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UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

ALIGN TECHNOLOGY, INC.,	Case No. IPR
Petitioner,	2023-01369
vs.	U.S. Patent No.
DENTAL MONITORING SAS,	10,755,409
Patent Owner.	

~~~~~

REMOTE DEPOSITION OF  
BUDI KUSNOTO, DDS, MS

August 9, 2024  
9:59 a.m. Central

Stenographically Reported By:  
Deanna Amore - CRR, RPR, CSR - 084-003999

1 APPEARANCES OF COUNSEL  
2 (All Participants Appeared Remotely.)

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I N D E X

WITNESS EXAMINATION

BUDI KUSNOTO, DDS, MS

EXAMINATION BY MR. ARGENTI 4

EXAMINATION BY MR. BLYTHE 92

EXHIBITS

EXHIBITS PREVIOUSLY MARKED PAGE FIRST REFERRED TO

Exhibit 0005 68

Exhibit 0006 68

Exhibit 1001 32

Exhibit 1006 41

Exhibit 1008 42

Exhibit 2030 16

Exhibit 2031 20

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(Whereupon, the witness was  
duly sworn at 9:59 a.m.)

THE STENOGRAPHER: Thank you.

You may proceed.

BUDI KUSNOTO, DDS, MS

called as a witness herein, having been first duly  
sworn, was examined and testified as follows:

EXAMINATION

BY MR. ARGENTI:

Q. Good morning, Dr. Kusnoto. 09:59:22

A. Morning.

Q. My name is Matt Argenti, and I represent  
the petitioner, Align, in this proceeding. So I'll  
be asking you some questions today.

First, could you please state your name  
for the record?

A. My name is Budi Kusnoto.

Q. Where are you currently located,  
Dr. Kusnoto?

A. Located in Chicago, Illinois. 09:59:43

Q. Are you in your office or in your home?

A. No. I'm in an office.

Q. Is there anyone in the room with you  
today?

A. No. I'm by myself.

1 Q. Do you have a printed copy of your  
2 declaration in this IPR available to you today?

3 A. Yes, I do.

4 Q. And do you also have printed copies of the  
5 exhibits that are cited in your declaration  
6 available?

7 A. Yes, I do.

8 Q. Great.

9 That being the case, I think if we refer  
10 to exhibits today that you have in your possession, 10:00:30  
11 I think using those hard copies is fine instead of  
12 referring to the Exhibit Share. If you'd like to  
13 use the Exhibit Share system, just let me know, but  
14 I'm happy to rely on hard copies. Okay?

15 A. Okay. Thank you.

16 Q. Are those copies of the exhibits that you  
17 have clean copies?

18 A. Yes, they are all clean.

19 Q. Okay. No notes on them then?

20 A. No. 10:01:00

21 Q. Okay. Do you have any notes with you in  
22 the room today?

23 A. I do not have any notes.

24 Q. This is not your first deposition;  
25 correct?

1 A. This is not.

2 Q. How many times have you been deposed?

3 A. One other time.

4 Q. Was that in January of this year?

5 A. I believe so. I don't quite remember  
6 exactly, yeah, but few months ago.

7 Q. Was it in connection with the district  
8 court litigation between Dental Monitoring and  
9 Align?

10 A. Yes, it is.

10:01:45

11 Q. I'm going to quickly go through some of  
12 the ground rules just to refresh your recollection  
13 and make sure that we have the same understanding.

14 Do you understand that you are providing  
15 your testimony under oath and are expected to tell  
16 the truth?

17 A. Yes, I understand.

18 Q. Is there any reason that you cannot  
19 provide complete and accurate testimony today?

20 A. I don't believe I have any reason.

10:02:10

21 Q. Hopefully, my questions will be clear. If  
22 you do not understand any question, please let me  
23 know that it's unclear. Okay?

24 A. (No audible response.)

25 Q. Under the guidelines for this proceeding,

1 if you do not ask for clarification, I will assume  
2 that you understand the question. Okay?

3 A. Okay.

4 Q. Please provide verbal answers rather than  
5 nodding your head for the benefit of the  
6 transcript. Okay?

7 A. Yes.

8 Q. And we can take a break at any time that  
9 you would like one as long as there's not a  
10 question pending. If there is a question pending, 10:02:57  
11 you have to answer it before we take a break. Do  
12 you understand?

13 A. Understood.

14 Q. And I will plan to take a break around  
15 every hour or so, but if you'd like to take one  
16 more frequently than that, let me know.

17 A. Okay.

18 Q. You are being compensated for your  
19 testimony in this proceeding; correct?

20 A. Yes. 10:03:21

21 Q. And your hourly rate is \$100 an hour; is  
22 that right?

23 A. Yes. Correct.

24 Q. Payment for your work is being paid to the  
25 foundation for Modern Bioprogressive Orthodontics;

1 is that right?

2 A. Yes.

3 Q. Do you have a role with that foundation?

4 A. As a researcher.

5 Q. Are you also the president of that  
6 foundation?

7 A. No, I am not.

8 Q. Have you ever been the president of that  
9 foundation?

10 A. No.

10:04:00

11 Q. Can you identify the president of that  
12 foundation for me, please?

13 A. Currently, it's Dr. Flavio Sanchez.

14 Q. Who was the president for the foundation  
15 of Modern Bioprogressive Orthodontics in 2022?

16 A. It's still -- it is his, still his, yeah.

17 Q. What does the foundation for Modern  
18 Bioprogressive Orthodontics do?

19 A. It's a non-profit foundation that deals  
20 with research in -- specifically in orthodontics.

10:04:50

21 Q. What does the term "bioprogressive" mean  
22 in the foundation's name?

23 A. It's an orthodontics philosophy in which  
24 we incorporate a lot of biological aspects and  
25 biological principle while we try and establish the

Page 8

1 treatment for a particular individualized case.

2 Q. Is it correct to say that the foundation  
3 is focused on doing research in the field of  
4 orthodontics to develop technology that's not yet  
5 well understood in that field?

6 MR. BLYTHE: Objection to form.

7 THE WITNESS: Not really. So I believe I don't  
8 quite understand your question. So if you can  
9 rephrase that.

10 BY MR. ARGENTI:

10:06:04

11 Q. What did you not understand about my  
12 question?

13 A. Can you rephrase the question?

14 Q. I can rephrase, but it would be helpful to  
15 understand what was unclear about my question.

16 MR. BLYTHE: Objection to form.

17 THE WITNESS: I believe you are asking whether  
18 a foundation is doing research in the area of  
19 orthodontics -- someone means?

20 BY MR. ARGENTI:

10:06:40

21 Q. My question was whether the foundation is  
22 focused on research in the field of orthodontics to  
23 develop technology that's not yet well understood  
24 in the field.

25 Do you agree?

1 MR. BLYTHE: Same objection.

2 THE WITNESS: No, not really.

3 BY MR. ARGENTI:

4 Q. Why not?

5 A. The research that we had been doing and  
6 currently doing, it's research that's already been  
7 done by some other predecessors, and, you know,  
8 some of them we just reexploring it and try to  
9 revisit the subject from a -- from a different  
10 angle. Yeah. Or collaborate with different 10:07:56  
11 people. Yeah.

12 Q. So is the purpose then to refine the  
13 technology?

14 MR. BLYTHE: Objection to form.

15 THE WITNESS: Yeah, you probably can say so.  
16 Not really to refine but to confirm, to validate,  
17 that's what the research that we have been doing  
18 is.

19 BY MR. ARGENTI:

20 Q. So you mentioned -- when I asked you what 10:08:42  
21 the term "bioprogressive" meant, you said it's a  
22 orthodontics philosophy in which we incorporate a  
23 lot of biological aspects and biological principles  
24 while we try and establish the treatment for a  
25 particular individualized case.

1                   Why is that of interest in the field of  
2                   orthodontics?

3                   MR. BLYTHE:   Objection to form.

4                   THE WITNESS:   I guess, you know, some treatment  
5                   has lack of individualization.   So that's what --  
6                   you know, we try to cater to our patients' best  
7                   oral care as individualized as possible because  
8                   everyone is different.

9                   BY MR. ARGENTI:

10                  Q.    Does the foundation research remote                   10:09:50  
11                  technology for the field of orthodontics?

12                  A.    It is not part of the foundation research  
13                  project.   We haven't really utilized that  
14                  technology in what the research that the foundation  
15                  did or doing.

16                  Q.    Does your foundation research the use of  
17                  deep learning in the field of orthodontics?

18                  A.    No.

19                  Q.    What year was the foundation established?

20                  A.    I am not quite sure, but it's probably in           10:10:47  
21                  the early 2000s.

22                  Q.    Did the foundation develop a system called  
23                  DR. ANNIE?

24                        I'm sorry.   Dr. Kusnoto, if you gave an  
25                  answer I, at least, didn't catch it on the audio.

1 A. No.

2 Q. Have you heard of a system called

3 DR. ANNIE?

4 A. I heard of that.

5 Q. What's your understanding of what

6 DR. ANNIE is?

7 A. It's a diagnostic system.

8 Q. Who developed it?

9 A. I'm not sure actually.

10 Q. Are you aware that the foundation's 10:12:11

11 website says that as of 2023, it has a patented

12 licensed technology called DR. ANNIE?

13 A. I don't recall that foundation develop or  
14 -- app on DR. ANNIE. They might have used it, some  
15 of my other colleague, but not in the area that I'm  
16 involved with the foundation.

17 Q. And what area are you involved in the  
18 foundation?

19 A. Specifically the orthodontic biological  
20 app, the patient care. 10:13:02

21 Q. And is DR. ANNIE relevant to the  
22 orthodontic biological patient care?

23 MR. BLYTHE: Objection to form.

24 THE WITNESS: It could, but I have never been  
25 involved in that. So I'm not sure.

1 BY MR. ARGENTI:

2 Q. So as far as you know, you are not an  
3 inventor or on the patent that covers the DR. ANNIE  
4 system?

5 MR. BLYTHE: Objection to form.

6 THE WITNESS: So the -- can you rephrase the  
7 question?

8 I'm not quite sure. Am I the -- you are  
9 saying that -- can I rephrase them? You are saying  
10 that my role as a researcher in the foundation 10:14:06  
11 owned the patent of DR. ANNIE?

12 BY MR. ARGENTI:

13 Q. Do you know whether you are a named  
14 inventor on the DR. ANNIE patent that the  
15 foundation's website refers to?

16 MR. BLYTHE: Objection to form and to scope.

17 THE WITNESS: Since I'm not sure, I would not  
18 answer the questions.

