:42:50 23 Q. And you see that it was written by someone named
15:42:54 24 Natalya Idashkina a Ph.D. professor, I can't even try to
15:43:01 25 pronounce this, but from the ministry, Academy of the

15:43:06 1 **Ministry of the Health of Ukraine, do you see that?**

15:43:08 2 A. **Yes.**

15:43:09 3 Q. **Thank you. I'm going to ask you to take a look at --**

15:43:13 4 **under the column on the right where it says number two,**

15:43:16 5 **methods, I understand you haven't had a chance to see this**

15:43:19 6 **before, so if you feel you have to read more, I'm certainly**

15:43:23 7 **not going to block you, but I just --**

15:43:26 8 **MS. PESCHEL: Objection Your Honor, improper**

15:43:29 9 **impeachment. You can't read from the document without**

15:43:32 10 **asking the witness a question.**

15:43:33 11 **THE COURT: He can -- I agree. I think you can**

15:43:38 12 **summarize the issue and then ask him to review it and then**

15:43:41 13 **ask him for his comment, but I don't want you to read from**

15:43:45 14 **this.**

15:43:45 15 **MR. OSTROW: Fair enough, Your Honor.**

15:43:49 16 **THE COURT: The next thing is we need the mark**

15:43:51 17 **this for identification, so the last number on your, we'll**

15:43:57 18 **just mark it as number, where are we at?**

15:44:06 19 **COURT CLERK: 495.**

15:44:07 20 **THE COURT: So this is 495 or 496? This will be**

15:44:14 21 **495 just for the purposes of identification.**

15:44:17 22 **MR. OSTROW: Thank you, Your Honor.**

15:44:19 23 **THE COURT: Now you may continue, counsel.**

15:44:20 24 **BY MR. OSTROW:**

15:44:21 25 Q. **Dr. Pelc, again, I understood the reason I gave you**

15:44:24 1 this is because I understood you to say that there is no
15:44:27 2 evidence, you have never seen evidence of the ProMax 3D
15:44:32 3 systems doing densitometry. And I'm asking you if you could
15:44:36 4 look under the column in the right where it says methods on
15:44:42 5 the right on the first page, if you go down a couple of
15:44:45 6 paragraphs, can you just to yourself, take a look at what it
15:44:48 7 says and tell me if you think that there is a statement here
15:44:52 8 that the ProMax 3D systems do densitometry?
15:44:56 9 A. (Witness reviewing document.)
15:45:42 10 Q. There is a question pending?
15:45:44 11 A. Please repeat the question.
15:45:45 12 Q. My question was whether having looked at it you see a
15:45:50 13 reference to the, by this Ph.D. professor in Ukraine to
15:45:55 14 using the Planmeca ProMax 3D system to conduct densitometry?
15:46:01 15 A. What she I think she conducted was images with the
15:46:12 16 ProMax 3D and it says that she is reporting Hounsfield
15:46:17 17 units, so the ProMax 3D calculated Hounsfield units, she is
15:46:21 18 interpreting these as Hounsfield units, so she says BMD more
15:46:29 19 than 850 Hounsfield units and then the sentence goes on.
15:46:33 20 While that sentence is -- doesn't make a lot of sense
15:46:38 21 because BMD is not measured in Hounsfield units. We have
15:46:41 22 that in evidence by other people this this trial.
15:46:45 23 Q. Okay. Since you're reading from it, I just want to
15:46:49 24 draw your attention to a couple of paragraphs above, right
15:46:52 25 where you read, she wrote, can I go ahead and read Your

15:46:57 1 Honor, it's directly related to what the witness just said?
15:46:59 2 THE COURT: Well, I think you have to summarize
15:47:01 3 it, without putting the article in evidence.
15:47:06 4 MR. OSTROW: Thank you, Your Honor.
15:47:08 5 BY MR. OSTROW:
15:47:09 6 Q. She also is specifically saying that she determined
15:47:12 7 BMD in Hounsfield units; right?
15:47:15 8 A. My comment stands, you cannot determine BMD in
15:47:19 9 Hounsfield units. That's like determining the weight of the
15:47:22 10 car in feet.
15:47:24 11 Q. But that's what this Ukrainian professor wrote, using
15:47:30 12 the ProMax 3D system, not just any system, right?
15:47:33 13 A. She is using the Planmeca ProMax 3D system, but her
15:47:40 14 misinterpretation or misinterpretation of her measurement is
15:47:48 15 not Planmeca's fault. That's her misunderstanding of what
15:47:50 16 the plan is doing.
15:47:52 17 Q. Okay. Thank you for that. I'm really putting this
15:47:58 18 in because you had made a statement about how I think you
15:48:02 19 had stated there is no evidence of ProMax 3D systems doing
15:48:05 20 densitometry, I just wanted to clarify, I wasn't blaming
15:48:09 21 Planmeca for this, it's clearly not their article, it's
15:48:12 22 Ukrainian professor, I understand that?
15:48:14 23 A. I'm sorry, you characterized this as evidence that
15:48:17 24 Planmeca does densitometry and I don't believe that that's
15:48:19 25 what this is.

15:48:21 1 Q. **Okay. Thank you. You can put it aside. I'm done**
15:48:25 2 **with it.**
15:48:26 3 A. **Okay.**
15:48:29 4 Q. **Can you turn to slide 68. Dr. Pelc, let's turn now**
15:48:38 5 **away from infringement and more to your invalidity opinion.**
15:48:41 6 **So this as I understood it, it says it's a summary of your**
15:48:45 7 **opinions, right, your invalidity opinions and it says that**
15:48:50 8 **the asserted claims are obvious in light of the prior art,**
15:48:54 9 **including as evidenced by and then you list three things,**
15:48:57 10 **right correct?**
15:48:58 11 A. **Yes.**
15:48:58 12 Q. **Again, I know we did this before, I just totally want**
15:49:01 13 **to get this clear. Your opinions about invalidity are only**
15:49:05 14 **that the patents, the Massie patents are obvious, not that**
15:49:08 15 **they're anticipated by prior art, correct?**
15:49:10 16 A. **And that they lack written description and that they**
15:49:14 17 **lack enablement.**
15:49:15 18 Q. **Thank you for that. I was asking really just because**
15:49:19 19 **with respect to prior art. With respect to prior art,**
15:49:21 20 **you're only asserting that the patents are obvious, not**
15:49:24 21 **anticipated, right?**
15:49:25 22 A. **I did not present any anticipation argument.**
15:49:28 23 Q. **Just for the sake of the jury, what does anticipation**
15:49:31 24 **mean?**
15:49:31 25 A. **That's if one reference describes the entire patent.**

15:49:40 1 You're the lawyer, did I do okay?
15:49:42 2 Q. I'll take it. Thank you.
15:49:44 3 So were you involved in doing searches for prior
15:49:50 4 art as part of the defense in this case?
15:49:54 5 A. I did my own search for prior art, yes.
15:49:58 6 Q. So you did -- you did some search, you did a search
15:50:02 7 for prior art, and if you had found a prior art reference
15:50:07 8 that anticipated, which means showed everything in
15:50:10 9 Dr. Massie's patents, you would have presented it today;
15:50:13 10 correct?
15:50:15 11 A. No, I wouldn't say that that's true.
15:50:19 12 Q. Well, isn't it easier to prove invalidity through
15:50:23 13 anticipation than obviousness?
15:50:26 14 A. You know, I don't want -- I am not a lawyer, and I am
15:50:32 15 not going to get -- I am not going to get into legal
15:50:36 16 strategy, but I don't think -- let me put it this way. My
15:50:45 17 not presenting an anticipation argument doesn't mean that
15:50:48 18 there is not one.
15:50:49 19 Q. But it means you don't have one; right?
15:50:52 20 A. It means I did not present one.
15:50:55 21 Q. And you looked, you looked for prior art and you did
15:50:58 22 not come today with a reference that says this is exactly
15:51:02 23 what Dr. Massie invented, right?
15:51:04 24 A. I did not present an anticipation argument.
15:51:07 25 Q. Now, you list here on this slide three bullets, one

15:51:13 1 is so-called admissions by Osseo right, and then you got the
15:51:19 2 Webber, Cann, Dimaxis, Guenther Mazess and Fontevraud, those
15:51:27 3 are the three theories listed here as obviousness, right?
15:51:30 4 A. No, no. I think admissions by Osseo goes into both
15:51:36 5 of the combinations.
15:51:41 6 Q. So you have not presented and you're not presenting a
15:51:45 7 separate theory of obviousness of any of the claims based
15:51:49 8 solely on the so-called Osseo admissions, right?
15:51:52 9 A. Based solely on the Osseo admissions, no.
15:51:56 10 Q. And your opinion presented today presented no
15:52:01 11 analysis of any reason to combine the so-called admissions
15:52:06 12 with respect to any claims, correct?
15:52:09 13 A. I view the admissions by Osseo as an image of some of
15:52:17 14 the things that a person of skill in the art would know.
15:52:20 15 The things that Osseo has admitted agree with my view of
15:52:25 16 what a person of skill in the art knew at the time. And
15:52:30 17 what I said in one of my slides was, I put up the entire
15:52:36 18 claim language of the asserted claims and all three patents
15:52:41 19 and I said if you map the admissions into the claim
15:52:47 20 language, almost everything is covered, but not everything.
15:52:53 21 And that's why I could not put an obviousness argument based
15:52:59 22 solely on the admissions by Osseo.
15:53:03 23 Q. Okay. Let's take a look at some of these admissions,
15:53:09 24 or what you call admissions.
15:53:11 25 A. Sure.

15:53:12 1 Q. **Go to slide 73. All right. So this is a slide you**
15:53:19 2 **presented a statement, this is from one of the patents;**
15:53:24 3 **correct?**
15:53:25 4 A. **Yes, I don't think that this is admissions by Osseo.**
15:53:34 5 Q. **Okay. Why not, it's in Osseo's patents?**
15:53:37 6 A. **Yes. But my understanding of the list of admissions**
15:53:43 7 **by Osseo, as I understand it, there were meetings between**
15:53:48 8 **the parties and the parties agreed that certain things were**
15:53:53 9 **known. That's what is within admissions by Osseo.**
15:53:57 10 **This happens to be further statements by the**
15:54:06 11 **patent that characterize what was known.**
15:54:09 12 Q. **So, thank you for that clarification. Can you go to**
15:54:13 13 **slide 69.**
15:54:14 14 **Is this what you were just referring to, the**
15:54:20 15 **so-called agreements between the parties about what was**
15:54:23 16 **known?**
15:54:23 17 A. **Yes. And the heading is Osseo and Planmeca agree**
15:54:27 18 **these were known before 1999.**
15:54:29 19 Q. **So this -- when the previous slide and your testimony**
15:54:33 20 **when you said admissions, you're only talking about what's**
15:54:36 21 **on this slide, right?**
15:54:38 22 A. **Yes.**
15:54:38 23 Q. **And this slide has a list of different components or**
15:54:42 24 **features, hardware features, software functions, right?**
15:54:45 25 A. **Yes.**

15:54:46 1 Q. **There is no combination of these things together,**
15:54:49 2 **right?**
15:54:49 3 A. **That's correct.**
15:54:49 4 Q. **So this would be kind of like the soccer ball**
15:54:53 5 **example, I know you have been here this whole time so you**
15:54:56 6 **must have seen Planmeca's opening where they had the soccer**
15:55:00 7 **ball with the stitching and the leather, you could list**
15:55:03 8 **leather and stitching and compressed air a shopping list,**
15:55:07 9 **that doesn't make a patent claim, right?**
15:55:10 10 A. **I'm sorry, say that again.**
15:55:13 11 Q. **Sorry. I know you have been here, so I thought you**
15:55:18 12 **would remember the analogy, the analogy from Planmeca's**
15:55:21 13 **opening slide about this so-called hypothetical soccer ball**
15:55:25 14 **patent that has the claims consist of leather, and I asked**
15:55:28 15 **whether leather had to be invented, and I asked Dr. Massie**
15:55:33 16 **whether you had to invent leather to get this patent, right.**
15:55:37 17 **Do you agree that you did not have to invent leather,**
15:55:40 18 **compressed air, stitching or round size individually?**
15:55:45 19 A. **Right, the combination can be novel if you can show**
15:55:50 20 **that the combination is novel and not obvious.**
15:55:53 21 Q. **I understand.**
15:55:54 22 **So I'm just trying to understand. So this is**
15:55:56 23 **kind of like that in the sense it's a list of things but**
15:56:00 24 **it's not the invention, it's not the combination, it's just**
15:56:05 25 **a list?**