19 BY MR. ARGENTI:

20 Q. Are you a named inventor on any patents? 10:14:48

21 A. -- be.

22 Q. I'm sorry. Was that you could be?

23 A. Yes.

24 Q. What patents would you be a named inventor  
25 on?

1           A.    It's been a while.  I don't quite recall.  
2           It's part of the work at University of Illinois.

3           Q.    So if you are a named inventor on a  
4           patent, it has no relation to the foundation?

5           MR. BLYTHE:  Objection --

6           THE WITNESS:  It has no relation to foundation.  
7           My role in the foundation, as I explained, is a  
8           researcher.

9           BY MR. ARGENTI:

10          Q.    What work at the University of Illinois           10:16:10  
11          would be related to the patent you're referring to?

12          MR. BLYTHE:  Objection to form.

13          THE WITNESS:  I don't think, without the  
14          permission from the university, I can disclose  
15          that.

16          BY MR. ARGENTI:

17          Q.    Who were the other named inventors on the  
18          patent?

19          A.    The university intellectual property  
20          handles the situation.  So, you know, I cannot           10:16:53  
21          really disclose that.

22          Q.    Do you know when work on the DR. ANNIE  
23          system first started?

24          A.    I'm not aware.

25          Q.    Does the DR. ANNIE system involve neural

1 networks?

2 MR. BLYTHE: Objection to form and to scope.

3 THE WITNESS: I'm not aware. It could, but I'm  
4 not aware.

5 BY MR. ARGENTI:

6 Q. Are you aware that DR. ANNIE is an  
7 acronym?

8 MR. BLYTHE: Objection to form.

9 THE WITNESS: I am not aware.

10 BY MR. ARGENTI:

10:17:45

11 Q. Does it sound correct to you that  
12 DR. ANNIE stands for Digital Research Artificial  
13 Neural Network Intelligence Expert?

14 MR. BLYTHE: Objection to form.

15 THE WITNESS: I'm not aware.

16 BY MR. ARGENTI:

17 Q. Have you ever heard the term Digital  
18 Research Artificial Neural Network Intelligence  
19 Expert before?

20 A. Before the time you mentioned it just now? 10:18:16

21 Q. Correct.

22 A. No, I'm not aware.

23 Q. Is your answer, no, you have not heard  
24 that term before today or you are not aware of  
25 whether you have?

1 MR. BLYTHE: Objection to form.

2 THE WITNESS: I am not aware of the -- what you  
3 mentioned, Digital Research -- those acronym that  
4 you just mention.

5 BY MR. ARGENTI:

6 Q. That's a term you haven't heard before  
7 today?

8 A. No.

9 Q. You understand that you're here today with  
10 regard to one particular IPR proceeding; correct? 10:19:19

11 A. Yes.

12 Q. That IPR is IPR 2023-01369; correct?

13 A. 01369, yes, correct.

14 Q. And that IPR related to  
15 U.S. Patent No. 10,755,409; is that right?

16 A. 10,755,409. Yes. I'm just reading my  
17 cover sheet here.

18 Q. If I refer to that as the '409 patent  
19 today, will you understand what I'm referring to?

20 A. Yes, I am. 10:20:08

21 Q. Can you please take that declaration out  
22 again that you just had in your hand?

23 That's Exhibit 2030 in this IPR; correct?

24 A. This?

25 Q. Yes.

1                   And can you turn to the last page, please,  
2       page 72?

3           A.    Page -- this?

4           Q.    Correct.

5                   So it looks like this declaration is  
6       signed twice by you; is that right?

7           A.    Yes.  I -- it's one I used a digital  
8       signature.  So it always come like that.

9           Q.    Okay.  That explains.  My next question  
10       was, you know, why does it have two signatures?       10:21:12  
11       Did you add one or both of them?

12                               (Simultaneous speaking.)

13           THE WITNESS:  It's a single click, but they  
14       come up with both.

15       BY MR. ARGENTI:

16           Q.    Understood.

17                   And that was you that clicked and added  
18       that digital signature; is that right?

19           A.    Yes.

20           Q.    Prior to adding that digital signature,       10:21:32  
21       did you carefully review this declaration to ensure  
22       its accuracy?

23           A.    Yes.

24           Q.    And sitting here today, do you believe the  
25       declaration is accurate?

1           A.    The one with my digital signature here,  
2           yeah, what I reviewed and I believe it's accurate.

3           Q.    Is there anything about your declaration  
4           that you would like to modify or correct?

5           A.    No.

6           Q.    About how many hours did you spend  
7           preparing your declaration on the '409 patent?

8           A.    I don't really recall the exact hours.  
9           Maybe if I have to take a wild guess, 35 to  
10          40 hours. 10:23:06

11          Q.    Let's turn to page 8 of your declaration,  
12          please.

13                In paragraph 13 and 14, you identify  
14          materials considered in forming your opinions;  
15          correct?

16          A.    Yes.

17          Q.    And in the second sentence of  
18          paragraph 13, you say you considered the materials  
19          you've identified in your declaration.

20                Do you see that? 10:24:00

21          A.    Yes.

22          Q.    And then you go on to say "In particular,  
23          in forming my opinions, I have considered the  
24          declaration of Dr. Foroosh (Exhibit 1002), as well  
25          as the Carrier Provisional (Exhibit 1006), Carrier,

1 (Exhibit 1005), and Salah (Exhibit 1008)."

2 Do you see that?

3 A. Yes.

4 Q. Did you consider other materials beyond  
5 those four exhibits in forming your opinions?

6 MR. BLYTHE: Objection to form.

7 THE WITNESS: Let me try to rephrase your  
8 questions. Did I consider other than the four  
9 documents that you just mentioned in forming my  
10 declaration here? 10:25:13

11 BY MR. ARGENTI:

12 Q. Right.

13 A. The answer is yes.

14 Q. What other documents did you consider when  
15 forming your opinions?

16 A. This one.

17 Q. For the record, was that the exhibit list  
18 on page 3 of your declaration that you just  
19 referred to?

20 A. Yes. 10:25:36

21 Q. So if we look at that exhibit list, is it  
22 your testimony that you considered the exhibits  
23 identified in this exhibit list when forming your  
24 opinions in this IPR?

25 A. Can you clarify the question?

1 Q. Looking at the exhibit list on page 3, did  
2 you consider these exhibits when forming your  
3 opinions in this IPR?

4 A. Yes.

5 Q. Looking at the first entry on the exhibit  
6 list, Exhibit No. 2031, that's your CV; correct?

7 A. Yes.

8 Q. In what way did you consider your own CV  
9 when forming your opinions in this IPR?

10 A. Expertise as previously noted on this. 10:26:35

11 Q. If we look at paragraph 1 of your  
12 declaration on page 4, in the second sentence, you  
13 say "I've been asked to provide my opinions  
14 relating to aspects of the state of the art  
15 described in U.S. Patent No. 10,755,409  
16 ('the '409 patent') (Exhibit 1001), as well as  
17 certain references relied upon by petitioner Align  
18 Technology, Inc., and its expert witness,  
19 Dr. Hassan Foroosh."

20 Do you see that? 10:27:34

21 A. Yes.

22 Q. Did you review the '409 patent when  
23 forming your opinions in this IPR?

24 A. Yes, I do.

25 Q. When forming your opinions in this case,

1 did you review any other documents beside the  
2 exhibits specifically identified in your  
3 declaration?

4 A. Do you mean besides -- besides this list?  
5 The exhibit in page 3?

6 Q. And the other exhibits that are cited  
7 throughout your declaration, yes.

8 A. Yeah. Which is this list on page 3;  
9 right?

10 Q. Right. I'm including that, and I'm asking 10:28:24  
11 did you consider any other documents in forming  
12 your opinions beyond the exhibits that are  
13 specifically cited in your declaration either in  
14 the exhibit list or in the paragraphs of your  
15 declaration?

16 A. No.

17 Q. Did you review Align's petition when  
18 forming your opinions?

19 A. If it's not in the list on page 3 here,  
20 then it wasn't included. 10:29:06

21 Q. Have you ever reviewed Align's petition in  
22 this IPR?

23 A. Maybe I do, but I don't remember clearly.  
24 Maybe it's passing -- maybe it's passing through --  
25 through -- before we -- before I sought this out,

1       this list, it might, but I'm not sure.

2           Q.    So it's possible that you reviewed Align's  
3       petition in this IPR before completing this  
4       declaration, but you didn't -- but it didn't inform  
5       your opinions in this declaration? Do I have that  
6       right?

7           MR. BLYTHE:  Objection to form.

8           THE WITNESS:  Yeah, as I mentioned, I might,  
9       but I'm not sure.

10       BY MR. ARGENTI:

10:30:27

11           Q.    Did you review the Board's institution  
12       decision in this IPR when forming your opinions?

13           A.    Which board are you --

14           Q.    The Patent Trial and Appeal Board.

15           A.    I believe I don't quite understand which  
16       board are you referring to.

17           Q.    And that's fine. It could be that the  
18       lawyers know about the Board, and it's not  
19       something I would expect you to know.

20                   But are you aware that this IPR proceeding   10:31:18  
21       is in front of the Patent Trial and Appeal Board at  
22       the U.S. Patent Office?

23           A.    Yes, I am aware.

24           Q.    And so sometimes we, in the practice,  
25       refer to that as "the Board." So my question is

1 about the Patent Trial and Appeal Board.

2 Are you aware that the Patent Trial and  
3 Appeal Board has issued an institution decision in  
4 this IPR?

5 A. That is not to my knowledge. I'm not  
6 aware.

7 Q. So as far as you are aware, you have not  
8 reviewed the Patent Trial and Appeal Board's  
9 institution decision in this IPR?

10 A. I only focus on the exhibit list that's 10:32:18  
11 listed on my page 3.

12 Q. Did you do anything to prepare for this  
13 deposition?

14 MR. BLYTHE: Dr. Kusnoto, just caution that as  
15 you answer that question, please don't go into the  
16 substance of any communications with counsel.

17 THE WITNESS: Can you rephrase again the  
18 question, Mr. Argenti?

19 BY MR. ARGENTI:

20 Q. In preparing for this deposition -- strike 10:32:57  
21 that.

22 Did you prepare for this deposition?

23 A. Yes.

24 Q. In preparing for this deposition, did you  
25 review your declaration?

1 A. Yes.

2 Q. Did you review any other documents in  
3 preparing for this deposition?

4 A. Yes.

5 Q. What other documents did you review?

6 A. The one listed on page 3 of my  
7 declaration.

8 Q. Did you review every one of those  
9 documents on page 3 when preparing for this  
10 deposition? 10:33:48

11 A. Yes.

12 Q. Did you review any other documents in  
13 preparing for this deposition?