15:56:06 1 A. **That's correct.**

15:56:06 2 Q. **It's like having a shopping list and getting the**

15:56:10 3 **ingredients doesn't make a cake, you still have to do that**

15:56:13 4 **work, right?**

15:56:14 5 **Let's go back to slide 73. So this is not an**

15:56:23 6 **admission by Osseo. So this is a statement in Osseo's**

15:56:27 7 **patents, correct?**

15:56:27 8 A. **This is a statement in Osseo's patents, that's right.**

15:56:29 9 Q. **And in this it's in all three patents, right?**

15:56:34 10 A. **Yes.**

15:56:35 11 Q. **Okay. Just clarifying because the reference here is**

15:56:39 12 **to the '301 patent, I just make sure that we understand this**

15:56:42 13 **was in all three?**

15:56:43 14 A. **Yes, the line numbers vary, and that's why we have to**

15:56:46 15 **point to one.**

15:56:47 16 Q. **That's fine. I'm just clarifying.**

15:56:50 17 **So in this statement, this is Dr. Massie telling**

15:56:54 18 **the Patent Office that tomography and sectional radiographic**

15:57:02 19 **techniques using scanning x-ray beams were known and he**

15:57:06 20 **cites some things?**

15:57:06 21 A. **Yeah.**

15:57:07 22 Q. **This is Dr. Massie saying I know this was known,**

15:57:10 23 **tomography generally is known, right?**

15:57:12 24 A. **Yes.**

15:57:12 25 Q. **And this was in his application?**

15:57:15 1 A. **Yes.**

15:57:15 2 Q. **And so the Patent Office had that application and**

15:57:18 3 **presumably read this?**

15:57:19 4 A. **Yes.**

15:57:23 5 Q. **Same thing with slide 74, this is -- relates to in**

15:57:31 6 **the medical field, densitometry procedures are used for**

15:57:34 7 **measuring bone morphology density, so forth, right, with**

15:57:39 8 **some examples, including your patent. Right. This is a**

15:57:42 9 **statement from Dr. Massie's three patents; correct?**

15:57:45 10 A. **Yes.**

15:57:45 11 Q. **So, again, this is Dr. Massie telling the Patent**

15:57:49 12 **Office that he knows, he knows that in the medical field,**

15:57:53 13 **densitometry is known, and he even gives examples so the**

15:57:58 14 **Patent Office can go in case they can't find it themselves?**

15:58:02 15 A. **That's correct.**

15:58:03 16 Q. **So the patent office knew that tomography was known,**

15:58:06 17 **right, from the previous slide, and that densitometry was**

15:58:09 18 **known?**

15:58:10 19 A. **Yes.**

15:58:11 20 Q. **Okay. Nevertheless, the Patent Office granted him**

15:58:16 21 **three patents; right? Factually, they gave him the three**

15:58:22 22 **patents, so they knew because he told them that tomography**

15:58:25 23 **was known and densitometry was known, there was no hiding**

15:58:29 24 **anything, he told the Patent Office those two things were**

15:58:32 25 **known, he had all the tomography stuff that you have gone**

15:58:38 1 through, they had the densitometry, the Patent Office knew
15:58:41 2 that those two components were well-known and gave examples
15:58:44 3 including your patent; right?
15:58:46 4 A. Yes.
15:58:47 5 Q. And the Patent Office said okay, we think it's
15:58:51 6 nonobvious?
15:58:51 7 A. Not immediately.
15:58:53 8 Q. But eventually?
15:58:54 9 A. Yes, but in between if I may, the Patent Office says
15:58:58 10 the inventor appears to believe that the invention is the
15:59:04 11 bringing of these things into dentistry, and what the--
15:59:09 12 among the things that the Patent Office didn't have is the
15:59:12 13 fact that these things had been used in dentistry. And so
15:59:20 14 I'm left wondering, had the Patent Office known that these
15:59:25 15 -- that tomography was known in dentistry, that cone beam
15:59:31 16 tomography had been used in dentistry, that bone mineral
15:59:36 17 density measurements had been used in dentistry, I think
15:59:41 18 that Dr. Massie in fact testified he didn't know that bone
15:59:48 19 densitometry had been used in dentistry.
15:59:50 20 Q. But the Patent Office had to decide whether this
15:59:54 21 combination was obvious?
15:59:55 22 A. Yes.
15:59:55 23 Q. You're not using is the NewTom device in your
16:00:02 24 obviousness combination, it's not one of -- you're not
16:00:05 25 combining it with Webber, you're note combining it with

16:00:08 1 **Cann, you're not using it at all, so just looking at the**
16:00:12 2 **combination that you -- the combinations that you are**
16:00:15 3 **presenting, you got the Webber, the Cann, the Dimaxis,**
16:00:20 4 **right, that's one set, and then you've got Guenther, sorry,**
16:00:24 5 **trying to do this from memory, I should call up the slide,**
16:00:27 6 **you have the Guenther, the Mazess, the other one, the**
16:00:31 7 **Fontevraud, those are the two sets, you're not using the**
16:00:35 8 **NewTom machine as part of your combination with those**
16:00:40 9 **references, right?**
16:00:40 10 A. **That's correct. But each one of those combination**
16:00:42 11 **includes references that were not before the examiner.**
16:00:45 12 Q. **We'll get to that, thank you.**
16:00:48 13 **But the examiner did know about tomography and**
16:00:51 14 **he did know about densitometry, so the fact that say Cann**
16:00:55 15 **teaches densitometry, well the examiner knew there was**
16:00:58 16 **densitometry, he knew because Dr. Massie told him, right?**
16:01:02 17 A. **Dr. Massie didn't tell them that the combination of**
16:01:07 18 **tomography and densitometry was known.**
16:01:08 19 Q. **And you're not using that in your obviousness**
16:01:12 20 **combination, right, you're not using it?**
16:01:14 21 A. **I am.**
16:01:15 22 Q. **The combination, you are making the combination of**
16:01:19 23 **those two things?**
16:01:20 24 A. **No.**
16:01:20 25 Q. **You're not using -- I asked you before whether the**

16:01:23 1 **NewTom reference is part of your obviousness combination and**
16:01:26 2 **you said no.**
16:01:27 3 A. **My statement was the Patent Office did not know that**
16:01:31 4 **the combination of densitometry and tomography was known.**
16:01:36 5 Q. **Right. And we don't know either because all we see**
16:01:40 6 **is a page of an article and we don't have any other**
16:01:43 7 **information.**
16:01:43 8 A. **I'm sorry, but I disclosed that in my reports and if**
16:01:49 9 **Dr. Kia disagreed, he should have said those references**
16:01:52 10 **don't show that?**
16:01:53 11 Q. **I'm sorry, you did not use it in your obviousness**
16:01:58 12 **combination which is the only thing that's relevant today?**
16:02:00 13 A. **But I did use it.**
16:02:01 14 Q. **The only thing that's relevant today is what you**
16:02:04 15 **testified to, you can't add to that now, you have given your**
16:02:07 16 **case, the case does not include the NewTom device.**
16:02:11 17 A. **I'm not talking about NewTom, I'm talking about Cann.**
16:02:14 18 Q. **Cann?**
16:02:15 19 A. **Cann.**
16:02:15 20 Q. **Why don't you just say that Cann anticipates the**
16:02:19 21 **claims?**
16:02:20 22 A. **Because I didn't make any anticipatory claim,**
16:02:23 23 **argument. What I said to you just now is Cann combines**
16:02:28 24 **tomography and densitometry. The Cann reference was not in**
16:02:32 25 **front of the examiner.**

16:02:38 1 Q. **Okay. And you're not using it now --**

16:02:41 2 A. **I did use it.**

16:02:42 3 Q. **You're not -- it's not one of the references that**

16:02:46 4 **you're combining with the other references, correct?**

16:02:49 5 A. **It is.**

16:02:49 6 Q. **The NewTom?**

16:02:50 7 A. **I didn't say anything about the NewTom you keep**

16:02:53 8 **coming back to NewTom.**

16:02:54 9 Q. **You said Cann?**

16:02:55 10 A. **Cann.**

16:02:56 11 Q. **We'll get to that. Using Cann for the purposes of**

16:02:59 12 **showing densitometry which the Patent Office knew about?**

16:03:01 13 A. **Combined with tomography.**

16:03:03 14 Q. **Which the Patent Office knew about?**

16:03:05 15 **And the Patent Office decided that combination**

16:03:08 16 **was not obvious, that's all I'm saying?**

16:03:10 17 A. **That's exactly my point, you're not listening to me,**

16:03:13 18 **I'm sorry, but Cann shows the combination, you don't need to**

16:03:18 19 **combine them, they are already combined in Cann and the Cann**

16:03:22 20 **reference which has the combination was not in front of the**

16:03:26 21 **examiner.**

16:03:27 22 Q. **Did that, what you walked through earlier, you showed**

16:03:30 23 **only everything the combination was in Cann, is that what**

16:03:34 24 **you walked through?**

16:03:36 25 A. **When I --**

16:03:37 1 **THE COURT: Wait a second, I have let this go on**
16:03:39 2 **for a while but you're both cutting each other off, and we**
16:03:44 3 **just can't tolerate that. For one thing, and then for**
16:03:47 4 **another my court reporter here at the end of the day is**
16:03:50 5 **going to come to my office and hit me over the head and said**
16:03:53 6 **I don't have any control. Because he only has one set of**
16:03:57 7 **hands. So slow down a little bit and let each other ask**
16:04:00 8 **your question, answer a question and request a question,**
16:04:03 9 **because your both stepping on each other.**
16:04:05 10 **THE WITNESS: I'm sorry, Your Honor.**
16:04:07 11 Q. **Let's move on to something more concrete and we can**
16:04:10 12 **engage in a more civil discourse.**
16:04:12 13 **THE COURT: It's not uncivil it's just hard for**
16:04:15 14 **a court reporter to get or for me to listen to.**
16:04:19 15 **MR. OSTROW: Okay.**
16:04:26 16 **BY MR. OSTROW:**
16:04:27 17 Q. **If we can go to slide 85. This is the first of the**
16:04:34 18 **obviousness combinations that you have given an opinion on,**
16:04:37 19 **correct, Webber, Cann and Dimaxis?**
16:04:39 20 A. **Yes.**
16:04:40 21 Q. **And the Webber patent, go to slide 86, this is the**
16:04:48 22 **information on the face of the Webber patent, the patent**
16:04:51 23 **number 5,214,686, right?**
16:04:55 24 A. **Yes.**
16:04:55 25 Q. **Can you pull up JX-1?**

16:05:08 1 Q. **I pulled up here exhibit JX-1 which is the '301**
16:05:12 2 **patent, Dr. Massie's patent, do you see it?**
16:05:14 3 A. **Yes.**
16:05:15 4 Q. **And do you know what this list here is where it says**
16:05:18 5 **references cited?**
16:05:19 6 A. **Yes.**
16:05:20 7 Q. **If it helps I'm using my laser pointer up here if**
16:05:24 8 **that's better.**
16:05:26 9 **So what does that mean, what does this list**
16:05:29 10 **mean, references cited?**
16:05:30 11 A. **Those are the references that the examiner**
16:05:33 12 **considered.**
16:05:35 13 Q. **And you see here that in that list there is the**
16:05:40 14 **Webber 5,214,686, right?**
16:05:43 15 A. **That's correct.**
16:05:44 16 Q. **The Patent Office considered this Webber patent**
16:05:48 17 **before it decided to allow the patent, right?**
16:05:50 18 A. **Yes.**
16:05:51 19 Q. **Now, I can show the same thing with respect to the**
16:05:54 20 **other two Massie patents, about you in the interest of time,**
16:05:57 21 **would you agree with me that if we looked at the other two**
16:06:00 22 **Massie patents, we would find the Webber '686 patent in**
16:06:05 23 **those lists, also?**
16:06:07 24 A. **Yes.**
16:06:09 25 Q. **Go to slide 87. In this slide, you've shown a**

16:06:22 1 **comparison between, I think I understand correctly on the**
16:06:26 2 **left side are figures from the Webber patent, on the right**
16:06:31 3 **side is the Figure 1 from Dr. Massie's patent, correct?**
16:06:34 4 A. **Yes.**
16:06:34 5 Q. **And then you color coded the items that matched;**
16:06:39 6 **right, from the two, that you felt were matched?**
16:06:42 7 A. **Well, they matched grossly, just to guide the eye,**
16:06:45 8 **yes.**
16:06:47 9 Q. **So like the purple, the detector array and the x-ray**
16:06:51 10 **and you colored this portion purple, the x-ray equipment**
16:06:55 11 **because you, your opinion is that that's the equivalent,**
16:06:59 12 **right?**
16:06:59 13 A. **They both have x-ray equipment and they're -- that's**
16:07:05 14 **right.**
16:07:05 15 Q. **Okay. And again, in green, red, what I'll call that**
16:07:11 16 **yellow, again, matches what's in Webber, right?**
16:07:14 17 A. **Yes.**
16:07:15 18 Q. **And then you left this merger component white; right?**
16:07:20 19 A. **The merger device.**
16:07:22 20 Q. **Thank you.**
16:07:23 21 A. **I'm sorry, no -- yes, I left that blank.**
16:07:26 22 Q. **And that's because that's not in Webber, right?**
16:07:29 23 A. **No, it actually is in Webber. But it isn't in any of**
16:07:33 24 **the claims.**
16:07:37 25 Q. **Isn't the Court's construction of the tomographic**

16:07:44 1 **densitometry model a merger?**

16:07:45 2 A. **In the Massie patent the word merge is used in two**

16:07:49 3 **different ways in different parts of the patent. He uses --**

16:07:55 4 **if you like, I can point to the text in the patent.**

16:08:00 5 Q. **I'm just -- we could --**

16:08:02 6 A. **That box is not where the merging of tomographic data**

16:08:07 7 **sets is happening.**

16:08:08 8 Q. **So in your opinion where is it happening then, is it**

16:08:12 9 **shown in Figure 1?**

16:08:13 10 A. **It's in 24.**

16:08:15 11 Q. **Okay. Which you also left white, right, because that**

16:08:20 12 **doesn't match up to anything in Webber?**

16:08:21 13 A. **That's right.**

16:08:22 14 Q. **Okay.**

16:08:29 15 Q. **Now, in Webber, do you see here -- first of all, the**

16:08:36 16 **controller 50 in Webber, it's between the x-ray source and**

16:08:41 17 **the detector; right?**

16:08:42 18 A. **No, it's.**

16:08:43 19 Q. **No?**

16:08:44 20 A. **It's connected to the two of them, that just says**

16:08:46 21 **that there is a connection from the controller -- you**

16:08:50 22 **wouldn't put the computer in the way of the x-ray beam. No.**

16:08:54 23 **That's just saying that there is a connection from the**

16:08:58 24 **controller to the x-ray tube and many connections from the**

16:09:01 25 **detector array to the controller.**

16:09:02 1 Q. **In the controller down here, it refers to**
16:09:07 2 **tomosynthesis, do you see that?**
16:09:09 3 A. **Yes.**
16:09:10 4 Q. **What is tomosynthesis again?**
16:09:17 5 A. **A form of tomography.**
16:09:17 6 Q. **Is there a difference between tomosynthesis and**
16:09:19 7 **computed tomography?**
16:09:20 8 A. **They're both forms of tomography.**
16:09:23 9 Q. **Is there a difference between tomosynthesis and**
16:09:27 10 **computed tomography?**
16:09:27 11 A. **Yes.**
16:09:28 12 Q. **What's the difference?**
16:09:30 13 A. **Tomosynthesis we generally don't view the -- well in**
16:09:38 14 **tomosynthesis, we don't view the object from all the way**
16:09:42 15 **around. In CT we do. And the reconstruction algorithms are**
16:09:49 16 **somewhat different.**
16:09:52 17 Q. **Can you use tomosynthesis to get bone density**
16:09:57 18 **densitometry data?**
16:09:58 19 A. **Yes.**
16:09:59 20 Q. **Even though you don't have a full model?**
16:10:02 21 A. **You do have a full model the way it's described in**
16:10:05 22 **the Massie patent. I may point out to you that the Massie**
16:10:09 23 **patents do not describe computed tomography.**
16:10:13 24 Q. **That's not what I asked. But okay, that's fine. I'm**
16:10:17 25 **asking about -- so what is the difference between**