14 A. No, if it's not on page 3 and on my  
15 declaration.

16 Q. Did you review the documents cited in  
17 paragraph 13 of your declaration in preparing for  
18 this deposition?

19 A. Give me a minute. Let me check  
20 paragraph 13. 10:34:29

21 Just to rephrase, the paragraph 13 that  
22 you mention is Exhibit 1002, 1006, 1005, and 1008;  
23 is that correct?

24 Q. That's what's listed there, yes.

25 A. Yes, that is the one I reviewed.

1 Q. You reviewed those four documents in  
2 preparing for this deposition?

3 A. Yes.

4 Q. Did you review the '409 patent in  
5 preparing for this deposition?

6 A. Yes.

7 Q. You mentioned earlier that you had been  
8 deposed in the district court case between  
9 Dental Monitoring and Align. Did you review the  
10 transcript of that deposition in preparing for this 10:35:44  
11 one?

12 A. Took a glance but not in detail because  
13 it's not what -- pertain to my reference that  
14 I selected.

15 Q. So other than taking a glance at that  
16 deposition transcript, did you review any other  
17 documents that aren't specifically identified in  
18 your declaration when preparing for this  
19 deposition?

20 A. No. 10:36:33

21 Q. Did you meet with anyone to prepare for  
22 your deposition?

23 A. We have draft back and forth multiple  
24 times.

25 Q. Sorry. What draft?

1           A.    When I made this, this one? The  
2           declaration? Are you talking about the  
3           declaration?

4           Q.    No. I'm asking about your deposition,  
5           this deposition today.

6           A.    Oh, okay. Yes.

7           Q.    But I think your answer means we maybe  
8           need to clarify some of my earlier questions, if  
9           there's any confusion about the declaration versus  
10          the deposition. 10:37:29

11          A.    No, I understand. The declaration is  
12          this. The deposition is what we are doing now.

13          Q.    So, for instance, I asked you about the  
14          deposition transcript from the district court case  
15          between Dental Monitoring and Align, and you said  
16          that you took a glance at it.

17                Was -- when did you take a glance at it?

18          A.    More than a month or two ago. So I  
19          couldn't quite recall, remember, exactly.

20          Q.    Was it before or after you signed your 10:38:11  
21          declaration?

22          A.    I'm not quite sure.

23          Q.    And then again let's look at paragraph 13  
24          of your declaration.

25          A.    Yes.

1 Q. I was just gonna ask again so that we're  
2 clear and there's no confusion between the time  
3 period when you prepared your declaration and then  
4 the time period more recently when you prepared for  
5 this deposition.

6 So my question is did you review the four  
7 documents cited in paragraph 13 in preparing for  
8 this deposition today?

9 A. Yes.

10 Q. When did you review them? 10:39:11

11 A. Several times. I don't quite remember but  
12 in the past month.

13 Q. So I'll ask again. I think we got  
14 sidetracked. But let me ask you again, did you  
15 meet with anyone to prepare for this deposition  
16 today?

17 A. I met with legal counsel.

18 Q. Who was that specifically?

19 A. Mr. Andrew Blythe.

20 Q. Was that an in-person meeting? 10:40:12

21 A. It's both, in person and virtual.

22 Q. Where did the meeting take place?

23 A. In Zoom.

24 Q. Where did the in-person meeting take  
25 place?

1 A. Oh, in Chicago.

2 Q. When was that?

3 A. It was yesterday.

4 Q. How long was the in-person meeting?

5 A. Couple hours.

6 Q. Do you know where Mr. Blythe is located  
7 today?

8 A. In Chicago.

9 Q. Do you know where in Chicago?

10 A. In an office. 10:41:21

11 Q. Do you know if he's in the same building  
12 that you're in today?

13 A. I'm not aware.

14 Q. Let's turn back to paragraph 1 of your  
15 declaration, please.

16 A. Yes.

17 Q. I want to look again at that second  
18 sentence where you say you've been asked to provide  
19 your opinions regarding aspects of the state of the  
20 art described in the '409 patent. 10:42:09

21 Do you see that?

22 A. Yes.

23 Q. What state of the art described in the  
24 '409 patent are you referring to there?

25 A. It's -- to my understanding, it's the way

1       that this patent being utilized from the  
2       orthodontics or dental technician point of view.

3           Q.    Can you identify where in your declaration  
4       you discuss the state of the art described in the  
5       '409 patent?

6           A.    Can you give me a moment to look?

7           Q.    Uh-huh.

8           A.    The question was where is the state of the  
9       art mentioned in this declaration? Am I correct?

10          Q.    Right. 10:43:53

11                My question was can you identify where in  
12       your declaration you discuss the state of the art  
13       described in the '409 patent.

14          A.    I'm not sure if I'm answering your  
15       question, but I'm looking at paragraph 24 in  
16       page 12, but method for monitoring the positioning,  
17       shape, appearance of teeth using digital -- 3D  
18       digital reference model. That is the -- one of the  
19       state of the art that pertain to my clinical use.

20          Q.    So I think you were just reading from the 10:45:12  
21       last sentence of paragraph 24; is that right?

22          A.    Yes.

23          Q.    And that sentence begins "Salah is  
24       directed to a method for monitoring"; right?

25          A.    Yes.

1 Q. So in that sentence you are addressing  
2 what Salah describes; right?

3 A. Yes.

4 Q. That sentence doesn't say that that's the  
5 state of the art described in the '409 patent, does  
6 it?

7 A. Oh, I thought you were asking my opinion  
8 as a clinician, orthodontist, what my thinking --  
9 of which of this I think is the state of the art.

10 Am I not understanding your questions? 10:46:05

11 Q. Not quite.

12 If we look back at paragraph 1, there you  
13 say, in the second sentence, that you are providing  
14 your opinions relating to aspects of the state of  
15 the art described in the '409 patent; right?

16 A. Uh-huh.

17 Q. And my question is can you identify where  
18 in your declaration you discuss the state of the  
19 art described in the '409 patent?

20 A. Oh. Oh. Totally mistaken. I'm sorry. 10:46:34

21 It's on the page 15, paragraph 31 and 32.

22 Q. Those are paragraphs where you are  
23 discussing the state of the art with respect to  
24 standard orthodontic photographs; is that right?

25 A. Yes.

1 Q. Is it your understanding that the '409  
2 patent describes using a standard set of dental  
3 photographs?

4 A. It's utilizing and establishing methods to  
5 construct or create the standard to acquire and  
6 obtain the standard orthodontic photographs.

7 Q. The '409 patent is? That's your  
8 understanding?

9 MR. BLYTHE: Objection to form.

10 THE WITNESS: From my clinical use as an 10:48:04  
11 orthodontist, there is many other aspect of '409  
12 patent, but what I'm more focused on as what I was,  
13 you know, clinical orthodontist is to -- in respect  
14 to standard orthodontic photographs and then the  
15 paragraph 32 basically what I think as the state of  
16 the art.

17 BY MR. ARGENTI:

18 Q. So it's your understanding that the '409  
19 patent describes using a standard set of dental  
20 photographs; is that right? 10:49:03

21 MR. BLYTHE: Objection to form.

22 THE WITNESS: It's not using standard  
23 photographs, but it's constructing or helping to  
24 acquire a standard photographs, to produce a  
25 standard photographs.

1 BY MR. ARGENTI:

2 Q. So it's your understanding that the '409  
3 patent describes producing a standard set of dental  
4 photographs; is that right?

5 A. And how to use it.

6 Q. How to use what?

7 A. How to utilize, create it, or acquire  
8 photographs, to analyze it, you know, so, yeah.

9 Q. Is it your understanding that the claims  
10 of the '409 patent require producing a standard set 10:50:06  
11 of dental photographs?

12 MR. BLYTHE: Objection to form and to scope.

13 THE WITNESS: It will be helpful if I can have  
14 a look at the exhibit.

15 BY MR. ARGENTI:

16 Q. Sure. Why don't we take the '409 patent  
17 out. Exhibit 1001.

18 A. I got it here.

19 Q. And my question is is it your  
20 understanding that the claims of the '409 patent 10:51:23  
21 require producing a standard set of dental  
22 photographs?

23 MR. BLYTHE: Objection to form and to scope.

24 THE WITNESS: You say "producing." I'm -- it  
25 is not producing. So that's -- that's where I'm --

1 get a little confused by your questions. If --  
2 it's acquiring dental photographs by certain  
3 methods. It's not producing. Being produced is an  
4 analysis of those acquired images.

5 BY MR. ARGENTI:

6 Q. Is it your understanding that the claims  
7 of the '409 patent require acquiring a standard set  
8 of dental photographs?

9 MR. BLYTHE: Objection to form and to scope.

10 THE WITNESS: I think the question goes beyond 10:52:37  
11 my scope as a clinician utilizing the technology.  
12 Yeah.

13 BY MR. ARGENTI:

14 Q. Okay. Let's go back then to paragraph 1  
15 of your declaration where you say that you've been  
16 asked to provide opinions relating to aspects of  
17 the state of the art described in the '409 patent,  
18 and earlier you testified that it's your  
19 understanding that the '409 patent does describe  
20 acquiring a standard set of dental photographs; 10:53:23  
21 right?

22 MR. BLYTHE: Objection to form.

23 THE WITNESS: Acquiring dental photographs,  
24 yes, that's -- it's acquiring a photographs of  
25 teeth.

1 BY MR. ARGENTI:

2 Q. Does it describe acquiring a standard set  
3 of dental photographs?

4 MR. BLYTHE: Objection to form and to scope.

5 THE WITNESS: You mean in my declaration?

6 BY MR. ARGENTI:

7 Q. In the '409 patent.

8 A. I don't think I ever mention it's acquire  
9 a standard photographs.

10 Q. I don't think you do either, Dr. Kusnoto. 10:54:12

11 A. Yeah. No. That's what I'm -- it's  
12 acquiring a dental photographs. It doesn't have to  
13 be standard, you know. It acquire dental  
14 photographs.

15 Q. Okay. So let's go back to that sentence  
16 again in paragraph 1 of your declaration where you  
17 say you have been asked to provide opinions  
18 relating to aspects of the state of the art  
19 described in the '409 patent.

20 And I will go back to my earlier question 10:54:44  
21 of where in your declaration do you address the  
22 state of the art described in the '409 patent?

23 A. In answer to your question, and, then, I  
24 must go back to my page 15, which is the beginning  
25 of my explanation of the -- what I think is the

1 standard of art, 15 to 25, basically explaining  
2 different knowledge.

3 Q. And that's the section where you are  
4 addressing standard orthodontic photographs;  
5 correct?