16:10:21 1 **tomosynthesis in Webber and other types of tomography?**
16:10:26 2 A. **I tried to describe that in my venn diagram. There**
16:10:33 3 **are many kind of tomography. Tomosynthesis is one.**
16:10:38 4 **Panoramic images are another. Computed tomography is a**
16:10:44 5 **third. They are all tomography. And the claim requires**
16:10:48 6 **tomography.**
16:10:50 7 Q. **The claim requires tomographic densitometry model?**
16:10:55 8 A. **That's right.**
16:10:55 9 Q. **So is a panoramic image a tomographic densitometry**
16:11:01 10 **model?**
16:11:02 11 A. **The panoramic is tomographic.**
16:11:05 12 Q. **But it's not a tomographic model?**
16:11:08 13 A. **It is a tomographic model. It is not a tomographic**
16:11:13 14 **densitometry model. Unless you bring other things into it.**
16:11:18 15 **Just like a computed tomography image is not a densitometry**
16:11:22 16 **model unless you do something more.**
16:11:51 17 Q. **Pull up slide 130. So in addition to the combination**
16:11:58 18 **of Webber with Cann, which we may come back to, I just want**
16:12:03 19 **to try to do it at a high level there was also a combination**
16:12:07 20 **of Guenther with two other references, correct?**
16:12:09 21 A. **Yes.**
16:12:10 22 Q. **And Guenther was not disclosed, I think you testified**
16:12:13 23 **earlier that Guenther was not in the record, at least this**
16:12:17 24 **Guenther patent was not in the record in the prosecution of**
16:12:20 25 **the Massie patents?**

16:12:21 1 A. **That's correct.**
16:12:22 2 Q. **Is there any difference between what Guenther**
16:12:25 3 **discloses and what Webber discloses?**
16:12:28 4 A. **Yes.**
16:12:30 5 Q. **Is there any difference that's relevant to your**
16:12:36 6 **obviousness analysis between Guenther and Webber?**
16:12:43 7 A. **I would rather each one of my combinations stand on**
16:12:48 8 **their own. I did not try to do what you just described.**
16:12:55 9 Q. **Okay. What I'm going to try to do now is going**
16:13:02 10 **through a little exercise. I want to compare what you said**
16:13:06 11 **about Webber and what you said about Guenther and see if**
16:13:09 12 **there is any differences, are you willing to go along with**
16:13:12 13 **me on this?**
16:13:13 14 A. **Sure.**
16:13:13 15 Q. **So now we're going to jump back and forth to your**
16:13:17 16 **presentation. Now we go back to slide 93. So in slide 93**
16:13:26 17 **you said that Webber shows the controller and the**
16:13:30 18 **microprocessor and memory device, correct?**
16:13:32 19 A. **Yes.**
16:13:32 20 Q. **And then slide 139. Slide 139 you said Guenther**
16:13:41 21 **disclosed the controller, and is the computer, correct?**
16:13:43 22 A. **Yes.**
16:13:44 23 Q. **So they both have -- they both in your opinion meet**
16:13:49 24 **the controller L with the microprocessor and computer,**
16:13:51 25 **correct?**

16:13:51 1 A. **Yes.**

16:13:54 2 Q. **Go back to the table. Can we put something here to**

16:13:57 3 **indicate that, like yes or a check or something. Is that**

16:14:01 4 **fair?**

16:14:01 5 A. **Sure.**

16:14:04 6 Q. **All right. Let's go back to the presentation. Slide**

16:14:18 7 **96. Slide 96, the next element you showed in Webber was you**

16:14:33 8 **said that it showed the input device, correct?**

16:14:37 9 A. **Yes.**

16:14:38 10 Q. **That's what it shows. And then slide 142. So in**

16:14:45 11 **slide 142 you said they both showed, Guenther shows input**

16:14:51 12 **devices also, correct?**

16:14:53 13 A. **Yes.**

16:14:54 14 Q. **Let's go back to the table and see if we can fill**

16:14:57 15 **another row in. We got yes and yes, you agree?**

16:15:00 16 A. **Sure.**

16:15:01 17 Q. **Let's go back to the presentation, slide 99. Slide**

16:15:10 18 **99 now we're dealing with positioning motors. Do you**

16:15:13 19 **remember this?**

16:15:13 20 A. **Yes.**

16:15:14 21 Q. **So you said that Webber shows positioning motor;**

16:15:17 22 **correct?**

16:15:18 23 A. **Yes.**

16:15:18 24 Q. **Slide 145, can we go to that? Slide 145, you said**

16:15:26 25 **that Guenther shows positioning motors; correct?**

16:15:29 1 A. **Yes.**

16:15:29 2 Q. **All right. Now go back to the table. We can put**

16:15:36 3 **yes's here because you say they both show positioning**

16:15:39 4 **motors, right?**

16:15:40 5 A. **Yes.**

16:15:40 6 Q. **All right. Making progress. Let's go back to slide**

16:15:45 7 **102. Next element you said that Webber showed is the x-ray**

16:15:52 8 **equipment; right, the beam, the source, the beam device, all**

16:15:57 9 **that x-ray equipment is in Webber, you said, right?**

16:16:01 10 A. **Yes.**

16:16:01 11 Q. **In slide 147, you said Guenther shows all the x-ray**

16:16:08 12 **equipment; right?**

16:16:08 13 A. **Yes.**

16:16:09 14 Q. **Can we go back to the table and fill those two in.**

16:16:13 15 **You're okay filling this in, right, because they both show**

16:16:16 16 **the x-ray equipment.**

16:16:17 17 A. **Yes.**

16:16:18 18 Q. **All right. I think we're halfway home. Next go back**

16:16:22 19 **to the slide, slide 106. Slide 106 you moved on to the A to**

16:16:32 20 **D converter and you said Webber shows the A to D converter?**

16:16:37 21 A. **Yes.**

16:16:37 22 Q. **Slide 149. 147, sorry, no -- oh, boy. All right.**

16:16:51 23 **I'm a little bit off. Just move ahead in the slides. There**

16:17:00 24 **you go. 150. All right. So slide 150 you said Guenther**

16:17:05 25 **shows the A to D converter?**

16:17:08 1 A. **Yes.**

16:17:08 2 Q. **Go back to the table and fill those in.**

16:17:14 3 **All right. Let's go to slide 109. Slide 109**

16:17:22 4 **you said Webber shows the output devices, correct?**

16:17:26 5 A. **Yes.**

16:17:26 6 Q. **Slide 153, I hope. You said Guenther shows output**

16:17:35 7 **devices?**

16:17:36 8 A. **Yes.**

16:17:36 9 Q. **Go back to the table, you okay filling in a yes here**

16:17:40 10 **and here because they both show an output devices?**

16:17:44 11 A. **Maybe you should spell yes correctly.**

16:17:48 12 Q. **All right. He's doing the best he can. Slide 114.**

16:17:55 13 **This is where you showed that Webber has the imaging**

16:17:58 14 **software, correct?**

16:18:00 15 A. **Yes.**

16:18:01 16 Q. **All right. Slide 156. This is where you showed that**

16:18:07 17 **-- well, Guenther and Mazess, Guenther shows the imaging,**

16:18:13 18 **you said discloses imaging software, correct?**

16:18:15 19 A. **Yes. Guenther displays imaging software and Mazess**

16:18:19 20 **also.**

16:18:20 21 Q. **But Guenther does, you have both?**

16:18:23 22 A. **Yes.**

16:18:24 23 Q. **So let's go back to the table. We're almost done.**

16:18:32 24 **All right. Let's go back to slide 120. All right. Maybe**

16:18:42 25 **it's 119. Hang on. Let's go to slide 121 then. Here we**

16:18:54 1 go. Slide 121 where you said that Webber discloses models,
16:19:01 2 right?
16:19:08 3 A. Yes.
16:19:08 4 Q. And slide 161, this is where you said that, you claim
16:19:16 5 that panoramic tomogram is a model, this is where Guenther
16:19:22 6 showed models, correct?
16:19:23 7 A. No.
16:19:24 8 Q. Okay?
16:19:25 9 A. What I said is Guenther is tomographic.
16:19:29 10 Q. Tomographic. But you said model also up here?
16:19:32 11 A. But what I said is Guenther is tomographic, and
16:19:37 12 that's okay for tomographic models. Guenther is not
16:19:43 13 sufficient for 3D models.
16:19:45 14 Q. I think we're asking about 3D models, just
16:19:49 15 tomographic models, that's what's the claim says?
16:19:52 16 A. Some claims.
16:19:53 17 Q. Okay. So what do you want to do about Guenther do
16:19:58 18 you want to say that it discloses models or not?
16:20:02 19 A. I would say tomography.
16:20:05 20 Q. All right?
16:20:06 21 A. Yes as to tomography.
16:20:13 22 Q. Go back to the table. We want to fix this and have
16:20:15 23 it say tomography?
16:20:16 24 A. No, you can just put in a yes under Webber and for
16:20:20 25 Guenther put in yes as to tomography.

16:20:27 1 Q. **Is that good enough?**

16:20:28 2 A. **Sure.**

16:20:28 3 Q. **We're all here, we'll all remember.**

16:20:32 4 **And then the storing and comparing, go to slide**

16:20:36 5 **124. This is where you claim that Webber discloses storing**

16:20:45 6 **and comparing, right?**

16:20:47 7 A. **This is the storing.**

16:20:51 8 Q. **Okay. Let's go to the next one, maybe there is**

16:20:55 9 **another one. Is this comparing?**

16:21:02 10 A. **Yes.**

16:21:02 11 Q. **Okay. So can we go now to slide 163. Is this where**

16:21:13 12 **you're saying that Guenther discloses storing and comparing?**

16:21:16 13 A. **No, this is talking about -- oh, yeah, this discloses**

16:21:20 14 **storing. It can't be doing digital imaging processing**

16:21:25 15 **without storing.**

16:21:26 16 Q. **This is Mazess, so does Guenther disclose comparing**

16:21:31 17 **according to you?**

16:21:31 18 A. **I don't believe so.**

16:21:33 19 Q. **Go back to the table. We got storing and comparing,**

16:21:39 20 **yes for Webber, and what do you want to do here, yes as to**

16:21:44 21 **storing?**

16:21:44 22 A. **Yes as to storing.**

16:21:48 23 Q. **We got one more thing if we can scroll down a little**

16:21:51 24 **on the table. Densitometry. Can you go to -- well, maybe I**

16:21:56 25 **don't need to go to any slides. It's your opinion that**

16:21:59 1 neither Webber or Guenther disclosed densitometry, correct?
16:22:03 2 A. That's correct.
16:22:04 3 Q. Just put no there. Now this exercise is finished.
16:22:09 4 Now I'm going to ask you -- bring it down, get the whole
16:22:13 5 thing in view if you can, I don't know. All right. So
16:22:16 6 would you agree that according to you, what Webber discloses
16:22:20 7 is more than what Guenther discloses?
16:22:24 8 A. With respect to these things.
16:22:25 9 Q. Well these are the relevant things in the claims that
16:22:27 10 you analyzed right?
16:22:29 11 A. I'm not willing to say that any other differences
16:22:33 12 between Webber and Guenther are irrelevant, but I don't know
16:22:38 13 where you're going.
16:22:39 14 Q. What I'm saying is the Patent Office had the Webber
16:22:43 15 reference; correct?
16:22:44 16 A. Yes.
16:22:44 17 Q. And according to you, it already disclosed all those
16:22:49 18 things where there is a yes?
16:22:51 19 A. Yes.
16:22:51 20 Q. And accept for densitometry which you admit it
16:22:55 21 doesn't disclose, right? The Patent Office did not have
16:22:59 22 Guenther but Guenther doesn't have all the things that
16:23:02 23 Webber had; right?
16:23:05 24 A. I would reserve the right to modify that, but from
16:23:09 25 what we have talked about here, I would agree with you.