6 A. That's the section, yeah.

7 MR. ARGENTI: It's been about an hour,  
8 Dr. Kusnoto. Why don't we take a break.

9 THE WITNESS: Sure.

10 (A short break was taken from  
11 10:58 a.m. to 11:12 a.m.)

12 MR. ARGENTI: Back on the record.

13 BY MR. ARGENTI:

14 Q. Dr. Kusnoto, you have a bachelor's degree  
15 in computer science; right?

16 A. Yes, I do.

17 Q. You got that bachelor's degree in 1993; is  
18 that right?

19 A. Yes.

20 Q. Look at paragraph 6 of your declaration on 11:13:01  
21 page 5. Let me know when you're there.

22 A. Yes.

23 Q. In the first sentence of that paragraph,  
24 you say that you've been deeply involved in the  
25 implementation of digital technology for dental

1 treatment purposes.

2 Do you see that?

3 A. Yes.

4 Q. Further down in that paragraph, you  
5 identified some examples of a digital technology  
6 for dental --

7 A. Uh-huh.

8 Q. -- right?

9 And some of those examples include  
10 3D imaging technology, teledentistry, artificial 11:13:52  
11 intelligence, and machine learning; correct?

12 A. Yes.

13 Q. About how many years of experience would  
14 you say you have working with 3D imaging technology  
15 in the dental field?

16 A. 15 years.

17 Q. How about artificial intelligence? How  
18 many years of experience do you have working with  
19 artificial intelligence?

20 A. Around five, six years maybe. 11:14:26

21 Q. And how much experience do you have with  
22 machine learning?

23 A. Aside from conducting research and  
24 validations on it and being exposed on the basic  
25 principle, machine learning, that's not much

1 exposure on machine learning. I work with groups  
2 of engineers and -- yeah.

3 Q. And that experience you described, how  
4 many years of that type of experience do you have?

5 A. It's about five years.

6 Q. Return to paragraph 27 of your  
7 declaration, please on page 13.

8 A. Paragraph?

9 Q. Paragraph 27.

10 A. Yes. 11:15:50

11 Q. This is where you discuss your  
12 understanding of a person of ordinary skill in the  
13 art; right?

14 A. Uh-huh, yes.

15 Q. Based on the definition in paragraph 27,  
16 it sounds like your education and experience  
17 qualifies you as a person of ordinary skill in the  
18 art; right?

19 A. Yeah, I believe so.

20 Q. Did you qualify as a person of ordinary 11:16:14  
21 skill in the art as of June 2017 under that  
22 paragraph 27 definition?

23 A. I would say so.

24 Q. Let's look at paragraph 29 on the next  
25 page. This is where you discuss Dr. Foroosh's

1 definition of the POSA; correct?

2 A. Yes.

3 Q. Do you qualify as a POSA under  
4 Dr. Foroosh's definition?

5 A. Could be for the most part but maybe not  
6 all. So I'm not sure how to answer that here.

7 Q. You don't have a master's degree or Ph.D.  
8 in computer science or related field. You only  
9 have a bachelor's; right?

10 A. Yes.

11:18:15

11 Q. But then he goes on to say "with at least  
12 two years of work in computer vision, image  
13 analysis, medical imaging, or related areas," and  
14 it sounds like you have 15 years of experience or  
15 so in that field?

16 A. Yes.

17 MR. BLYTHE: Objection to form.

18 BY MR. ARGENTI:

19 Q. The next sentence says "A POSA could have  
20 less education but significant professional  
21 experience in one or more of these fields"; right?

11:18:38

22 A. That's what's written there, here.

23 Q. So if the 15 years of experience in  
24 imaging that you have is enough to qualify someone  
25 with a bachelor's instead of a master's degree in

1 computer science, then you'd be a POSA; right?

2 MR. BLYTHE: Objection to form.

3 THE WITNESS: I don't think I can answer that  
4 because it's relative.

5 BY MR. ARGENTI:

6 Q. How long have you been the coordinator of  
7 the Digital Imaging Laboratory in the department of  
8 orthodontics at the University of Illinois Chicago?

9 A. It's been a while. Let me see. It's  
10 probably -- I would, safely, say it's around 11:19:49  
11 15 years.

12 Q. Are you familiar with Dr. John Mongan,  
13 M-o-n-g-a-n?

14 A. Yes.

15 Q. Are you aware that Dr. Mongan has  
16 submitted two declarations in this IPR on behalf of  
17 Dental Monitoring?

18 A. Yes.

19 Q. Have you reviewed either of Dr. Mongan's  
20 declarations submitted in this IPR? 11:20:22

21 A. Maybe. Not too extensively because we had  
22 discussed, but I don't review the detail.

23 Q. Do you recall whether you reviewed one of  
24 the declarations or both of them?

25 A. Briefly I don't remember.

1 Q. When did you review one or both of those  
2 declarations?

3 A. Maybe two months ago.

4 Q. Did you consider any of Dr. Mongan's  
5 declaration testimony in this IPR when forming your  
6 own opinions in this case?

7 A. No.

8 My opinion is what -- that's my own  
9 opinion here. Only based on the references that  
10 I think is pertaining to this particular one. 11:22:18

11 Q. Have you reviewed the transcript of  
12 Dr. Mongan's deposition in this IPR?

13 A. No.

14 Q. Do you know whether Dr. Mongan has  
15 reviewed your declaration in this IPR?

16 MR. BLYTHE: Objection to form.

17 THE WITNESS: I don't have that knowledge.

18 BY MR. ARGENTI:

19 Q. Do you know whether Dr. Mongan ever  
20 reviewed a draft of your declaration in this IPR? 11:22:56

21 MR. BLYTHE: Objection to form.

22 THE WITNESS: An answer is I don't know.

23 BY MR. ARGENTI:

24 Q. Have you ever spoken to Dr. Mongan?

25 A. Yes, several times.

1 Q. How many times would you say you've spoken  
2 to him?

3 A. Four or five. I don't quite exactly --  
4 I don't remember. Yeah.

5 Q. Have you ever spoken to Dr. Mongan about  
6 this IPR specifically?

7 A. In the declaration here? The one  
8 I made or about the whole process or just on this  
9 particular -- on this particular topic?

10 Q. Have you ever spoken to Dr. Mongan about 11:24:02  
11 your declaration in this IPR?

12 A. It might come across in our conversation,  
13 but I don't recall exactly what.

14 Q. Have you ever spoken to Dr. Mongan about  
15 Dr. Foroosh's testimony in this IPR?

16 A. Maybe indirectly when we discuss some  
17 aspect that pertain to this, my declaration here,  
18 but I don't remember exactly what was being  
19 discussed.

20 Q. But you did discuss with Dr. Mongan 11:25:03  
21 aspects that relate to your declaration in this  
22 case; is that right?

23 A. Yes.

24 Q. Have you discussed the Carrier  
25 Provisional, Exhibit 1006, with Dr. Mongan?

1 A. As I recall, briefly, yes.

2 Q. Have you discussed the Salah prior art  
3 reference, Exhibit 1008, with Dr. Mongan?

4 A. Okay. You are not talking about the '409;  
5 right? You're talking about --

6 Q. Good point.

7 Before -- the named inventor on the '409  
8 patent is Salah as well. My question was about the  
9 Salah prior art reference --

10 (Simultaneous speaking.) 11:26:17

11 THE WITNESS: Oh.

12 BY MR. ARGENTI:

13 Q. -- which is Exhibit 1008.

14 A. Briefly.

15 Q. When did those discussions or that  
16 discussion or multiple discussions take place  
17 regarding the prior art at issue in this IPR?

18 MR. BLYTHE: Objection to form.

19 THE WITNESS: I don't quite remember. It's  
20 probably in two, maybe even three -- two, three 11:26:52  
21 months, yeah, maybe.

22 BY MR. ARGENTI:

23 Q. So did you speak to Dr. Mongan about this  
24 IPR before finalizing your declaration?

25 A. I'm trying to recall when it is. Yeah.

1       Unfortunately, I cannot check my agenda.

2       I can't -- I cannot pinpoint exactly when, but it's  
3       within two months, but I don't know exactly whether  
4       it's before or after the declaration, but, yeah,  
5       that's as far as I can recall. Yeah.

6           Q.    How many times did you speak to Dr. Mongan  
7       about this IPR?

8           A.    I mean, recently, the one within, let's  
9       say, two, three months, it's -- the most recent one  
10      is this one that I remember. It's probably within     11:28:27  
11      two months, but then this year has been, like,  
12      several. I don't know exactly -- maybe two or --  
13      three more other times, but, you know...

14          Q.    That most recent one, did that discussion  
15      involve this IPR on the '409 patent or other IPRs  
16      on other Dental Monitoring patents?

17          A.    Mainly probably revolve around this,  
18      around Carrier and Salah.

19          Q.    Did your most recent discussion with  
20      Dr. Mongan involve other prior art that's at issue     11:29:23  
21      in other IPRs and not at issue in this one?

22          A.    Not that I can recall.

23          Q.    Has anyone else been present during your  
24      discussions with Dr. Mongan?

25          A.    Yeah, the counsel, Mr. Blythe.

1 Q. Anyone else?

2 A. It might be, but I don't remember the name  
3 actually. So...

4 Q. All right. Let's take a look at  
5 paragraph 25 of your declaration, please. That's  
6 on page 12.

7 A. Yes.

8 Q. And in this paragraph you mentioned --

9 (Simultaneous speaking.)

10 THE WITNESS: Paragraph -- oh, I'm turning to 11:30:51  
11 page 25.

12 BY MR. ARGENTI:

13 Q. No, paragraph 25 on page 12.

14 A. Yes.

15 Q. In this paragraph you mentioned the  
16 Carrier Provisional and the Salah references;  
17 right?

18 A. Yes.

19 Q. And in the last line of that paragraph,  
20 you say that "Both the Carrier Provisional and 11:31:27  
21 Salah use terms that would have had a specific  
22 meaning to dental professionals"; right?

23 A. Yes.

24 Q. What terms in Salah are you referring to  
25 there?

1           A.    In Salah? Give me a second. Let me get  
2           it out.

3                   Clearance access models, gingival margin.  
4           I think those are dental term.

5           MR. BLYTHE: And just one moment. For the  
6           record, can you please clarify which document you  
7           were just referring to?

8           THE WITNESS: Oh, I'm referring to  
9           Exhibit 1008.

10          MR. BLYTHE: Okay. Thank you. 11:33:23

11          THE WITNESS: Yeah.

12          BY MR. ARGENTI:

13               Q.    What's the specific meaning that the term  
14           "model" would have had to the dental professional?