16:23:13 1 Q. **So, the Patent Office had an even better reference**
16:23:16 2 **with Webber than Guenther, so who cares if the Patent Office**
16:23:21 3 **didn't have Guenther, they had Webber, they had the best**
16:23:24 4 **reference of these options of the primary references that**
16:23:28 5 **you chose, they had the better one of those; right?**
16:23:35 6 A. **They had the Webber reference.**
16:23:38 7 Q. **And according to the analysis we just went through,**
16:23:41 8 **and I let you decide what you agreed to put stuff in here,**
16:23:45 9 **right, Guenther doesn't even have everything that Webber has**
16:23:48 10 **according to you, right?**
16:23:49 11 A. **According to this list, from this list.**
16:23:51 12 Q. **This is the list of relevant things from the claims,**
16:23:54 13 **you went through, is there anything from the claims that is**
16:23:57 14 **not here that you think Guenther has that Webber doesn't**
16:24:01 15 **have?**
16:24:01 16 A. **At this point I can't think of it but I'm not going**
16:24:05 17 **to agree to it absolutely.**
16:24:06 18 Q. **And you agree that the Patent Office had Webber each**
16:24:09 19 **time that it allowed Dr. Massie's patents; correct?**
16:24:12 20 A. **Yes.**
16:24:12 21 Q. **And can you pull up JX-1 again do you see here, this**
16:24:35 22 **was the face of Dr. Massie's '301 patent, right?**
16:24:40 23 A. **Yes.**
16:24:41 24 Q. **So do you see where it says primary examiner it says**
16:24:45 25 **Drew Dunn, did you know, do you see that?**

16:24:46 1 A. **Yes.**

16:24:47 2 Q. **Do you understand what that is referring to?**

16:24:50 3 A. **That Drew Dunn was the primary examiner.**

16:24:53 4 Q. **Andrew Dunn being a person who works at the Patent**

16:24:57 5 **Office?**

16:24:57 6 A. **That's correct.**

16:24:58 7 Q. **Who examined Dr. Massie's '301 patent, right?**

16:25:01 8 A. **Can you scroll down?**

16:25:04 9 Q. **Do you want to-**

16:25:11 10 A. **Yes.**

16:25:11 11 Q. **Now, I am going to write down drew did you know so I**

16:25:12 12 **don't forget. Let's pull up JTX-0002. Zoom in here, the**

16:25:19 13 **examiner's name of, this is Dr. Massie's '262 patent, do you**

16:25:23 14 **see it?**

16:25:24 15 A. **Yes.**

16:25:24 16 Q. **So if we just go even further, pull it up. The**

16:25:29 17 **primary examiner, do you see it says the person's name is**

16:25:37 18 **Edward J. Glick. Do you see that?**

16:25:37 19 A. **Yes.**

16:25:37 20 Q. **And then it says assistance examiner is Hoon Song,**

16:25:39 21 **right?**

16:25:39 22 A. **Yes.**

16:25:41 23 Q. **Again it's the same question, do you understand who**

16:25:43 24 **these people were with respect to this patent?**

16:25:45 25 A. **They were involved in the examination.**

16:25:47 1 Q. **So these were the examiners that examined**
16:25:49 2 **Dr. Massie's '262 patent, right?**
16:25:52 3 A. **Yes.**
16:25:54 4 Q. **And these are different people than Drew Dunn we**
16:25:57 5 **assume unless they had a name change or something?**
16:26:01 6 A. **That's correct.**
16:26:02 7 Q. **Pull up JX-3. Zoom in, you know where to go, I don't**
16:26:11 8 **know. This is Dr. Massie's '374 patent, do you agree?**
16:26:14 9 A. **Yes.**
16:26:18 10 Q. **Let's see who examined this one, primary examiner**
16:26:21 11 **Irakli Kiknakze. I apologize if he or she is in the room.**
16:26:30 12 **This would be the examiner who examined the '374 patent,**
16:26:34 13 **correct?**
16:26:34 14 A. **Yes.**
16:26:35 15 Q. **So in each of Dr. Massie's patents, it's a different**
16:26:38 16 **examiner, would you agree just based on looking at this?**
16:26:44 17 A. **Yes.**
16:26:44 18 Q. **So three different sets of examiners considered**
16:26:45 19 **Webber, they considered densitometry and they each time**
16:26:49 20 **allowed his patents to issue; right?**
16:26:52 21 A. **Yes.**
16:27:05 22 Q. **Give me a second to get oriented here.**
16:27:10 23 **Can we go to slide 168, please. You also**
16:27:53 24 **expressed an opinion about whether the written description**
16:27:57 25 **standard and enablement standard were satisfied by the**

16:28:00 1 **comparison claims; correct?**

16:28:01 2 A. **Yes.**

16:28:02 3 Q. **And those comparison claims, I don't know go to 169.**

16:28:09 4 **So you were dealing with the claim one of the '262 patent,**

16:28:13 5 **right? And claim six, dependent claim six of the '374;**

16:28:20 6 **right?**

16:28:22 7 A. **Yes.**

16:28:22 8 Q. **So your opinions about -- your opinions about whether**

16:28:25 9 **there was enablement or lack of written description don't**

16:28:28 10 **apply to any of the other three claims in the suit, correct?**

16:28:33 11 **I just want to clarify?**

16:28:36 12 **MS. PESCHEL: Objection.**

16:28:42 13 **THE COURT: You may proceed.**

16:28:48 14

16:28:48 15 Q. **There is three other claims in the suit, these are**

16:28:50 16 **two, right?**

16:28:51 17 A. **Yes.**

16:28:52 18 Q. **You got claim one of the '262 and claim six, claim**

16:28:55 19 **one is shown, but claim six is the one that you gave the**

16:28:59 20 **opinion about, right?**

16:29:01 21 A. **Yes.**

16:29:01 22 Q. **So you're not giving an opinion about whether claim**

16:29:05 23 **one of the '374 is invalid due to lack of description and**

16:29:09 24 **lack of enablement, right?**

16:29:13 25 A. **That's true.**

16:29:14 1 Q. **So even if the jury were to agree with you about**
16:29:18 2 **these two claims, the other claim one of the '374 and the**
16:29:22 3 **other two claims not shown, those are unaffected by this**
16:29:27 4 **aspect of your opinion, correct?**
16:29:28 5 A. **That's correct.**
16:29:31 6 Q. **Now, let's take a look at what you've thought was**
16:29:34 7 **inadequate. So let's look at-- let's start with the '262**
16:29:45 8 **patent. So, I don't know, let's go to slide 174.**
16:29:55 9 **Do you see, this is a reference from the '262**
16:29:59 10 **patent; right? And you highlighted where it says the**
16:30:03 11 **computer also includes comparison software 118 which is**
16:30:08 12 **adapted for digitally comparing baseline and**
16:30:12 13 **patient-specifics dental and orthopedic densitometry models,**
16:30:16 14 **do you see that?**
16:30:16 15 A. **Yes.**
16:30:16 16 Q. **Why in your opinion would one of ordinary skill in**
16:30:19 17 **the art not have some understanding about how to do this**
16:30:23 18 **comparison in software?**
16:30:24 19 A. **Because it doesn't describe what the adaptation is.**
16:30:31 20 Q. **What do you mean by adaptation?**
16:30:34 21 A. **What this says is it includes comparison software,**
16:30:43 22 **which is adapted, in other words, designed, programmed, to**
16:30:48 23 **digitally compare baseline in patient-specific dental**
16:30:52 24 **orthopedic densitometry models. Now, if you go to a**
16:30:56 25 **programmer and you say I want you to program this computer**

16:31:01 1 to digitally compare one number versus another number, they
16:31:09 2 will know how to do that. That's easy, right. But if you
16:31:13 3 go to them in 1999 and you say write me a piece of software
16:31:19 4 to digitally compare this three dimensional densitometry
16:31:23 5 model with this other 3D densitometry model, they would not
16:31:30 6 know how to do that. And you can't just say program it, you
16:31:34 7 would have to tell them program it, implementing this
16:31:40 8 method.
16:31:42 9 Q. Do you have any background in software development?
16:31:45 10 A. Yes.
16:31:46 11 Q. Have you written any software programs?
16:31:50 12 A. Yes.
16:31:50 13 Q. What languages are you proficient in?
16:31:53 14 A. Older ones, I was most comfortable in Fortran and
16:32:00 15 Basic.
16:32:00 16 Q. Were you doing programing in the 1990's?
16:32:03 17 A. Yes.
16:32:04 18 Q. During your deposition, when I asked you with your
16:32:07 19 proficiency with programing, I'm not sure you said these
16:32:11 20 answers. We can look at that if we have to.
16:32:13 21 Paragraph so did you ever develop imaging
16:32:16 22 software for like tomographic models?
16:32:20 23 A. Yes.
16:32:20 24 Q. So you have written the code yourself?
16:32:23 25 A. Yes.

16:32:24 1 Q. **Okay. And you're saying that you -- would you**
16:32:28 2 **consider yourself someone of ordinary skill in the art in**
16:32:31 3 **the programing field in that time frame?**
16:32:36 4 A. **Probably, yes, in that time frame, I was probably a**
16:32:41 5 **person of ordinary skill in the art in programing.**
16:32:43 6 Q. **You gave an opinion in this case about what someone**
16:32:47 7 **qualifies as ordinary skill in the art, right?**
16:32:51 8 A. **I gave an opinion as to the qualifications of someone**
16:32:55 9 **of ordinary skill in the art with respect to this set of**
16:33:00 10 **patents, yes.**
16:33:00 11 Q. **And did it include any programing skills?**
16:33:04 12 A. **No.**
16:33:06 13 Q. **Well, how is it you're giving an opinion about what**
16:33:10 14 **someone of ordinary skill in the art would do with respect**
16:33:13 15 **to programing if you didn't even account for that in your**
16:33:17 16 **own definition?**
16:33:18 17 A. **Because computer programing is something you can --**
16:33:21 18 **first of all, as I said, I actually know how to program and**
16:33:25 19 **have done it. My issue here is as a person of ordinary**
16:33:28 20 **skill in the art, I don't have to know how to program, when**
16:33:33 21 **I know that I need to tell the programmer what to program.**
16:33:39 22 **And the patent does not tell you what to tell the programmer**
16:33:44 23 **to program.**
16:33:45 24 Q. **Your definition of what someone of ordinary skill in**
16:33:48 25 **the art would need, for the purposes of this case included**

16:33:51 1 no programing skills, correct?
16:33:54 2 A. That's correct. Well --
16:33:57 3 Q. I can pull it up if you want?
16:33:59 4 A. Other than what the person, programing skills that
16:34:01 5 the person would know given their graduate degree in the
16:34:07 6 field that I mentioned. And they would have some programing
16:34:11 7 skills undoubtedly.
16:34:13 8 Q. But you have never expressed that, you didn't say
16:34:16 9 that today, right?
16:34:16 10 A. I just did.
16:34:17 11 Q. You didn't say it in direct nor did you say it in
16:34:21 12 your expert report, right?
16:34:22 13 A. I don't know that it's relevant. There are many
16:34:25 14 courses in the field of tomography and densitometry, in my
16:34:35 15 view someone who has experience in those fields in 1999
16:34:40 16 probably would have some programing skills, but that's not
16:34:43 17 relevant to my point.
16:34:45 18 Q. If we go in this excerpt, a couple of lines, do you
16:34:50 19 see there is a reference to the computer, beginning of the
16:34:54 20 paragraph, the computer includes a memory, I'm skipping the
16:34:57 21 reference numbers and so forth, and then it says four lines
16:35:00 22 down, imaging software is provided for converting the
16:35:03 23 digital data into images which are adapted for visual
16:35:08 24 inspection by displaying same on a monitor, right, do you
16:35:12 25 see that?

16:35:12 1 A. **Yes.**

16:35:13 2 Q. **You're not expressing any opinion that one of**

16:35:16 3 **ordinary skill in the art would not know how to make imaging**

16:35:19 4 **software in 1999; right?**

16:35:21 5 A. **This is not just imaging software, this says imaging**

16:35:25 6 **software for converting the digital at that time to images**

16:35:29 7 **which are adapted for visual inspection by displaying on a**

16:35:34 8 **monitor, that was well-known.**

16:35:36 9 Q. **So that was enough information in your opinion, just**

16:35:40 10 **that alone was enough information for one of ordinary skill**

16:35:44 11 **to know how to make that imaging software, right?**

16:35:46 12 A. **You can buy that software.**

16:35:50 13 Q. **Okay. And if we go down a little, then it says such**

16:35:57 14 **images, a few lines down can also be transmitted by a**

16:36:02 15 **suitable transmission device, do you see that?**

16:36:05 16 A. **Yes.**

16:36:05 17 Q. **So that-he you're not expressing an opinion about**

16:36:08 18 **that being lack of enablement or not meeting in written**

16:36:15 19 **description requirement, right?**

16:36:16 20 A. **With respect to that -- that's right, with respect to**

16:36:21 21 **that statement, the person of ordinary skill in the art in**

16:36:26 22 **1999 knew how to use a fax machine.**

16:36:29 23 Q. **Is that -- that's -- again, get rid of the --go back**

16:36:33 24 **to the original text. Even though those aspects are**

16:36:41 25 **described, at the same level of detail, the computer, the**

16:36:46 1 comparison software, those are okay, but the comparison
16:36:49 2 software is not enough, is that your opinion?
16:36:52 3 A. With respect to comparing three dimensional
16:36:56 4 densitometry models, that's correct.
16:36:58 5 Q. Okay. Let's go to slide 180?
16:37:11 6 THE COURT: Before you ask anymore questions.
16:37:14 7 People are having a hard time, so I'm just going to give you
16:37:18 8 one minute, if you want to stand and stretch, now is to time
16:37:21 9 to do it. Okay. Because I notice some people are having a
16:37:25 10 hard time focusing. All right. I'm just going to tell
16:37:30 11 everybody, I want you all to stand up, move around a little
16:37:34 12 bit. You can do the hokey pokey. So if I was in the army,
16:37:47 13 smoke them in you got them. All right. You may continue.
16:37:59 14 BY MR. OSTROW:
16:38:00 15 Q. You testified that the '262 patent, the second of
16:38:04 16 Dr. Massie's three patents, was a continuation in part of
16:38:08 17 the '301 patent, correct?
16:38:13 18 A. Yes.
16:38:13 19 Q. I think you explained what it was on direct, but just
16:38:16 20 again to remind everybody, what's your understanding of what
16:38:19 21 that means?
16:38:20 22 A. It means that the if descriptive portion of the
16:38:25 23 patent was supplemented and additional material was added to
16:38:31 24 the specification of the patent, and then also new claims.
16:38:37 25 Q. And in supplementing what was from the original

16:38:41 1 **patent, did it delete anything from the original patent?**
16:38:44 2 A. **I don't believe so, no.**
16:38:45 3 Q. **So in the '301 patent, again, you can call them up,**
16:38:49 4 **you have them in your book, but just for the sake of time,**
16:38:52 5 **in the '301 patent there is a discussion of an x-ray source**
16:38:56 6 **and an x-ray sensor and detector, right?**
16:39:00 7 A. **Yes.**
16:39:00 8 Q. **X-rays are energy, right, a form of energy?**
16:39:03 9 A. **Yes.**
16:39:03 10 Q. **So the '262 patent still had in it that same**
16:39:09 11 **disclosures of an x-ray source and an x-ray detector that**
16:39:12 12 **was in the '301 patent; correct?**
16:39:15 13 A. **Yes.**
16:39:16 14 Q. **Okay. And that x-ray source you said is an -- could**
16:39:20 15 **be considered an energy source?**
16:39:23 16 A. **Yes.**
16:39:23 17 Q. **Okay. And the detector, the x-ray detector could be**
16:39:27 18 **an energy sensor, right?**
16:39:29 19 A. **Yes.**
16:39:29 20 Q. **So claim one of the '262 patent, the language that**
16:39:35 21 **you're highlighting as not being enabled, it a dental**
16:39:40 22 **orthopedic input device including an energy source and an**
16:39:43 23 **energy detector, correct?**
16:39:45 24 A. **Yes, an energy sensor.**
16:39:46 25 Q. **Sorry, energy sensor, yes?**

16:39:49 1 A. **Yes.**
16:39:50 2 Q. **Okay. That claim is enabled if you understand the**
16:39:53 3 **energy source and energy sensor to be referring to the x-ray**
16:39:57 4 **source and the x-ray sensor, correct?**
16:39:59 5 A. **But the scope of the claim includes electron beam**
16:40:03 6 **sources. And what you said in my opinion was the claim is**
16:40:08 7 **not enabled with respect to the electron beam.**
16:40:13 8 Q. **Who said the scope of the claim includes the electron**
16:40:17 9 **beam source?**
16:40:18 10 A. **I am reading that as a person of ordinary skill in**
16:40:21 11 **the art, given the specification which describes two energy**
16:40:26 12 **sources, it describes x-ray sources and it describes**
16:40:31 13 **electron beam sources. So when I -- given I agree with you,**
16:40:36 14 **both x-rays and electrons are energy beams, and so when the**
16:40:41 15 **claim says energy source, and the specification describes**
16:40:46 16 **both electron beams and x-ray beams, to me an electron**
16:40:54 17 **source-he I'm sorry, an energy source can be either.**
16:40:57 18 Q. **Except, that if one of ordinary skill in the art**
16:41:01 19 **according to you would know that the electron beam source**
16:41:05 20 **wouldn't work, then he would not include that as part of the**
16:41:08 21 **energy source, right, he would just include, this must be**
16:41:11 22 **referring too the x-ray source because it's the only thing**
16:41:14 23 **that will work, according to you, that's how one of ordinary**
16:41:17 24 **skill in the art would understand this, right?**
16:41:20 25 A. **But as I understand how we are to interpret the**

16:41:24 1 claims, what you just did is not correct. You're supposed
16:41:27 2 to look at the full scope and then ask the question, is this
16:41:32 3 full scope enabled. And I believe strongly that the full
16:41:38 4 scope of this claim is not enabled because the person of
16:41:43 5 ordinary skill in the art does not know how to do this with
16:41:46 6 electrons. Now perhaps Dr. Massie knew how to do it with
16:41:51 7 electrons and he didn't describe it, but the person of
16:41:55 8 ordinary skill in the art in 1999 did not know how to do
16:42:00 9 densitometry with electron beams.
16:42:03 10 Q. Are you aware that one of the principles of claim
16:42:06 11 construction is to read a claim to preserve its validity?
16:42:11 12 A. Yes, I have heard that.
16:42:12 13 Q. So if we read this claim as the energy source meets
16:42:16 14 the x-ray source, that preserves the validity?
16:42:20 15 A. In the an --
16:42:21 16 THE COURT: Just a second your objection is.
16:42:23 17 MS. PESCHEL: Objection, Your Honor. He is
16:42:26 18 proposing a claim construction that has not been entered by
16:42:29 19 the court in his question.
16:42:33 20 THE COURT: We can take that up if we have to in
16:42:37 21 the instruction conference. So I am going to overrule the
16:42:40 22 objection and the doctor can answer the question.
16:42:42 23 THE WITNESS: So what I was going to say is
16:42:44 24 you're deleting language from the claim.
16:42:48 25

16:42:49 1 Q. **Sorry, what?**
16:42:49 2 A. **You are deleting language from the claim, the claim**
16:42:53 3 **as written includes both electron beams and x-ray beams, and**
16:42:58 4 **you're saying well let's just pretend it didn't have**
16:43:01 5 **electron beams so as to preserve validity. That to me is**
16:43:06 6 **equivalent to removing a claim element if the claim element**
16:43:09 7 **would make the claim invalid.**
16:43:11 8 Q. **I'm sorry, sir. The claim does not refer to x-ray**
16:43:14 9 **beams or electron beams, does it, the claim, the thing on**
16:43:18 10 **the right?**
16:43:19 11 A. **That's right, the claim says energy source.**
16:43:21 12 Q. **So your statement that it refers to those x-rays and**
16:43:24 13 **electron beams is not accurate, that's just your**
16:43:28 14 **interpretation of it, correct?**
16:43:29 15 A. **Fair enough.**
16:43:30 16 Q. **But if your interpretation is wrong and it's only**
16:43:35 17 **x-rays, then there is no enablement problem with this?**
16:43:38 18 A. **That is correct, if the court would have said an**
16:43:41 19 **energy source is an electron source, I would not have an**
16:43:45 20 **issue.**
16:43:45 21 Q. **Okay. Move on to the final subject of your testimony**
16:43:55 22 **today. This is the apportionment issue, right?**
16:44:11 23 A. **Yes.**
16:44:18 24 Q. **Can we pull up slide 191?**
16:44:29 25 **So I think you testified on direct that you**

16:44:31 1 understood -- Dr. Pelc?
16:44:37 2 A. Yes. Actually can you point me to where in these
16:44:41 3 binders is the '262 patent?
16:44:47 4 Q. There is no question pending about the '262 patent
16:44:50 5 right now.
16:44:56 6 A. You were just asking me questions about the '262
16:44:58 7 patent.
16:44:59 8 Q. I understood that we were done?
16:45:01 9 THE COURT: He asked you a question, you
16:45:03 10 answered it, I thought you were finished with your question,
16:45:06 11 if you want to come back to it, we can come back to it, but
16:45:10 12 right now we're talking about apportionment.
16:45:13 13 THE WITNESS: Thank you.
16:45:14 14 THE COURT: You're welcome.
16:45:16 15 BY MR. OSTROW:
16:45:16 16 Q. So we put up slide 191. Do you see it?
16:45:20 17 A. Yes.
16:45:21 18 Q. This is one of the slides you used to explain your
16:45:24 19 opinion about Dr. Kia's apportionment analysis, right?
16:45:28 20 A. Yes.
16:45:28 21 Q. Now, the first element on the list which you have X'd
16:45:33 22 out here in this slide is the 3D cone beam computed
16:45:37 23 tomography and then the 3D CBCT model scan, right?
16:45:43 24 A. Yes.
16:45:43 25 Q. First you expressed an opinion that because it said

16:45:46 1 **model scan that you understood that that's not referring to**
16:45:49 2 **like the actual Planmeca device?**
16:45:51 3 A. **Yes, but I understand that Dr. Kia is not viewing**
16:45:55 4 **that only as the model scan.**
16:45:57 5 Q. **Okay. Thank you for clarifying that. I think you**
16:46:01 6 **had said earlier it's just referring to taking a sample or**
16:46:04 7 **something. So you do understand that this line is referring**
16:46:07 8 **to really the CBCT, the 3D CBCT functionality of the**
16:46:13 9 **Planmeca ProMax 3D models as sold, right?**
16:46:17 10 A. **Yes.**
16:46:18 11 Q. **And one of your issues is that this, you view this as**
16:46:25 12 **being a contribution from the prior art or something;**
16:46:29 13 **correct?**
16:46:30 14 A. **Yes.**
16:46:31 15 Q. **That this is in the prior art?**
16:46:33 16 A. **At least a large fraction of whatever the weight of**
16:46:36 17 **this figure, the weight of this feature belongs to the prior**
16:46:43 18 **art and not to Dr. Massie.**
16:46:45 19 Q. **Did you testify during direct that you understood for**
16:46:49 20 **purposes of this analysis you were assuming the patents are**
16:46:51 21 **valid?**
16:46:51 22 A. **Yes.**
16:46:52 23 Q. **So for the patents to be valid, we put aside the**
16:46:56 24 **arguments you have made about Webber with other things and**
16:46:59 25 **Guenther with other things, you just put that aside and we**

16:47:02 1 **assume that a 3D cone beam computed tomography system that**
16:47:07 2 **measures bone density is Dr. Massie's invention; correct?**
16:47:12 3 A. **No. The claim is Dr. Massie's invention.**
16:47:17 4 Q. **Okay. And that claim as we've shown in the**
16:47:24 5 **infringement analysis covers the 3D, the 3D CBCT components**
16:47:30 6 **of the Planmeca system; correct?**
16:47:35 7 A. **Since -- it covers the Planmeca system if we assume**
16:47:43 8 **that the claim is valid and infringed.**
16:47:46 9 Q. **Which is the underlying assumption when engaging in**
16:47:50 10 **this analysis, correct?**
16:47:51 11 A. **Yes.**
16:47:51 12 Q. **So we have -- I know it's hard, doctor, because you**
16:47:54 13 **think it's not infringed and you think it's invalid, for**
16:48:00 14 **purposes of this analysis, you have to put that aside and**
16:48:03 15 **live in that other world with the claim is valid and**
16:48:06 16 **infringed. That world the 3D cone bottom computed**
16:48:12 17 **tomography system using in in the Planmeca system is covered**
16:48:14 18 **by Dr. Massie's patents, correct?**
16:48:17 19 A. **Yes.**
16:48:18 20 Q. **Okay. So in that world, would you not agree with**
16:48:21 21 **Dr. Kia that some weight should be, you can't just X that**
16:48:28 22 **out, there has to be some weight apportioned to the fact**
16:48:31 23 **that Dr. Massie's patents cover the Planmeca CBCT device,**
16:48:38 24 **the ProMax and the reconstruction server?**
16:48:41 25 A. **As I understand the exercise, if there is validity**

16:48:48 1 and infringement, there has to be some value to Dr. Massie's
16:48:53 2 contribution. But there doesn't necessarily have to be
16:48:56 3 value in that line. As I understand the exercise, we're
16:49:04 4 supposed to look at the element and say first, what is the
16:49:11 5 inventive element of Dr. Massie's patent, and then say where
16:49:18 6 is that inventive element affecting the value of the
16:49:23 7 machine.
16:49:23 8 My feeling is the inventive element of
16:49:28 9 Dr. Massie's invention is not there.
16:49:32 10 Q. And that's because you think the combination of
16:49:38 11 computed tomography, CBCT with densitometry is in the prior
16:49:42 12 art? I'm trying to understand how you come to that, because
16:49:46 13 then we're not assuming the patent is valid anymore. Do you
16:49:52 14 understand what I'm asking?
16:49:53 15 A. So do you think that no aspect -- you think -- do you
16:50:11 16 think -- I'm not supposed to be asking questions.
16:50:15 17 THE COURT: If you want to clarify.
16:50:17 18 THE WITNESS: I would like to clarify the
16:50:19 19 question. Are you asking me to -- whether I think that the
16:50:28 20 prior art deserves no credit for the claim of --the claim in
16:50:37 21 Dr. Massie's invention?
16:50:39 22
16:50:39 23 Q. No. Can you answer my previous question now?
16:50:43 24 A. And so then if the prior art is entitled to some
16:50:49 25 credit for the claim in Dr. Massie's invention, with respect

16:50:57 1 to this claim element, then that 55 should not be on the
16:51:03 2 right-hand column and that is exactly my feeling. When I X
16:51:06 3 it out, I don't necessarily mean that it goes to 0, although
16:51:11 4 I actually do think it goes to 0, but it could be something
16:51:15 5 else. I just disagree with Dr. Kia that Dr. Massie's
16:51:19 6 invention deserves a hundred percent of the value of cone
16:51:27 7 beam computed tomography.
16:51:31 8 Q. Okay. Let me try to break that down a bit. But let
16:51:36 9 me first start by asking, have you proposed an opinion today
16:51:40 10 about what the alternative number would be to what Dr. Kia
16:51:45 11 said?
16:51:45 12 A. Yes.
16:51:45 13 Q. Where is that?
16:51:47 14 A. What I ended up was a number of ten percent total.
16:51:52 15 Q. I'm sorry, I may have missed it. I wasn't paying
16:51:57 16 attention. Is that on any of the slides?
16:51:59 17 A. It's maybe 5 or 10 slides later.
16:52:02 18 Q. Okay. Hang on. Why don't we just progress through
16:52:31 19 the slides, because I don't know what slide that is.
16:52:38 20 Slower, John. I want to look at what's happening here?
16:52:42 21 A. I'll help you, advance the slide.
16:52:45 22 Q. It's not on this one?
16:52:46 23 A. Not that one.
16:52:47 24 Q. On this one?
16:52:48 25 A. No.

16:52:48 1 Q. **Still Xing stuff out. Okay?**
16:52:51 2 A. **No. No.**
16:52:52 3 Q. **Next?**
16:52:53 4 A. **No.**
16:52:53 5 Q. **Is it here?**
16:52:54 6 A. **No.**
16:52:56 7 Q. **Go to the next?**
16:52:57 8 A. **Yes.**
16:52:58 9 Q. **Where is it?**
16:53:07 10 A. **The next slide.**
16:53:09 11 Q. **Okay. Next?**
16:53:20 12 A. **So I think I neglected to put it in there. In my**
16:53:24 13 **written opinion --**
16:53:27 14 Q. **I'm asking you what you testified to today. Today,**
16:53:31 15 **did you give a number to replace Dr. Kia's proposed number?**
16:53:40 16 A. **I don't recall, apparently not, I would have to look**
16:53:42 17 **at the transcript. In my written testimony the number was**
16:53:46 18 **ten percent.**
16:53:49 19 Q. **Okay. In today's testimony, I'm asking about today,**
16:53:56 20 **at the trial, did you give any alternative numbers, just put**
16:54:01 21 **up again 194, did you give any alternative numbers for any**
16:54:11 22 **of the things you X'd out?**
16:54:13 23 A. **I thought I did, but perhaps I didn't.**
16:54:17 24 Q. **Let's go to slide 195. I'm almost done, Your Honor.**
16:54:22 25 **I know it's about time.**

16:54:23 1 In this slide -- no, I'm sorry, this is 195.
16:54:33 2 You expressed an opinion that Dr. Kia omitted some things,
16:54:37 3 correct? From his apportionment analysis?
16:54:41 4 A. Yes.
16:54:43 5 Q. Do you recall what you felt he omitted?
16:54:48 6 A. Well, the table that Dr. Kia put up is not an
16:54:57 7 exhaustive list of all of the features of the Planmeca
16:55:04 8 ProMax 3D product, so the ones he didn't include are the
16:55:07 9 ones that are not there.
16:55:10 10 Q. Did you testify as to what you felt was not included?
16:55:26 11 A. Can we go back to Dr. Kia's table?
16:55:29 12 Q. Sure. Slide 194. Is this one good?
16:55:39 13 A. No, go forward. So for example the flat panel
16:55:50 14 sensor, the column and AINO noise removal were not included
16:56:00 15 in his analysis, the ROI reconstruction function was not in
16:56:04 16 his analysis.
16:56:08 17 Q. What is the flat panel sensor?
16:56:10 18 A. That's the detector that makes the whole thing work.
16:56:13 19 Q. The x-ray detector?
16:56:15 20 A. Yes.
16:56:15 21 Q. Isn't that part of the CBCT machine?
16:56:18 22 A. That's exactly my point.
16:56:20 23 Q. But he listed the CBCT machine, so wouldn't that just
16:56:24 24 be part of it?
16:56:26 25 A. And did Dr. Massie invent flat panel sensors?