15           A.    When you -- particularly to an  
16           orthodontist, like mine, when -- or any dentist,  
17           when you describe models, their mind kind of fixate  
18           towards a study model. Study model is this  
19           replicate of teeth produced by either impressions  
20           or scanning technology. That's models. Yeah. 11:34:23

21               Q.    If we look back at that last sentence on  
22           paragraph 25 of your declaration, what terms from  
23           the Carrier Provisional are you referring to when  
24           you say it "uses terms that would have had a  
25           specific meaning to dental professionals"?

1 A. Give me a second.

2 I am referring to Exhibit 1006,  
3 Provisional Carrier, the terminology like frontal  
4 view, anterior view, those are like dental-related  
5 terminology.

6 Q. Anything else you would point out to my  
7 attention as a term that has a specific meaning in  
8 the Carrier Provisional?

9 A. There might be a few others here.

10 (Stenographer clarification.) 11:36:33

11 THE WITNESS: Yeah, like, 2D facial, then  
12 there's another one here, anterior, buccal left --  
13 those are some terminology that I can find -- and  
14 then underbite, overbite, those are dental  
15 terminology.

16 BY MR. ARGENTI:

17 Q. I'm sorry. Did you say left in that list,  
18 l-e-f-t?

19 A. Yeah. Buccal left, buccal right, over  
20 jet, overbite. 11:39:10

21 Q. Okay. So it's "left" in combination with  
22 "buccal"?

23 A. Yeah. Yeah. Left and a right.

24 Q. You're not saying that left, the word on  
25 its own, has a specific meaning to it?

1           A.    No.  No.  No.  Buccal left, buccal right.

2           Yeah.  So, yeah.  Yeah.

3           Q.    Got it.

4                   Let's take a look at paragraph 64 on  
5           page 46, please, of your declaration.

6           A.    64?

7           Q.    Yep.

8           A.    Yes.

9           Q.    In this paragraph you address the term  
10          "required teeth" from the Carrier Provisional;           11:40:01  
11          right?

12          A.    Yeah.

13          Q.    And in the second sentence of this  
14          paragraph, you say, "With the guidance of a dentist  
15          or orthodontist, a POSA would have understood that  
16          'required' teeth in this context means the teeth  
17          that are intended to be the subject of the specific  
18          predetermined view in the photograph."

19                   Do you see that?

20          A.    Yes.                                           11:40:36

21          Q.    Is the term "required teeth" one of the  
22          terms that you referred to in that earlier  
23          paragraph that would have had a specific meaning to  
24          dental professionals?

25          A.    Could be part of it.

1 Q. How so?

2 A. It's probably a little bit too clinical,  
3 but if it's okay, I can try to elaborate.

4 Q. Please.

5 A. Yeah. So certain conditions that's, say,  
6 like a -- like a functional shape or an overbite  
7 or -- I'm sorry -- an underbite or certain  
8 overbite, the required teeth might not be --  
9 let's -- I'm trying to put it in a way that it's  
10 more understandable here. 11:42:11

11 Let's say the required teeth may not be  
12 visible, but this -- this required to be -- yeah,  
13 again, in certain condition, the required teeth may  
14 not be visible, but you have to have an  
15 understanding of is needed as -- to be acceptable  
16 as a standard orthodontics record. I don't know if  
17 that makes sense.

18 Q. Let me ask you this, Dr. Kusnoto: In that  
19 sentence in paragraph 64 where you referred to "in  
20 this context," the context you're referring to 11:43:39  
21 there is the Carrier Provisional reference;  
22 correct?

23 A. I kind of lost you in the 64 here.  
24 Which --

25 Q. In the second sentence --

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(Simultaneous speaking.)

BY MR. ARGENTI:

Q. When you say "A POSA would have understood the required" --

A. Okay.

Q. -- "in this context means," and then you go on --

A. Yeah.

Q. In this context means in the context of the Carrier Provisional. Do I have that right? 11:44:19

MR. BLYTHE: Objection to form.

THE WITNESS: One second.

Yes.

BY MR. ARGENTI:

Q. So "required teeth" is not a term of art in the dentistry field that always means the teeth intended to be the subject of a predetermined view in a photograph; right?

A. Can you rephrase that question?

Is "is it" or "is it not"? So I'm -- 11:45:39

Q. Sure. We can look at that sentence again in paragraph 64.

A. Yes. Uh-huh.

Q. Where you say "'Required' teeth in this context means that the teeth means" -- sorry.

1 Start that over.

2 In that second sentence of paragraph 64,  
3 where you say "'Required' teeth in this context  
4 means the teeth that are intended to be the subject  
5 of the specific predetermined view in the  
6 photograph," you're not saying that is a term of  
7 art in the dentistry field with the definition;  
8 correct?

9 MR. BLYTHE: Objection to form.

10 THE WITNESS: Sorry. I'm not quite clear. 11:46:17

11 It's not the term of art? Are you saying that?

12 BY MR. ARGENTI:

13 Q. Right.

14 Would a dentist understand that required  
15 teeth always means the teeth that are intended to  
16 be the subject of the specific predetermined view  
17 in the photograph?

18 MR. BLYTHE: Objection to form.

19 THE WITNESS: I think it has to be in the  
20 context too. It depends. Okay? So it depends on 11:46:51  
21 -- under what purpose is the -- the specific  
22 predetermined view is for. As I mentioned, certain  
23 clinical condition, the required teeth, then  
24 different condition. So, yeah...

25

1 BY MR. ARGENTI:

2 Q. Right.

3 So, as one example, if a reference in the  
4 dentistry field was talking about treating tooth  
5 decay, and it mentioned required teeth, that could  
6 be referring to the teeth that need treatment for  
7 tooth decay; right?

8 MR. BLYTHE: Objection to form.

9 THE WITNESS: It could, but in the same time,  
10 they could also want to know the area around the 11:47:49  
11 tooth that's decayed, you know, because it might --  
12 the opposing teeth might have, you know, certain  
13 influence to the one that's decayed. It's not  
14 necessarily one tooth. Yes. So it's -- it's hard  
15 to really define.

16 BY MR. ARGENTI:

17 Q. It's a term that could mean different  
18 things in different contexts; correct?

19 MR. BLYTHE: Objection to form.

20 THE WITNESS: Yeah, but it's a -- standardized 11:48:21  
21 in a way. So, for instance, like, if I want -- if  
22 in the context of orthodontic standard in  
23 diagnostic records for buccal right shot, then the  
24 required teeth kind of have to have molar, canine,  
25 incisors aligned in a certain way. That's in that

1 context.

2 In the context of prosthodontics having an  
3 onlay on one tooth that's cracked, then the  
4 required field might be that tooth along with the  
5 neighbor and opposing arch.

6 In periodontics, those are different  
7 things again, you know, so it's -- but in each  
8 requirement, the required teeth kind of standard.

9 BY MR. ARGENTI:

10 Q. Let's look back at that paragraph 64. 11:49:42

11 And do you see the sentence further down  
12 that starts with the word "Rather"?

13 A. Yes. Yes.

14 Q. And that sentence says "The 'required  
15 teeth' for such an image for those that are visible  
16 when a photograph of the patient's dental arch is  
17 captured from the appropriate viewpoint as  
18 determined by an 'approximate' match with those  
19 teeth shown in the overlay for that predetermined  
20 view." 11:50:15

21 Did I read that correctly?

22 A. Yes.

23 Q. So do I understand it right that, in your  
24 view, when Carrier refers to "required teeth," it  
25 means whatever teeth are visible in a photograph so

1 long as the photograph is taken from the correct  
2 angle?

3 MR. BLYTHE: Objection to form.

4 THE WITNESS: If the keyword here is the  
5 "predetermined view," I mean, yes, that's correct,  
6 but it have to fulfill kind of the predetermined  
7 view.

8 Again, as I said, if this is orthodontic  
9 standard initial diagnostic records, the buccal  
10 right side view should have this predetermined, 11:51:24  
11 like -- like a standard. Okay? It should look  
12 like this. It doesn't have to be precise, of  
13 course, because everyone is different, but it  
14 should look like the example here.

15 BY MR. ARGENTI:

16 Q. So it should look like an example. So  
17 it's not enough that it's simply whatever teeth are  
18 captured in a particular image from the correct  
19 angle; right?

20 MR. BLYTHE: Objection to form. 11:52:05

21 THE WITNESS: That should have influence.

22 BY MR. ARGENTI:

23 Q. But is it enough --

24 A. You cannot -- for instance, if we want to  
25 capture buccal shot right view, you cannot read

1 from the left side. It doesn't make sense. You  
2 can't do it from the top. The angle has to be  
3 somewhat correct.

4 Q. Right.

5 Are you saying -- in that sentence in  
6 paragraph 64 that that begins with "rather," are  
7 you saying that if the image is properly aligned  
8 with a predetermined view, that whatever teeth are  
9 in the image defines the set of required teeth?

10 MR. BLYTHE: Objection to form. 11:53:03

11 THE WITNESS: For different pre -- for a  
12 different scenario, for a different use, yes. As  
13 I mentioned, if this is a standard orthodontic  
14 buccal right shot, yeah.

15 BY MR. ARGENTI:

16 Q. In that sentence higher up in paragraph 64  
17 that we looked at earlier, you say that the  
18 required teeth are those that are intended to be in  
19 a specific predetermined view"; right?

20 A. The one above that? 11:53:48

21 I'm trying to -- okay. Yes.

22 Q. But then two sentences down, you say that  
23 the required teeth are those that are visible when  
24 a photograph is captured in the appropriate  
25 viewpoint; right?

1 A. You're talking about that is visible?

2 Q. Yes. I am reading that from your  
3 declaration.

4 A. Yeah, in the teeth, it must be visible.  
5 Otherwise, we cannot capture -- I am not quite  
6 sure. Which part do you want me to clarify here?

7 So we do have an idea required for certain  
8 type of care, standardized image where we do have  
9 certain -- okay. We have -- it has to encompass  
10 this -- it's like a checklist. It's like a 11:55:46  
11 suggestion. So this is -- in order to mimic -- in  
12 order to comply as much as possible with the  
13 standard of certain view that we require, we  
14 require certain things, but, of course, if it's not  
15 visible, then we may not achieve what's required,  
16 but we try to -- always try to maximize to be able  
17 to capture as much as we can the basic requirement.

18 Q. Okay. I think -- I think we are getting  
19 there. I think you just mentioned that you could  
20 have required teeth that aren't visible in the 11:56:36  
21 image; right? And then that's not in the image;  
22 right?

23 MR. BLYTHE: Objection to form.

24 THE WITNESS: Can you say that again? That is  
25 not a good image?

1 BY MR. ARGENTI:

2 Q. Well, it would fail to capture all the  
3 required teeth; correct?

4 MR. BLYTHE: Objection to form.

5 THE WITNESS: What I'm trying to say is it's  
6 not fail. So the required teeth is what the Board  
7 or whatever suggested, okay, to have, but if the  
8 teeth is not there, it's not visible. Sometimes  
9 they are ectopic, inside the bone, or sometimes  
10 they are missing, already being pulled, then we 11:57:36  
11 have to still take it to the -- with the given  
12 angle and given proportion to the best of as if all  
13 the required teeth is there.

14 BY MR. ARGENTI:

15 Q. And under those circumstances, when you  
16 take the image, does that image include all of the  
17 required teeth?

18 MR. BLYTHE: Objection to form.

19 THE WITNESS: The image will include all the  
20 required teeth visible, visible and exist. 11:58:22

21 BY MR. ARGENTI:

22 Q. So does that image include all the  
23 required teeth?

24 MR. BLYTHE: Objection to form.

25 THE WITNESS: You mean if the patient has, for

1 instance, missing premolars, okay, and then the  
2 Board does require the full set. Okay? It's a  
3 template. Okay? It's a suggested required teeth.  
4 Okay? So if the teeth is missing, will that -- and  
5 then we still take the pictures, will that pictures  
6 fulfill the characteristic of required teeth? Is  
7 that kind of how I understand them? Your question?

8 BY MR. ARGENTI:

9 Q. Does it capture the full set of teeth  
10 that's required? 11:59:40

11 MR. BLYTHE: Objection to form.

12 THE WITNESS: If it's missing, the answer is,  
13 yes, it fulfill the requirement. It doesn't mean  
14 all the required teeth has to be there because the  
15 teeth are or tooth isn't there.

16 BY MR. ARGENTI:

17 Q. So it's your understanding that even if an  
18 image doesn't capture all -- the full set of  
19 required teeth, it can still be seen as having all  
20 the required teeth? 12:00:21

21 MR. BLYTHE: Objection to form.

22 THE WITNESS: If the tooth is not there, of  
23 course, they didn't have the required teeth there  
24 because the tooth is simply just not there. Okay?  
25 But the way it's being captured, the way it's being

1 captured, it will still fulfill what's being  
2 required, for instance, by the American Board of  
3 Orthodontics. Okay? Again, if the tooth is not  
4 there, then it's not there. We cannot say that,  
5 oh, yeah, the patient has a premolar. I mean, the  
6 premolar has been extracted. It's not there.

7 BY MR. ARGENTI:

8 Q. Let me ask you this: This term "required  
9 teeth" in Carrier -- I'm focused on that word, that  
10 combination of words "as used in the Carrier" -- 12:01:42

11 A. Uh-huh. Uh-huh. Uh-huh.

12 Q. -- that refers to a set of particular  
13 teeth; right?

14 MR. BLYTHE: Objection to form.

15 THE WITNESS: I'm really not sure what Carrier  
16 meant by I mean by "required teeth." I think what  
17 they is the standard could have been optimally  
18 required or suggested required, but if it means  
19 that all teeth must be present, accounted for,  
20 there are -- from this side you'd be able to see -- 12:02:22  
21 what? -- like, six or seven on the top, six, seven  
22 on the lower, like 14 of them, and then you count  
23 them. I'm not sure -- I don't think that's what  
24 Carrier meant.

25

1 BY MR. ARGENTI:

2 Q. So is it your testimony now that you are  
3 unsure what the Carrier Provisional means when it  
4 uses the term "required teeth"?

5 MR. BLYTHE: Objection to form.

6 THE WITNESS: No. The "required teeth" in my  
7 understanding, okay, in my understanding, is what  
8 is being required as maximum as possible in the  
9 certain shot that is per requirement of the Board  
10 or per requirement of the ADA, but I'm not sure if 12:03:22  
11 Carrier understand them that way.

12 BY MR. ARGENTI:

13 Q. Are you saying that you're applying your  
14 own understanding of the term "required teeth," but  
15 you're not sure if that's consistent with how  
16 Carrier is using the term?

17 A. Oh, no.

18 MR. BLYTHE: Objection to form.

19 THE WITNESS: No. I mean, in Carrier, okay, so  
20 the required teeth is clearly six of them or seven 12:03:49  
21 of them means certain shot. Okay? So that's what  
22 -- clearly, that's what Carrier produced. Okay?  
23 So he -- or yeah, the required certain number of  
24 teeth being there. So that doesn't mean that all  
25 teeth must be present in the view. That's my

1 understanding of Carrier.

2 BY MR. ARGENTI:

3 Q. I'm gonna pick one of those numbers that  
4 you just said. I'm gonna pick six teeth. Okay?  
5 So you just said that in Carrier, the required  
6 teeth could be six teeth. There are six teeth that  
7 are the required teeth; right?

8 A. That's to my understanding because it's --  
9 the template shows one, two, three, four, five,  
10 six, seven, that's -- yeah. 12:04:54

11 Q. So in that example where the -- where  
12 there are six required teeth, is that determined  
13 before the image is taken or after the image is  
14 taken in terms of determining what the required  
15 teeth are?

16 MR. BLYTHE: Objection to form.

17 THE WITNESS: I'm trying to formulate what's  
18 the different before or after the image was taken.  
19 The template is the same. So that's why -- I'm a  
20 little confused. 12:05:45

21 BY MR. ARGENTI:

22 Q. Let's stay with that example where there  
23 are -- the image is intended to capture six teeth.  
24 Those six teeth are the required teeth; correct?

25 MR. BLYTHE: Objection to form.

1 THE WITNESS: If the template has six, then,  
2 yes, that's the six required teeth.

3 BY MR. ARGENTI:

4 Q. And then an image is taken, and for  
5 whatever reason, the image only has five teeth.  
6 Maybe there's a missing tooth. Maybe one of the  
7 teeth is obscured in the image. Are those five  
8 teeth the required teeth?

9 MR. BLYTHE: Objection to form.

10 THE WITNESS: It is. 12:06:42

11 BY MR. ARGENTI:

12 Q. So that image has ensured that all  
13 required teeth are visible even though the set of  
14 required teeth is six teeth and the image only  
15 captures five teeth? That's your testimony?

16 MR. BLYTHE: Objection to form.

17 THE WITNESS: If I may read this: "The  
18 'required teeth' for such an image are those that  
19 are visible when a photographs of patient's dental  
20 arch is captured from the appropriate viewpoint as 12:08:01  
21 determined by an 'approximate' match with those  
22 teeth shown in the overlay for that predetermined  
23 view."

24 So, again, this is illustrated in  
25 Figure 2C, Carrier Provisional, which shows an

1 example of an overlay on the screen which shows  
2 that the teeth should be visible in the view.

3 BY MR. ARGENTI:

4 Q. Right. I agree that you read that  
5 correctly.

6 So in that sentence you are saying it is  
7 -- that the required teeth are those that are  
8 visible in the image, and yet two sentences above,  
9 you say that the required teeth are those that are  
10 intended to be in the predetermined view? 12:08:49

11 Those, to me, sound like two different  
12 things.

13 Which is it? Are the required teeth the  
14 ones that are intended to be in the view, or are  
15 the required teeth the ones that are actually  
16 captured in the view?

17 MR. BLYTHE: Objection to form.

18 THE WITNESS: Of course, if there is -- if we  
19 can have all the teeth present being captured  
20 visibly, that's what we try to require ourself to 12:09:19  
21 have. Okay? But whether the teeth is visible or  
22 not, even present or not, that's beyond our  
23 control. So then at that time then, yes, the  
24 required teeth is whatever visible.

25

1 BY MR. ARGENTI:

2 Q. So the required teeth, in your view, are  
3 whatever teeth are visible when an image is  
4 captured from the appropriate angle; is that  
5 correct?

6 A. From the appropriate angle, given the  
7 appropriate -- following the template as much as  
8 possible.

9 Q. What do you mean by "following the  
10 template as much as possible"? 12:10:17

11 A. The template that Carrier would have  
12 produced. There is a template there; right? So  
13 when we capture an image, there is a template. We  
14 have to try to follow, you know, as much as  
15 possible, meaning -- I mean, if the patient is  
16 here, I cannot be standing ten feet away with my  
17 little camera on my little unit trying to capture  
18 the tooth of a patient because the teeth of the  
19 patient will be way smaller than the template  
20 itself. So within the framework of the template 12:10:55  
21 that's at the area required to have.

22 Q. And how would software, an  
23 image-processing algorithm, make that determination  
24 as to whether the image appropriately followed the  
25 template?

1 MR. BLYTHE: Objection to form.

2 THE WITNESS: I don't know. I'm not a computer  
3 programmer that programs area. So  
4 I really don't know how. I mean, just from my  
5 understanding reading, it's not enough for me to  
6 formulate that opinion.

7 MR. BLYTHE: We have been going about another  
8 hour, Matt. Do you want to take another break  
9 here?

10 MR. ARGENTI: Yeah. We can do that. That's 12:12:08  
11 fine.

12 (A short break was taken from  
13 12:12 p.m. to 12:22 p.m.)

14 BY MR. ARGENTI:

15 Q. Okay. Dr. Kusnoto, can we turn to page 22  
16 of your declaration, please?

17 This is paragraph 37. Let me know when  
18 you're there.

19 A. Yes.

20 Q. Here, on this page, you have included a 12:22:52  
21 photograph of a tooth retractor; correct?

22 A. Yes.

23 Q. Actually, I might have misspoken there.

24 Would you refer to that as a cheek  
25 retractor or a tooth retractor or just a retractor?

1           A.    Usually, the name is tooth retractor.

2           Yeah.

3           Q.    Where did this particular retractor come  
4           from?

5           A.    This come from our clinic at the  
6           university.

7           Q.    Was it originally provided by  
8           Dental Monitoring?

9           A.    Many years ago.

10          Q.    When was that about? 12:23:43

11          A.    It's around 2000 maybe 20.

12          Q.    And what were the circumstances of the  
13          clinic receiving the retractor from  
14          Dental Monitoring?

15          A.    Oh, to perform initially for brief  
16          research that we did, and then later on, in 2021,  
17          happened to be when COVID hit, so we used this  
18          actually to continue some of our patient care.

19          Q.    When you received the retractor, did it  
20          come with any other equipment? 12:24:41

21          A.    No.

22          Q.    Just the retractor?

23          A.    Uh-huh.

24          Q.    Did it come with any software?

25          A.    We download the software to the phone.

1 Q. And did the clinic pay for the retractor  
2 and the software?

3 A. Yes.

4 Q. Who took this photo on page 22 of your  
5 declaration?