16:56:31 1 Q. **Well, for the hypothetical situation that we're**
16:56:35 2 **supposed to be in for purposes of this analysis, Dr. Massie**
16:56:38 3 **invented a system for tomographically modeling dental**
16:56:43 4 **structures with bone density information, densitometry,**
16:56:46 5 **right, that system includes a number of components like in**
16:56:50 6 **this claims, including an x-ray beam and sensor. So the**
16:56:55 7 **flat panel sensor would be one of the claim components of**
16:56:58 8 **the combined patented system, correct?**
16:57:01 9 A. **But what is the inventive element?**
16:57:04 10 Q. **For purposes of this analysis, somehow you're now**
16:57:11 11 **asking me the questions, I'm testifying.**
16:57:12 12 A. **Because you're missing that key point. What we are**
16:57:16 13 **supposed to value is the impact, the nexus due to inventive**
16:57:21 14 **element. So we have to find what that inventive element is.**
16:57:25 15 Q. **Okay.**
16:57:26 16 A. **And it's certainly not the flat panel sensor.**
16:57:29 17 Q. **The flat panel sensor would be part of the CBCT**
16:57:33 18 **apparatus, would you agree with that?**
16:57:35 19 A. **Yes.**
16:57:36 20 Q. **Okay. So Dr. Kia did not omit it he just included it**
16:57:40 21 **as part of the CBCT apparatus, you don't agree with his**
16:57:44 22 **number, I understand that, but he didn't omit the device,**
16:57:49 23 **correct?**
16:57:49 24 A. **That's right. But he gave it -- you're right.**
16:57:52 25 Q. **It's like pulling teeth?**

16:57:54 1 A. **Fine, I'll give you that with respect to the flat**
16:57:56 2 **panel sensor, but if you agree with me that the flat panel**
16:58:01 3 **sensor is in the prior art then Dr. Kia should not have**
16:58:05 4 **given a hundred percent of the weight to Dr. Massie's**
16:58:07 5 **invention.**
16:58:07 6 Q. **I understand, I'm not here to agree with you, I'm**
16:58:10 7 **just trying to get your testimony clear. So now we have**
16:58:14 8 **concluded that Dr. Kia did not omit the flat panel sensor,**
16:58:18 9 **it was included in the CBCT. We got that. Do you know**
16:58:23 10 **whether Dr. Kia has answered questions about other**
16:58:27 11 **components that were part of this, that he considered part**
16:58:29 12 **of the CBCT?**
16:58:31 13 A. **Yes.**
16:58:32 14 Q. **Where did he do that?**
16:58:35 15 A. **Where did he give that testimony?**
16:58:38 16 Q. **Where did he provide that information?**
16:58:41 17 A. **He used as I understand it, he used that top entry as**
16:58:47 18 **a bucket into which everything except the other features**
16:58:54 19 **belonged, but then he didn't do an analysis of which of**
16:58:57 20 **those is Dr. Massie entitled to.**
16:59:01 21 **THE COURT: You find a place to break.**
16:59:05 22 **MR. OSTROW: We can stop now, Your Honor, I**
16:59:08 23 **don't what else to do, I'm going to go past five otherwise,**
16:59:12 24 **not much past five but I feel bad.**
16:59:14 25 **THE COURT: I'm not going to let you do that.**

16:59:18 1 We're just going to wait and we're going to break for the
16:59:21 2 day. And I'll just remind you of what I said before, and
16:59:26 3 that is you need to wait to make any decision until you have
16:59:30 4 heard all the evidence, we still have some more evidence
16:59:33 5 you'll hear tomorrow. And we have to keep your own counsel,
16:59:37 6 and not do any research or talk to anybody about the case.
16:59:41 7 We'll see you tomorrow morning at 9 o'clock, ladies and
16:59:45 8 gentlemen.
16:59:45 9 COURT CLERK: All rise.
16:59:46 10 (Jury leaving the courtroom at 4:59 p.m.)
17:00:18 11 THE COURT: So have a seat. I have a couple of
17:00:20 12 questions outside the presence of the jury. So if you would
17:00:24 13 put up the defendant presentation number 19. There you go.
17:00:37 14 So doctor, I have been reading CT scans since 1974, okay.
17:00:45 15 THE WITNESS: I'm sorry, you have been.
17:00:47 16 THE COURT: Yes, because I used to represent the
17:00:49 17 doctors that did it for whatever that's worth. So this
17:00:54 18 looks familiar to me, okay. Because back when the original
17:00:58 19 technology was done, the resolution was bad. You can see
17:01:03 20 why it is not perfectly symmetrical because the resolution
17:01:09 21 in the imaging was bad and that had to do with the detection
17:01:14 22 array I assume, correct?
17:01:16 23 THE WITNESS: Everything in that scanner was
17:01:19 24 designed to produce an image that was 80 by 80.
17:01:24 25 THE COURT: Right. So if we move to panel

17:01:31 1 number 102, so now we're looking at newer technology,
17:01:40 2 certainly not today's technology but newer technology, and
17:01:43 3 we see that the array can either be set up like that or it
17:01:48 4 can be set up in linear arrays?
17:01:52 5 THE WITNESS: Yes.
17:01:53 6 THE COURT: And these arrays, these arrays are
17:01:55 7 vertical arrays?
17:01:57 8 THE WITNESS: Yes.
17:01:57 9 THE COURT: And this one does theoretically both
17:02:01 10 because Figure 6(B) is, looks like pixels.
17:02:07 11 THE WITNESS: The detector in a flat panel you
17:02:10 12 can think of as pixels.
17:02:14 13 THE COURT: But whether the x-ray source is,
17:02:16 14 when the collimator works for the x-ray source it has to
17:02:22 15 have, it shoots basically a vertical beam correct.
17:02:25 16 THE WITNESS: No. Tell me the width of the beam
17:02:28 17 if you know.
17:02:28 18 THE WITNESS: It's different in the tube. So in
17:02:31 19 the left one.
17:02:36 20 THE COURT: Figure 5.
17:02:38 21 THE WITNESS: In Figure 5, for patient's safety
17:02:41 22 sake you would collimate the beam to be no wider than the
17:02:45 23 detector array when the beam lands there.
17:02:47 24 THE COURT: On the other side.
17:02:49 25 THE WITNESS: On the other side. And-it could

17:02:51 1 be say a millimeter.

17:02:52 2 THE COURT: So the collimator is arranged

17:02:55 3 vertically, in other words it makes a vertical beam that

17:03:00 4 puts x-ray images on the vertical detector array.

17:03:04 5 THE WITNESS: It puts a fan shaped beam that's

17:03:07 6 in a vertical direction. But when you put the detector 6(B)

17:03:12 7 in.

17:03:14 8 THE COURT: My question is now how is the -- how

17:03:19 9 does the collimator work on 6(B).

17:03:21 10 THE WITNESS: It would look more like the

17:03:23 11 collimator in a normal x-ray machine that just has a wide

17:03:26 12 opening that illuminates the whole detector. Or if you

17:03:30 13 wanted to, you could still illuminate sheets and do the same

17:03:35 14 technique that Webber was doing with the linear arrays, it

17:03:46 15 can do both, but you can certainly open it up to a cone and

17:03:50 16 then it turns it into a cone beam system.

17:03:53 17 THE COURT: Okay. So just out of curiosity when

17:03:58 18 you were working on the machine back at GE, what was the

17:04:01 19 resolution, was it one millimeter or more?

17:04:04 20 THE WITNESS: Among the things that I did was I

17:04:06 21 improved the resolution of that machine to well below a

17:04:13 22 millimeter.

17:04:13 23 THE COURT: But before it was more than a

17:04:16 24 millimeter.

17:04:17 25 THE WITNESS: On the machines by the time we got

17:04:21 1 to the late '80's, they were 1 to 2 millimeters.

17:04:25 2 THE COURT: Okay. All right. That's the only

17:04:28 3 questions I have. It's more of a curiosity than anything

17:04:32 4 else. Thank you, doctor.

17:04:33 5 THE WITNESS: No problem.

17:04:34 6 THE COURT: Yes, counsel.

17:04:36 7 MS. PESCHEL: Your Honor, I was not expecting

17:04:37 8 him to still be in cross-examination at this point in the

17:04:40 9 day, can I tell him in open court that we're not going to be

17:04:44 10 able to talk to you and we're not avoiding you.

17:04:46 11 THE WITNESS: I understand.

17:04:47 12 THE COURT: All right. So Ms. Grimes, if you

17:04:52 13 will give this back. Thank you very much. So ladies and

17:04:54 14 gentlemen, let's take ten for my court reporter's sake and

17:04:59 15 then we'll come back and talk about jury instructions.

17:05:05 16 MR. QURESHI: Your Honor, I'm going to leave,

17:05:07 17 may I be excused.

17:05:10 18 THE COURT: Yes, you may. Are you coming back

17:05:11 19 tomorrow?

17:05:12 20 MR. QURESHI: I will be back tomorrow, that's

17:05:15 21 why I'm leaving now.

17:05:17 22 THE COURT: Sorry about that counsel, sorry you

17:05:18 23 have to come back. So we'll see you in ten minutes.

17:05:22 24 THE WITNESS: While we're still here and

17:05:24 25 everybody can hear what I'm saying, can someone get my

17:05:28 1 briefcase out of the lawyer room and put it outside so that
17:05:30 2 I can take my things. Thank you.
17:05:32 3 (A brief recess was taken.)
17:15:16 4 COURT CLERK: All rise.
17:15:17 5 THE COURT: Please be seated.
17:15:55 6 All right. Let's start with jury instructions.
17:15:58 7 So does anyone have any objections to the initial jury
17:16:02 8 instructions that they would like to interpose now. I know
17:16:06 9 that everybody agreed on them, but if there is something
17:16:09 10 changed that somebody wants to change the initial, speak now
17:16:13 11 or forever hold your peace. For the plaintiff?
17:16:18 12 MR. OSTROW: I don't think so, Your Honor.
17:16:21 13 We're just quickly checking, but we weren't expecting that
17:16:24 14 question.
17:16:25 15 THE COURT: All right. For the defense.
17:16:28 16 MR. CRAVEY: Defense doesn't have any objection,
17:16:30 17 Your Honor.
17:16:30 18 THE COURT: Okay. Because you agreed on what
17:16:35 19 they were, so I just want to be sure that there is no
17:16:38 20 disagreement now. Okay. So let's -- so you have given me a
17:16:43 21 set of jury instructions that you all agreed upon except for
17:16:48 22 some red line issues. So I'm just going to go through what
17:16:53 23 you have agreed on and when we get to the ones you don't
17:16:57 24 agree on it. We'll talk about it. 17, 18, 19, 20, 21, 22,
17:17:03 25 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35.

17:17:25 1 Everybody agrees to those; correct?

17:17:30 2 MR. OSTROW: There is too many pages, I don't

17:17:32 3 think so.

17:17:32 4 THE COURT: I'm talking about instruction

17:17:34 5 numbers. So you didn't change the numbers, the page

17:17:42 6 numbers, did you? So now I have your version so we're all

17:17:50 7 talking about the same thing. Okay. So we're going to get

17:17:54 8 to -- oh, boy. Okay. The instruction -- I'm going to the

17:18:07 9 instruction on infringement generally -- let me just tell

17:18:16 10 you this, okay, up front. Somebody is going to make a

17:18:19 11 motion for a directed verdict on willfulness and I am going

17:18:24 12 to sustain it. Okay. So I'm just telling you we're not

17:18:28 13 going to talk about instructions on willfulness because I'm

17:18:31 14 not going to instruct on willfulness. And you guys make

17:18:35 15 your argument, make your record, but there is no reason for

17:18:38 16 me to waste my time on an instruction on willfulness because

17:18:42 17 I know I'm not going to do it. All right. So we'll start

17:18:45 18 with that. So, you want to object to that?

17:18:50 19 MR. CRAVEY: No, I was going to say with Your

17:18:53 20 Honor's invitation I'm happy to make that motion.

17:18:56 21 THE COURT: No, we should do it after the

17:18:58 22 evidence is closed, but I have heard enough evidence at this

17:19:01 23 point to say that there is no willfulness, because the

17:19:04 24 plaintiff has already presented all its evidence on

17:19:06 25 willfulness and you've presented an expert and based on that

17:19:13 1 expert's testimony, that I have heard to this point, there
17:19:17 2 is not going to be anymore testimony on willfulness that I
17:19:20 3 am aware of. Would you agree with that, Mr. Ostrow?
17:19:24 4 MR. OSTROW: Yes, Your Honor.
17:19:25 5 THE COURT: So when the time comes, somebody is
17:19:27 6 going to make the motion and I'm going to sustain it because
17:19:31 7 I've heard enough. But you don't need to do it now. Let's
17:19:34 8 just take care of this business.
17:19:36 9 I don't know where the willfulness instruction
17:19:44 10 is in here.
17:19:45 11 MR. OSTROW: Page 28.
17:19:46 12 THE COURT: Okay.
17:19:47 13 MR. CRAVEY: I don't know if Your Honor is going
17:19:48 14 to jump to that or if you want to march through the
17:19:51 15 instructions.
17:19:52 16 THE COURT: I want to march through the next
17:19:54 17 once. Any instruction on willfulness has been deleted. So
17:19:57 18 until we get to page infringement generally, and
17:20:04 19 infringement generally, is on.
17:20:13 20 MR. CASSONE: 25.
17:20:13 21 THE COURT: Yes. 25. That sounds right.
17:20:16 22 Page 25. Here we go. And it's my understanding that the
17:20:21 23 dispute on page 25 -- no, that's not a dispute. The next
17:20:27 24 one is open ended or compromising claims. No, that's not
17:20:32 25 right, either.

17:20:47 1 **MR. CRAVEY: Your Honor, I think the first**
17:20:49 2 **dispute, and the plaintiff can tell me if I'm talking out of**
17:20:54 3 **school is going to be the one directed to patent invalidity,**
17:20:58 4 **prior art, not considered by the Patent Office.**
17:20:59 5 **THE COURT: No, the first one is direct**
17:21:02 6 **infringement by literal infringement. And the question is**
17:21:07 7 **whether I should -- whether we should add the language *i.e.*,**
17:21:11 8 **that it is more likely than not. Let me find your edition.**
17:21:21 9 **MR. FEINLAND: Your Honor, we have no issue with**
17:21:23 10 **that.**
17:21:25 11 **THE COURT: I'm striking that, I'm not going to**
17:21:27 12 **use it.**
17:21:28 13 **MR. FEINLAND: That's fine, Your Honor.**
17:21:29 14 **THE COURT: The next one that I see is an issue**
17:21:31 15 **on the second page of the instruction invalidity generally.**
17:21:38 16 **And the question is you believe this should be removed**
17:21:46 17 **because Planmeca did not present any argument or evidence**
17:21:49 18 **during the trial related to the lack of ^I know /-L**
17:21:52 19 **/HREUPBLG able subject matter. So that is element number**
17:21:57 20 **three, apparently. And by adding element number four,**
17:22:01 21 **because the asserted claim lacks patent ^he will /HREUPBL**
17:22:06 22 **able subject matter, talk to me about this, who is doing**
17:22:09 23 **this for Osseo.**
17:22:11 24 **MR. OSTROW: I will, Your Honor. It's pretty**
17:22:13 25 **much what the footnote says Your Honor, they had their**

17:22:16 1 expert had done his direct testimony, did he not assert
17:22:20 2 invalidity based on 101, patent ineligible subject matter.
17:22:24 3 Technically defense hasn't rested, I guess something could
17:22:29 4 happen, as of now it does not appear that they have put in
17:22:32 5 any evidence of that defense.
17:22:33 6 THE COURT: What's your response to that?
17:22:35 7 MR. CRAVEY: The response to that would be, Your
17:22:37 8 Honor, is that the evidence in this case shows that the only
17:22:41 9 arguably novel or difference between what was in the art
17:22:45 10 with Dr. Massie was known technology from one field over to
17:22:52 11 the other, that's pretty classic 101 patent eligibility
17:22:56 12 subject matter taking known existing technology and moving
17:22:59 13 it from one field to the other doesn't meet the threshold
17:23:03 14 standard for 101.
17:23:05 15 THE COURT: That's your obviousness defense,
17:23:08 16 your obviousness for invalidity.
17:23:10 17 MR. CRAVEY: It applies to both, Your Honor,
17:23:12 18 there has been cases, I know Your Honor said the federal
17:23:18 19 circuit has lots of different cases.
17:23:20 20 THE COURT: If they could speak with one voice
17:23:22 21 it would be very helpful but go ahead.
17:23:25 22 MR. CRAVEY: But the argument there Your Honor
17:23:27 23 is that taking known admittedly existing conventional
17:23:31 24 technology importing it from one application to another
17:23:34 25 application doesn't meet the subject matter eligibility

17:23:38 1 threshold for patentability under 101.

17:23:40 2 THE COURT: And we have a 101 instruction in

17:23:43 3 here?

17:23:43 4 MR. CRAVEY: We do, Your Honor.

17:23:44 5 THE COURT: Where is that?

17:23:57 6 MR. FEINLAND: Page 51, Your Honor.

17:24:01 7 MR. CRAVEY: Page 51 of the version that we

17:24:07 8 provided the court.

17:24:07 9 THE COURT: That's one that there is no dispute

17:24:09 10 on.

17:24:10 11 MR. FEINLAND: There is a footnote.

17:24:11 12 THE COURT: There is a dispute on 51.

17:24:14 13 MR. CRAVEY: Osseo disputes presenting the issue

17:24:17 14 to the court, Your Honor.

17:24:18 15 THE COURT: Altogether. And I can't remember,

17:24:28 16 did Dr. Pelc site 101 in all of the stuff -- I don't

17:24:35 17 remember seeing a 101.

17:24:37 18 MR. OSTROW: No, he did not Your Honor,

17:24:39 19 certainly not the way this instruction, it's not there at

17:24:42 20 all, and there is nothing that relates to this instruction

17:24:45 21 at all, abstract idea, element not transformed, claim

17:24:49 22 dependence, there is nothing that is in this instruction

17:24:52 23 that's been mentioned in this trial.

17:24:55 24 THE COURT: So he didn't put 101 in his

17:24:59 25 analysis, is that correct.

17:25:00 1 MR. CRAVEY: That's correct, Your Honor, 101
17:25:02 2 wasn't explicitly presented to the jury, I'm not aware of
17:25:06 3 any case law that says you have to have an expert offer
17:25:09 4 opinion testimony on the issue.
17:25:10 5 THE COURT: On the issue of 101.
17:25:12 6 MR. CRAVEY: Right. Dr. Pelc can offer hours of
17:25:16 7 testimony today that the technology was known and
17:25:18 8 conventional and the only inventive aspect was for medical,
17:25:25 9 I'm fairly certain that's the exact same thing that Dr. Kia
17:25:27 10 said on the stand as will.
17:25:29 11 THE COURT: Is what.
17:25:29 12 MR. CRAVEY: That the idea of the invention at
17:25:32 13 issue this this case with respect to Dr. Massie is taking
17:25:35 14 known densitometry techniques for medical and using them in
17:25:38 15 the field of dental.
17:25:39 16 THE COURT: And let me see, show me the
17:25:42 17 instruction again for 101.
17:25:45 18 MR. CRAVEY: Page Number 51.
17:25:47 19 THE COURT: 51. Okay. And the plaintiff
17:25:55 20 disagreed with the instruction ought to be given all
17:25:58 21 together, but if it's given, do you have any objection to
17:26:01 22 the information in it? The way it's constructed.
17:26:05 23 MR. OSTROW: Our objection is that it's asking
17:26:07 24 the jury to do this two-step, so-called two step test of
17:26:12 25 patent eligibility, nobody has said anything about this.

17:26:15 1 THE COURT: No, no, I understand that your
17:26:17 2 objecting to the instruction as a whole. But if it's given,
17:26:21 3 do you have any objection to the language, in other words, I
17:26:25 4 assume that this comes out of some book on 101 subject
17:26:32 5 matter eligibility, right.
17:26:34 6 MR. OSTROW: Honestly, we have -- Your Honor, we
17:26:36 7 have to look at this based on current case law and see if
17:26:39 8 it's really an accurate statement.
17:26:41 9 THE COURT: Okay. All right. That's fine. Let
17:26:43 10 me look at it first.
17:27:38 11 You can talk to me about, Mr. Cravey, right,
17:27:45 12 talk to me about why you think there is an 101 issue here.
17:27:49 13 MR. CRAVEY: The 101 issue, Your Honor, is what,
17:28:00 14 what I was trying to characterize and obviously not doing a
17:28:00 15 very good job is that taken known existing technology and
17:28:03 16 moving it from one field to the other doesn't meet the
17:28:06 17 threshold standard for patent eligible subject matter. I
17:28:12 18 understand that that same set of facts and circumstances are
17:28:15 19 also applicable to obviousness, but the Federal Circuit for
17:28:20 20 better or worse has also given us articulated another avenue
17:28:24 21 of invalidity and that's 101 patent eligible subject matter.
17:28:29 22 And so the argument would be that the known
17:28:42 23 existing technology is the abstract idea, transform it and
17:28:47 24 importing it over to another form doesn't transform it from
17:28:51 25 that abstract idea on the patent eligible subject matter,

17:28:55 1 that alone is insufficient.

17:29:00 2 THE COURT: You know, I just don't feel

17:29:02 3 comfortable giving this based on the state of the evidence.

17:29:05 4 I mean, you've clearly established an obviousness argument

17:29:11 5 for invalidity and you have got one for written description

17:29:14 6 and you have got one for, I can't remember where I'm going,

17:29:20 7 but you got those three and I don't have a problem with

17:29:22 8 that. Now we're introducing a whole new lexicon to the jury

17:29:27 9 with 101 about an abstract idea. And I haven't heard any

17:29:31 10 testimony from your expert on abstract ideas and what it

17:29:35 11 means, or whether it transforms the nature of the claim into

17:29:41 12 a patent eligibility application.

17:29:44 13 I understand the argument that this might be an

17:29:48 14 abstract idea because the doctor never reduced his patent to

17:29:53 15 practice, but I don't think I have enough evidence in here

17:29:57 16 to do a 101 based on the state of the expert testimony back

17:30:03 17 and forth between the parties. And I understand that the

17:30:03 18 jury could do this without an expert, but I think given the

17:30:07 19 complicated nature of the litigation here, that I don't want

17:30:12 20 to introduce a wild card. So I am going to sustain their

17:30:16 21 objection.

17:30:16 22 MR. CRAVEY: Understood, Your Honor.

17:30:18 23 THE COURT: To the language adding number four

17:30:21 24 asserting a claim that lacks patent eligible subject matter

17:30:25 25 on page 28 to this instruction that's captured in invalidity

17:30:31 1 generally. And then I'm not going to give the instruction
17:30:35 2 on subject matter I know eligibility for the reasons that I
17:30:39 3 just stated.
17:30:43 4 MR. CRAVEY: Given Your Honor's ruling I think
17:30:45 5 that means on page 31 we would get rid of Item Number 4.
17:30:52 6 THE COURT: That's correct.
17:30:55 7 MR. CRAVEY: And then we would also get rid of
17:30:57 8 the instruction on page 51.
17:31:00 9 THE COURT: Correct. All right. So the next
17:31:07 10 issue I see is the instruction on patent invalidity, prior
17:31:13 11 art not considered by the Patent Office.
17:31:20 12 MR. CRAVEY: Your Honor, defendant's issue on
17:31:23 13 that instruction is the language that we obviously moved out
17:31:29 14 with red line and the issue there is it seems to go to the
17:31:33 15 issue of cumulative and whether the art is materially
17:31:36 16 different and cumulative. I'm not aware of Osseo having
17:31:41 17 made that argument in this case, and certainly that that
17:31:47 18 portion of your instruction was not given in the Boston
17:31:51 19 scientific case that we've cited nor was it given in the ESW
17:31:57 20 holding that we cited by the the honorable Alan Albright in
17:32:02 21 Texas. So I mean given that that background and where we
17:32:10 22 are with the, I don't think the jury needs to be instructed
17:32:13 23 on that. It makes it needlessly complicated. The idea
17:32:18 24 behind the instruction is that art that the Patent Office
17:32:21 25 didn't consider may be weighed more heavily by the jury,

17:32:26 1 that's sort of the principal for eye for eye. And that's
17:32:30 2 the way it's been articulated in other cases, for example
17:32:33 3 the ones that we cited in our footnote, I don't think it
17:32:36 4 should be included in the instruction here.
17:32:38 5 THE COURT: Let me just read this first.
17:32:58 6 All right, counsel.
17:33:00 7 MR. OSTROW: Your Honor, I just spent an hour
17:33:03 8 making that table, the whole point of the exercise was to
17:33:06 9 get Dr. Pelc to admit which I think he pretty much did or at
17:33:10 10 least he came pretty close that the Guenther reference is no
17:33:15 11 better than Webber, Webber was in front of the Patent
17:33:19 12 Office, that was the whole point of that exercise, I don't
17:33:22 13 see how we take this out, that's the whole point.
17:33:30 14 MR. QURESHI: Even given that Mr. Ostrow --
17:33:36 15 THE COURT: Just let me look at this for one
17:33:40 16 minute.
17:33:40 17 Yeah, you know, I'm just looking at this and
17:33:44 18 Microsoft court is pretty much -- I'm not sure that this
17:33:55 19 language that the plan wants to add really changes the way
17:34:01 20 the jury thinks is appropriate, the plaintiff can certainly
17:34:05 21 argue the issues that you argued to me, but I don't need to
17:34:10 22 over emphasize one over the other, I'm just going to let the
17:34:14 23 jury decide based on the arguments and the evidence
17:34:17 24 presented, so I'm going to strike the line that the
17:34:20 25 defendant wants me to strike.