6 A. This is me, yeah. I took the photo.

7 Q. What's the purpose of this retractor?

8 A. The retractor that we have here, the  
9 purpose is to aid when patient is taking the  
10 mouth -- the dental pictures. 12:25:35

11 Q. And how does it aid in that?

12 A. First, it helps in retracting the mouth so  
13 that we have clear visibility to the area that we  
14 want to take the pictures with.

15 Q. If we look at this photograph, do you see  
16 the u-shaped part at the bottom of the retractor?

17 A. Yes.

18 Q. And just to be clear, if we look, there  
19 are four green dots on the retractor; right?

20 A. Yes. 12:26:17

21 Q. And the u-shaped part I'm referring to is  
22 the part that it looks like it connects the bottom  
23 two dots. Are we on the same page?

24 A. Yeah.

25 Q. It looks like it's even stamped or molded

1 with the words "Dental Monitoring" right at the  
2 bottom of that piece. Do you see that?

3 A. Let me get my glasses here.

4 Q. It's actually easier to see on my  
5 electronic copy. It is rather hard to see on this  
6 -- on the hard copy printout that I have.

7 A. Yes, I'm here. I saw it now.

8 Q. What is the purpose of that part of the  
9 retractor, the u-shaped piece?

10 A. Besides connecting the left and right to 12:27:03  
11 provide tension as this is being opened, the lips  
12 being shaped and lips being retracted, it's also  
13 for the ability for patients to hold onto it as the  
14 picture is being captured.

15 Q. So that u-shaped part of the retractor  
16 provides tension that helps pull the cheeks away  
17 from the teeth?

18 A. Yes.

19 Q. And the patient can hold that bottom  
20 u-shaped part of the retractor with one hand while 12:27:45  
21 taking a photo with the other hand or doing  
22 something else with the other hand?

23 A. Yes.

24 MR. BLYTHE: Objection. Form.  
25

1 BY MR. ARGENTI:

2 Q. So that retractor does not require someone  
3 to pull on the -- on both the left and right sides  
4 of it when taking a photo; right?

5 A. Not to the best of my knowledge on the  
6 patients that I saw.

7 Q. Let's turn now to paragraph 75 of your  
8 declaration, please.

9 Let me know when you're there.

10 A. Yes, I'm here. I'm there. 12:29:01

11 Q. In paragraph 75 you address the issue of  
12 whether the Carrier Provisional discloses a patient  
13 taking a photo of their own teeth; right?

14 A. Yeah, as part of this paragraph.

15 Q. In forming your opinions, did you have an  
16 understanding of what Carrier means when it refers  
17 to a "user"?

18 MR. BLYTHE: Objection to form.

19 THE WITNESS: Let me get Carrier here, just to  
20 be sure. It's going to be referring to 12:29:49  
21 Exhibit 1006.

22 I'm also looking at the Exhibit 0005 now.

23 Going back to Exhibit 0006, so using the  
24 Exhibit 0006, my understanding of here, it's either  
25 a doctors or a practitioner.

1 BY MR. ARGENTI:

2 Q. So I understand the parties have a dispute  
3 about who can be the user in the Carrier  
4 Provisional and whether the user is a dentist or  
5 can be a patient, but that's not quite what I'm  
6 asking.

7 My question is do you have an  
8 understanding of what Carrier means -- the Carrier  
9 Provisional means when it refers to a "user"?

10 MR. BLYTHE: Objection to form. 12:33:43

11 THE WITNESS: Can you help me point out exactly  
12 where in the provisional here that the -- I'm  
13 looking at paragraph 63, 62, of this, but the user  
14 is some of -- a doctor taking a picture. Is that  
15 what you're asking? My understanding of the users;  
16 right?

17 BY MR. ARGENTI:

18 Q. My question was just did you have an  
19 understanding?

20 A. Yeah, that my understanding is the doctor 12:35:58  
21 is taking a picture of a patient.

22 Q. Okay. So --

23 A. Yeah.

24 Q. -- with that understanding, why don't we  
25 turn to paragraph 53 of the Carrier Provisional.

1                   Could you read the sentence in that  
2 paragraph to me, please?

3           A.    "In general, this method" -- is at the --  
4 is "In general, this method and apparatus may  
5 improve on existing technology by guiding a user  
6 through the process of collecting relevant patient  
7 images predetermined" -- "e.g., a predetermined set  
8 of images enhancing and/or confirming the image  
9 quality, associating patient information, and  
10 transmitting the set of images so that they may be       12:37:06  
11 used in a dental or orthodontic procedure."

12           Q.    Thank you.

13                   Could you also read the first sentence of  
14 the next paragraph, please, paragraph 54?

15           A.    "For example, the methods and apparatus  
16 described herein may use a user own handheld  
17 electronic apparatus having a camera (smartphone)  
18 and adapted so that the user's device guides the  
19 user in taking high-quality images (at the correct  
20 aspect ratio, magnification, lighting, focus,               12:37:51  
21 et cetera) of a predetermined sequence and  
22 orientation. In particular, these apparatuses and  
23 methods may include the use of an 'overlay' on the  
24 real-time image of the screen providing immediate  
25 feedback on each of the desired orientations."

1 Q. The Carrier Provisional says that it  
2 guides the user through the process of taking  
3 images; correct?

4 A. Yes.

5 Q. So in the Carrier Provisional, the term  
6 "user" refers to the one that is taking photos of  
7 the patient; correct?

8 MR. BLYTHE: Objection to form.

9 THE WITNESS: Somebody taking the pictures for  
10 the patients. 12:39:02

11 BY MR. ARGENTI:

12 Q. And that's the user; right?

13 MR. BLYTHE: Objection to form.

14 THE WITNESS: Yeah. The doctors; right?  
15 Either doctors, healthcare provider, dental  
16 assistant in an orthodontic records setting because  
17 this is for maybe used in dental and orthodontic  
18 procedure.

19 BY MR. ARGENTI:

20 Q. Right. 12:39:32

21 So the user -- the thing that the user is  
22 using is the camera to take the picture; correct?

23 MR. BLYTHE: Objection to form.

24 THE WITNESS: Is the camera to take the  
25 pictures. The camera that has the Carrier

1 technology and to take the pictures.

2 BY MR. ARGENTI:

3 Q. So in the Carrier Provisional, the term  
4 "user" refers to the one that is using the camera  
5 with the Carrier technology to take the pictures;  
6 right?

7 MR. BLYTHE: Objection to form.

8 THE WITNESS: Which is the healthcare provider  
9 and the doctors offer seeing the patients.

10 BY MR. ARGENTI:

12:40:22

11 Q. But it doesn't say that in those  
12 paragraphs. I'm not asking -- I'm trying to set  
13 aside the issue of who that user is, and I'm  
14 focused on what the user does.

15 A. The user takes the pictures.

16 Q. Thank you.

17 Why don't we take out the Salah exhibit,  
18 please. That's the translated version that's  
19 marked as Exhibit 1008.

20 A. Yeah, this one.

12:41:43

21 Q. Have you reviewed this document?

22 A. Yes.

23 Q. Did you review it in its entirety when  
24 forming your opinions in this IPR?

25 A. Yes, in the area that pertains to this

1 IPR.

2 Q. Are there portions of this document,  
3 Exhibit 1008, that you have not reviewed?

4 A. I reviewed the 00 all. I may not  
5 completely understand when it comes to the detail  
6 of the high technology that they mentioned here,  
7 like some of the algorithm or those, but I review.

8 Q. Sure.

9 Let's take a look at page 8, please.

10 A. Page what?

12:42:51

11 Q. 8.

12 A. Yes.

13 Q. Take a look at the paragraph that starts  
14 at line 19 and let me know when you've read it to  
15 yourself.

16 A. Paragraph in -- which one? The one that  
17 says "In particular"?

18 Q. Right.

19 A. Okay. So "In particular the method can be  
20 used during orthodontic treatment, especially to  
21 monitor progress with step a) being carried out  
22 less than three months, less than two months, less  
23 than one month, less than one week, less than  
24 two days after the start of the treatment, i.e.,  
25 after being fitted with a device intended to

12:43:28

1 correct the positioning of the patient's teeth,  
2 so-called 'active retainer.'"

3 Is that the paragraph?

4 Q. Yes.

5 So this paragraph here, Salah says that  
6 its method can be used to monitor progress during  
7 orthodontic treatment; right?

8 A. Yes.

9 Q. And one example that it gives of  
10 orthodontic treatment is with an active retainer; 12:44:23  
11 correct?

12 A. Yes. Yes.

13 Q. What is an active retainer?

14 A. It's a retainer that we sometimes use to  
15 either actively control the habit of the patient so  
16 that the treatment that we have delivered did not  
17 relapse.

18 Q. How is that different from a passive  
19 retainer?

20 A. Passive retainer is -- it doesn't have the 12:45:22  
21 component of -- it's basically passive. It doesn't  
22 move anything. It's just retaining -- retaining  
23 the current position of the finished treatment.

24 Q. So when you say that an active retainer is  
25 trying to "prevent relapse," does an active

1       retainer move the teeth?

2           A.    For the most part, some do, but for the  
3       most part, they keep the teeth where they are while  
4       actively guarding, let's say, the lips or the  
5       tongue, most often, which some people have habits  
6       that needs to be broken before it creates the  
7       relapse.

8           Q.    So in the specific treatment example  
9       that's provided in this paragraph of Salah, the  
10      teeth typically would not move.   Do I have that       12:46:59  
11      right?

12          A.    If it doesn't have the active component,  
13      it will move.

14          Q.    "If it doesn't have the active component,  
15      it will move."

16                  But we're talking about the active  
17      retainer example there.

18          MR. BLYTHE:  Objection to form.

19          THE WITNESS:  Yeah, I don't know if this is --  
20      let me try to think about it.  Okay?  So trying to       12:47:39  
21      find a way to explain it better.

22                  So some treatment is prone to relapse even  
23      though that they already fit nicely.  Any treatment  
24      without retainer, whether it's active or passive,  
25      will be very prone to relapse if it's not given an

1 appropriate retainer for a given time.

2 Now, some case has even more prone to  
3 relapse if the case has habits, like, either tongue  
4 thrusts or, you know, tendency towards certain  
5 muscles.

6 So in this case there is a active  
7 component in the retainer that helps prevent --  
8 either preventing relapse, preventing movement, or  
9 sometimes, in a growing individual, it promotes the  
10 growth to a better way. 12:49:18

11 So those active component had to be  
12 monitored regularly. So most patient think when  
13 the braces is off or the liner is off, they are off  
14 treatment. They don't care about the retainer, but  
15 in this particular instance, we need to really care  
16 about them because the retainer is part of the  
17 treatment.