17:34:22 1 Okay. So the next one is the instruction on
17:34:29 2 obviousness. So the defendant objects to what part of this?
17:34:38 3 MR. CRAVEY: It's the instruction on secondary
17:34:44 4 considerations, Your Honor. And --
17:34:47 5 THE COURT: Just a second.
17:34:49 6 MR. CRAVEY: We presented a motion in limine on
17:34:51 7 that issue that plaintiffs failed to articulate during
17:34:56 8 discovery and the response to interrogatories.
17:34:57 9 THE COURT: Secondary considerations?
17:35:02 10 Where is the language on secondary
17:35:11 11 considerations?
17:35:13 12 MR. CRAVEY: It is on page 43.
17:35:22 13 THE COURT: Okay. All right. Mr. Ostrow.
17:36:15 14 MR. OSTROW: Your Honor, this has basically been
17:36:18 15 briefed already in the motion in limine which Your Honor
17:36:21 16 denied. We recognize that Dr. Kia could not get into
17:36:26 17 specific opinions about these issues, but as long as there
17:36:30 18 were facts, we just want to be able to present them to the
17:36:33 19 jury. For example, Dr. Massie testified that he recognized
17:36:36 20 the need for, for better imaging technology, so that would
17:36:40 21 be, you know, for example, number two, there was -- you
17:36:45 22 know, we're going to argue commercial success, the
17:36:50 23 $266 million that Planmeca made, and I thought there was at
17:36:53 24 least one other factor here that I felt we could argue on,
17:36:57 25 the statement by others appraising the invention, we think

17:37:01 1 we had introduced some letters from Dr. Christensen and
17:37:05 2 others that's a good idea, we should do that, we would to be
17:37:08 3 able to give that to the jury and show them the relevance of
17:37:11 4 the facts, if it's not enough for them, the defendant can
17:37:14 5 certainly make the argument it's not sufficient, but that's
17:37:17 6 what we want to do.
17:37:18 7 THE COURT: Let me look at this.
17:38:17 8 Mr. Cravey, which part of this, you're objecting
17:38:22 9 not to the whole instruction are you.
17:38:24 10 MR. CRAVEY: I am, Your Honor, I am objecting to
17:38:26 11 the whole instruction and the reason being there was more to
17:38:30 12 the motion in limine than Osseo's failure to provide the
17:38:33 13 basis during discovery. We looked at the factors here, the
17:38:37 14 first one whether the invention was commercially successful.
17:38:40 15 We know Osseo hasn't made a machine they haven't done
17:38:43 16 anything, the only thing they have pointed to is the accused
17:38:46 17 product, Planmeca's device. If you remember we argued in
17:38:49 18 our motion in limine that there was no evidence that we've
17:38:53 19 multifunction, a multifunction component machine like the
17:38:58 20 accused product in this case the law requires you to show
17:39:00 21 the commercial success is attributable to the patented
17:39:04 22 invention and they haven't done that here. You look at
17:39:07 23 whether the, there was copying of the invention, well there
17:39:10 24 was no product, the undisputed evidence is that Planmeca
17:39:14 25 designed, built, manufactured this device before they knew

17:39:17 1 about Osseo and its patents. You know, above and beyond
17:39:24 2 them not disclosing any basis of secondary considerations
17:39:28 3 during discovery there just really isn't any evidence on
17:39:31 4 this case on which they can rely on that the jury needs
17:39:35 5 instructed.
17:39:35 6 THE COURT: This has nor to do -- this
17:39:38 7 instruction is all secondary considerations as far as you're
17:39:41 8 concerned, but I see something in here about prior art, what
17:39:45 9 part of this is objectionable.
17:39:48 10 MR. CRAVEY: I might have created some confusion
17:39:50 11 by dropping the footnote on both places. The only part that
17:39:54 12 we would argue needs to be removed Your Honor, is the
17:39:56 13 portion on page 43.
17:39:58 14 THE COURT: That starts.
17:40:00 15 MR. CRAVEY: Objective evidence of
17:40:02 16 nonobviousness.
17:40:55 17 THE COURT: All right. So we're talking about
17:40:57 18 two different things is the problem. There is an
17:41:02 19 instruction on-- alright. There is an instruction on
17:41:27 20 obviousness at page 36. And I must have misunderstood, I
17:41:34 21 thought there was an issue on the instruction on page 36.
17:41:37 22 Is there no issue on instruction on page 36?
17:41:41 23 MR. CRAVEY: No issue, Your Honor, I
17:41:43 24 inadvertently created that confusion.
17:41:48 25 THE COURT: All right. So that construction is

17:41:50 1 okay. I'm starting in the wrong place. I was having a hard
17:41:55 2 time understanding how you --
17:41:59 3 MR. CRAVEY: I certainly don't want to remove
17:42:00 4 the instruction on obviousness.
17:42:01 5 THE COURT: All right. So the next issue that
17:42:04 6 is the objective evidence of nonobviousness, and that's what
17:42:09 7 you're talking about. All right. Now I understand what
17:42:13 8 you're saying. Okay. All right. So Mr. Ostrow, you're
17:42:36 9 basically saying that you have enough evidence on the record
17:42:43 10 to meet -- for the jury to consider the objective evidence
17:42:49 11 of nonobviousness.
17:42:51 12 MR. OSTROW: Yes, especially factor 1, 2 and 6,
17:42:55 13 at least those.
17:43:00 14 THE COURT: Which ones, one, what.
17:43:02 15 MR. OSTROW: 1, 2 and 6. And seven -- no, not
17:43:15 16 seven.
17:43:26 17 THE COURT: No, not seven. Did you say seven?
17:43:29 18 MR. OSTROW: No. 1, 2 and 6.
17:43:33 19 THE COURT: 1, 2, and 6.
17:43:57 20 THE COURT: So Mr. Cravey, there was some
17:44:00 21 testimony by Dr. Pelc about the nonobviousness, objective
17:44:06 22 evidence of nonobviousness, and he didn't -- I think as I
17:44:11 23 recall, he didn't address it because he didn't think that
17:44:14 24 Dr. Kia addressed it, is that correct?
17:44:18 25 MR. CRAVEY: Are you talking about today with

17:44:21 1 Dr. Pelc?

17:44:22 2 THE COURT: Yes.

17:44:23 3 MR. CRAVEY: It's definitely our view that

17:44:26 4 Dr. Kia did not address secondary considerations of

17:44:30 5 nonobviousness.

17:44:30 6 THE COURT: How about Dr. Massie.

17:44:32 7 MR. CRAVEY: Well Dr. Massie, we're going to go

17:44:35 8 through these three elements, the only arguably thing that

17:44:41 9 he might have argued was the commercial success of our

17:44:44 10 product, not what he did, what our product does. And he

17:44:47 11 hasn't tied the success of our product to the patented

17:44:51 12 invention.

17:44:52 13 THE COURT: Okay. All right. Well,

17:44:55 14 Dr. Massie's testimony is what it is, and I think the jury

17:45:01 15 is going to have to assess his credibility. But I think

17:45:04 16 that he did talk about the in -- he thought the invention

17:45:08 17 would be successful if the patent is valid and you infringed

17:45:13 18 it, then, you know, he can equate your success to what his

17:45:17 19 success would have been if he had the money to do it. He

17:45:21 20 believes that it satisfied a long felt need and it obviously

17:45:24 21 did because you built it and marketed it, and it was

17:45:28 22 successful, and whether others in the field praised the

17:45:32 23 invention, I'm not sure. But I did hear evidence that your

17:45:37 24 system is a great system.

17:45:41 25 MR. CRAVEY: I definitely agree with that.

17:45:43 1 THE COURT: So if there is infringement, then
17:45:45 2 that does apply. So I'm going to give this objective
17:45:49 3 evidence of nonobviousness instruction. But only as to 1,
17:45:54 4 2, and 6. And we'll of course renumber them.
17:46:03 5 All right. So the next issue is the instruction
17:46:16 6 is the subject matter ineligibility.
17:46:26 7 MR. CRAVEY: 51 Your Honor, I think you already
17:46:28 8 ruled on that one.
17:46:28 9 THE COURT: I already ruled on that one, okay.
17:46:31 10 All right. Now we have a complete set of instructions as
17:46:34 11 far as everybody is concerned. Correct?
17:46:37 12 MR. OSTROW: Yes, Your Honor.
17:46:39 13 MR. QURESHI: Yes.
17:46:40 14 THE COURT: All right. Okay. So thank you very
17:46:43 15 much, gentlemen. And the ladies that worked on it. I did
17:46:48 16 note though that throughout the course of this trial, one of
17:46:51 17 my staff said to me, it's odd that there are no female
17:46:55 18 dentists.
17:46:59 19 (Discussion off the record.)
17:47:27 20 THE COURT: We know what we're going to do. You
17:47:29 21 need to number these beginning number 17, I believe. So if
17:47:33 22 you want me to -- so my clerk has done a version with all
17:47:45 23 the changes, she will send it to you.
17:47:48 24 MR. CRAVEY: And Your Honor, I would be remiss
17:47:51 25 if before we left here today I made that invited motion for

17:47:55 1 willfulness to move as a judgment of matter of law for
17:47:59 2 willfulness. Or is that just going to be --
17:48:02 3 THE COURT: I would prefer to do that at the
17:48:04 4 close of your case. Okay. I just don't think, I don't feel
17:48:08 5 comfortable about it. I might change my mind but I doubt
17:48:12 6 it.
17:48:13 7 MR. CRAVEY: I misunderstood, Your Honor.
17:48:15 8 THE COURT: You didn't misunderstand, that's the
17:48:19 9 way I think I'm going to rule. And I think I'm going to
17:48:21 10 rule that way, not enough to do in the instructions. But
17:48:27 11 you're still going to have to make a motion at the close of
17:48:30 12 your evidence, or at the close of all the evidence however
17:48:36 13 you want to do.
17:48:37 14 MR. FLYNN: Your Honor, an oral motion is fine.
17:48:39 15 THE COURT: You don't need a written one?
17:48:41 16 MR. FLYNN: I don't need a written motion, just
17:48:43 17 an oral motion.
17:48:44 18 THE COURT: But I need to have the motion made
17:48:48 19 orally and I need the other party to respond so that when I
17:48:52 20 get appealed there is a record on why you believe I made a
17:48:56 21 mistake or that I was a /TKPWAOEPB /KWROUS, either way.
17:49:02 22 MR. FLYNN: You know, Your Honor one procedural
17:49:04 23 issue, does Your Honor prefer to read the instructions prior
17:49:06 24 to closing arguments.
17:49:08 25 THE COURT: That's completely up to you. So

17:49:11 1 this is the plaintiff's lawsuit, I'll ask you, do you want
17:49:14 2 me to read them ahead of time or do you want me to read them
17:49:17 3 afterwards?
17:49:20 4 MR. OSTROW: We're prefer go that you read them
17:49:23 5 after.
17:49:23 6 THE COURT: I think that's a good idea because
17:49:25 7 if we run out of time, I can eat the clock and take the
17:49:31 8 blame and not any of the parties.
17:49:34 9 MR. CRAVEY: I missed, what order.
17:49:36 10 THE COURT: What we're going to I do is you can
17:49:39 11 argue the case, you can refer to my instructions if you like
17:49:43 12 to because we know what they are, but I'll instruct the jury
17:49:47 13 after our closing arguments.
17:49:49 14 MR. CRAVEY: Okay.
17:49:50 15 THE COURT: Okay. And I just want to be sure,
17:49:53 16 we get into this argument all the time and I didn't rereview
17:49:57 17 the pretrial order, but the plaintiff is going to give a
17:50:01 18 closing argument, the defendant will give a closing
17:50:05 19 argument, plaintiffs have have a cans to give a rebuttal, I
17:50:09 20 just as soon that's the end of it, but I know that there is
17:50:12 21 some lawyers that don't like to do that, because if you're
17:50:15 22 arguing invalidity, so where are you on that Mr. Cravey.
17:50:20 23 MR. CRAVEY: If Your Honor would indulge us a
17:50:26 24 brief show after plaintiff gives theirs, we're happy to talk
17:50:30 25 about invalidity.

17:50:33 1 THE COURT: What is the plaintiff's position?

17:50:44 2 MR. CASSONE: Your Honor, it's my understanding

17:50:47 3 is the plaintiff should have the last word whether there is

17:50:50 4 affirmative defense or not.

17:50:52 5 THE COURT: I generally agree with that, that's

17:50:54 6 what we'll do.

17:50:55 7 MR. FLYNN: I'm sorry Your Honor.

17:50:56 8 THE COURT: What we're going to do is plaintiff

17:50:58 9 gets the last word. Okay. So you'll get to argue

17:51:02 10 invalidity and non-infringement and then they'll get the

17:51:06 11 last word.

17:51:06 12 MR. FLYNN: And their rebuttal has to be limited

17:51:09 13 to invalidity.

17:51:10 14 THE COURT: No their rebuttal is their rebuttal.

17:51:13 15 I'll just give you the time. You're going to tell me how

17:51:17 16 much time you both want, okay, the plaintiff is going to

17:51:21 17 tell me how much time they're going to use in rebuttal and

17:51:24 18 then they got to stick to that, and I'm not letting them

17:51:27 19 take anymore rebuttal than roughly a third or a quarter or

17:51:31 20 something less of what their opening argument was. So if

17:51:36 21 you want -- nobody has formulated their argument yet so you

17:51:40 22 can't tell me how long you're going to go.

17:51:42 23 MR. CRAVEY: It's in the pretrial order Your

17:51:44 24 Honor that each side will get 45 minutes.

17:51:47 25 THE COURT: Are you going to all take the

17:51:49 1 45 minutes, do you think.

17:51:51 2 MR. CRAVEY: I think most likely.

17:51:53 3 THE COURT: How time does the plaintiff want out

17:51:55 4 of that 45 minutes for rebuttal.

17:51:57 5 MR. OSTROW: Ten.

17:51:58 6 THE COURT: All right. And then that's how

17:52:01 7 we'll do it. I used to have, when I was practicing criminal

17:52:05 8 law there was a prosecutor that would stand up in front of

17:52:09 9 the jury and say you have heard the evidence, the defendant

17:52:12 10 is guilty, and sit down. And then I would have to argue my

17:52:16 11 whole case and then he of course would get up and basically

17:52:19 12 do his argument. So I don't like that. So that's why I'm

17:52:24 13 going to limit you and as soon as you say ten minutes, I

17:52:28 14 don't care how much time is left on your 45 minutes you're

17:52:32 15 only getting ten minutes.

17:52:34 16 MR. OSTROW: That's fine.

17:52:35 17 MR. CRAVEY: I guess the other open issue would

17:52:38 18 be the verdict form, we have one percolating.

17:52:41 19 THE COURT: The verdict form. If you would

17:52:43 20 prepare a verdict form, the two of you would try to work out

17:52:46 21 a verdict form that does not include willfulness I'll look

17:52:51 22 at it first thing in morning.

17:52:52 23 MR. FEINLAND: You shall, and subject matter

17:52:54 24 eligibility, correct.

17:52:56 25 THE COURT: Yes, that won't be included. So if

17:52:59 1 you two can work out a verdict form, do you think you can
17:53:03 2 get it to me in the morning.
17:53:04 3 MR. FEINLAND: It's pretty close to being done.
17:53:07 4 THE COURT: Show it to me in the morning and
17:53:09 5 then we'll review it sometime before closing arguments. I
17:53:15 6 mean, preferably you would like to see it before you do your
17:53:19 7 closing argument. So if you have it in the morning and I
17:53:23 8 have it in the morning by 8:30, then we'll talk about it at
17:53:28 9 8:30 so that you have the verdict forms so that when you
17:53:32 10 argue the case you know what --
17:53:34 11 MR. CRAVEY: I'm optimistic that we'll be able
17:53:37 12 to agree on it.
17:53:38 13 THE COURT: If you can't, we'll see if we can
17:53:42 14 work it out in the morning.
17:53:44 15 All right. Thank you, gentlemen.
17:53:46 16 MR. CASSONE: Thank you, Your Honor.
17:53:48 17 THE COURT: We're in recess, we're adjourned for
17:53:50 18 the day.
19 (Court adjourned at 5:53 p.m.)
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