18 BY MR. ARGENTI:

19 Q. So do I have it right that the purpose of  
20 an active retainer is generally to prevent movement 12:49:56  
21 of the teeth?

22 A. Not necessarily. Sometimes we actually  
23 want certain teeth to adapt to the new growth, to  
24 the new muscle as the patient develop, as the  
25 patient grow. Yeah.

1 Q. This paragraph, starting at line 19 of  
2 page 8 refers to "step a)."

3 Do you see that?

4 A. Oh, yeah, "step a)." Yeah.

5 Q. What is "step a)"?

6 A. This is the step prior we described in --  
7 let me see -- to my understanding, is the one  
8 that's described in -- I don't know how to say  
9 this -- this is 30 on there, second page here,  
10 page 1 -- 12:52:15

11 Q. Page 1, the number 1 at the top of the  
12 page?

13 A. Yeah, and then there is an a, b, c, d, e,  
14 f.

15 Q. So we are looking at (a)?

16 A. (a) is "creation of three-dimensional  
17 digital reference model part of an arch, preferably  
18 one" -- "at least one of the patient's arches or an  
19 'initial reference model,' preferably, for each  
20 tooth, defining use of initial reference model, of 12:53:00  
21 a three-dimensional digital reference model of said  
22 tooth, 'tooth model.'"

23 Q. And then what is step b?

24 A. Step b is "acquisition of at least one  
25 two-dimensional image of the patient's arches, the

1 so-called 'updated image,' under actual acquisition  
2 conditions."

3 Q. Turn to page 6, please.

4 And you see, starting at line 15 of  
5 page 6, where it says "The time interval between  
6 steps a) and b) or between Steps A and B may be  
7 greater than 1 week, 2 weeks, 1 month, 2 months, or  
8 6 months"?

9 A. Yes, that's what it said.

10 Q. How much would a patient's teeth be 12:54:28  
11 expected to move over a period of one week when  
12 monitoring progress during orthodontic treatment?

13 MR. BLYTHE: Objection to form.

14 THE WITNESS: It depends from case to case.  
15 Some move fast; some move slower. Depends on the  
16 age of the patient. Depends if the patient has  
17 habits or growth -- we call it growth modification.  
18 So it's a certain thing, underbite, overbite, those  
19 kind of things, it depends, but generally the tooth  
20 movement is within half to a millimeter a month. 12:55:20  
21 Yeah.

22 BY MR. ARGENTI:

23 Q. Why don't we turn to paragraph 48 of your  
24 declaration, please. That's on page 36.

25 A. Yes. Uh-huh.

1 Q. In this paragraph you discuss the time and  
2 expense of anonymizing dental patient images;  
3 right?

4 A. Yes.

5 Q. And in the third sentence, you say,  
6 "Anonymizing an image involves redacting  
7 identifiable features of a patient's face, removing  
8 patient identifying information and metadata, and  
9 assigning unique and random identifiers to the  
10 image." 12:56:55

11 Do you see that?

12 Can I get a verbal answer for the  
13 transcript?

14 A. Yes. I'm sorry. Yes.

15 Q. Which of those three anonymization tasks  
16 is the most time consuming?

17 MR. BLYTHE: Objection to form.

18 THE WITNESS: The first and the last, which is  
19 redacting identifiable features and, well, removing  
20 patient identification information. Yeah. 12:57:48  
21 That's -- that's the most time consuming of the  
22 identification process.

23 BY MR. ARGENTI:

24 Q. What are you referring to there when you  
25 say "patient identifying information"?

1           A.    It's -- we need to abide by HIPAA  
2           regulation.  So any PHI, personal health  
3           information, has to be scraped out, any link that  
4           can be linked to the patients, like, of course,  
5           names, date of birth, Social Security, or insurance  
6           information or part of the facial face in the  
7           dental field at least that's what we have to be  
8           careful and eliminate.

9           Q.    So the last one you mentioned, part of the  
10          features of the patient's face, that's the first       12:59:07  
11          category of the three -- right? -- redacting  
12          identifiable features of the patient's face;  
13          correct?

14          MR. BLYTHE:  Objection to form.

15          BY MR. ARGENTI:

16          Q.    And then you go on to say, "removing  
17          identifiable patient information."  So I think  
18          there are you referring to stuff other than  
19          identifiable features of a patient's face?

20          A.    Well, they are all time-consuming               12:59:34  
21          problems.  We usually do it at -- in one passing,  
22          you know.  So for a patient we do this, this, this,  
23          this, and then we clean them up.  Yeah.

24          Q.    So the other stuff, aside from the facial  
25          features of the patient's face, how are those other

1 pieces of information that you mentioned, such as  
2 name, birthdate, Social Security number, how are  
3 those included in a photographic dental image?

4 MR. BLYTHE: Objection to form.

5 THE WITNESS: I -- I'm talking about the  
6 identification of medical dental records in  
7 general. I mean, this is -- it also pertains -- if  
8 there is only dental photographs that we do have to  
9 de-identify the face. There is no face included in  
10 that.

13:00:43

11 BY MR. ARGENTI:

12 Q. Okay. So at the beginning of this  
13 paragraph talks about the need to anonymize dental  
14 images; right?

15 A. Yeah, if we want to use this to develop  
16 some kind of a research project, we do have to  
17 abide by an IRB. We cannot show patient's  
18 identifier.

19 Q. Right.

20 And if it's an image of just of the teeth, 13:01:19  
21 not the patient's face, then you don't need to  
22 redact the image; right?

23 MR. BLYTHE: Objection to form.

24 THE WITNESS: The image itself, no, but the  
25 identifier that goes with the image, yes.

1 BY MR. ARGENTI:

2 Q. And what identifier are you referring to  
3 there?

4 A. The patient's name, for instance, any age  
5 or anything that goes with that it has to be  
6 de-identified.

7 Q. And is that -- how is that included with  
8 the image file?

9 MR. BLYTHE: Objection to form.

10 THE WITNESS: Sometimes it goes to the 13:01:56  
11 metadata. So we have to be careful it's not there.  
12 Yeah. And if in a medical dental setting, all of  
13 these image go to the secure server and their  
14 management system before we can use it, it always  
15 link to a patient in apps. In the application it  
16 always link patient, create patient, patient's  
17 name, and all that stuff. So we have to be careful  
18 that the metadata did not get embedded into the  
19 image being exported.

20 If it's a DICOM file, for instance, we 13:02:51  
21 always -- the metadata goes with it. So then when  
22 -- anyone that has the ability to open the DICOM  
23 file has the access to the patient's personal  
24 health information.

25

1 BY MR. ARGENTI:

2 Q. And then you go on to say that you would  
3 "need to assign unique and random identifiers to  
4 the image." Is that a file name?

5 A. No.

6 Then we generate the -- it depends on the  
7 research, for instance. If we gonna do research in  
8 certain condition of the teeth, okay, so then we  
9 generate a random number, and that random number  
10 being assigned to a particular file which has no 13:03:43  
11 name, no associated names with any patients, so  
12 that instead of Budi, the patient becomes 008,  
13 something like that.

14 Q. So to anonymize a dental image that  
15 doesn't include the patient's face, you would need  
16 to strip out any identifying metadata and replace  
17 it with a unique random number; correct?

18 A. Yes.

19 MR. BLYTHE: Form. Objection to form.

20 BY MR. ARGENTI: 13:04:27

21 Q. In this paragraph, a little further down  
22 in paragraph 48, you go on to say that you have  
23 personal experience anonymizing a dataset that was  
24 smaller than the 10,000 images at issue here.

25 Do you see that?

1 A. Yes.

2 Q. Did that dataset that you referred to  
3 there require all three types of anonymization that  
4 you discuss in this paragraph, including redacting  
5 portions of the image?

6 A. It does, yeah.

7 Q. In the next paragraph, you discuss the  
8 time and expense of labeling dental images; right?

9 A. Yes.

10 Q. And about halfway down on page 37, you 13:05:36  
11 refer to your own experience adding pixel-wise  
12 contours of teeth and annotations of tooth numbers  
13 to dental images.

14 Do you see that?

15 A. At page 37; correct?

16 Q. Right.

17 MR. BLYTHE: What was the last answer?

18 I couldn't hear that.

19 THE WITNESS: Page 37?

20 MR. ARGENTI: Verification for page 37. 13:06:16

21 BY MR. ARGENTI:

22 Q. Do you see the sentence --

23 A. Yeah. Yeah. Yeah.

24 Q. -- from my personal experience?

25 A. Yes.

1 Q. What experience are you referring to  
2 there?

3 A. No, this is to anonymize -- first, to  
4 anonymize the steps of dental records. Okay? So  
5 when we say dental records, it might also include  
6 X-rays, radiographs. Okay? So other than just  
7 teeth. That's the dental records, X-rays, teeth  
8 also can be included there. Okay? So -- and  
9 including the study models, the scans. Those are  
10 all dental records. 13:07:07

11 So anonymizing the dental records for a  
12 proposed -- and, then, first, to eliminate any  
13 personal health information, anything that can link  
14 this to a patient and then assign an identifier,  
15 and then we have to also -- depending on the  
16 research project, sometimes we also have to  
17 digitize certain structures.

18 So if we want to study a shape of lower  
19 molar, for instance, then we have to do carveout,  
20 to point the lower molar. If we want to study the 13:07:52  
21 shape of a head X-rays, then we have to manually  
22 identify the area of interest that we want to study  
23 and label them: this is -- this is nose, this is  
24 eyes, this is mouth, something like that. So --  
25 and then we run studies out of that.

1 Q. I was asking specifically about the  
2 personal experience adding pixel-wise contours of  
3 teeth and annotations of tooth numbers to dental  
4 images that you referred to there on page 37,  
5 Dr. Kusnoto.

6 A. Yes.

7 Q. What's included in that--

8 A. Oh, that would include -- you know, you  
9 start by de-identifying and all that stuff, and  
10 then you isolate in the -- in this particular one, 13:08:54  
11 we isolate the upper and lower scan, which is -- we  
12 call it the occlusogram upper arch and lower arch  
13 separately, and then you identify the border of  
14 each tooth for a propose measuring the width of  
15 each tooth so that we boundary and then segment it  
16 to teeth and label it -- this is first molar, upper  
17 left second molar, or lower right second bicuspid  
18 tooth -- and then we put labels on it.

19 Q. When was that project?

20 A. Several times. In 2016 there is one. 13:09:40  
21 In '20 there is another one. In 2022 -- you know,  
22 several instances that leads to a different --  
23 different projects.

24 Q. So the project in 2016, what was the  
25 purpose -- was it a research project?

1 A. It's a research project.

2 Q. And was that affiliated with the  
3 foundation that we talked about earlier today?

4 A. No.

5 Q. What was the purpose of the research  
6 project?

7 A. It's to evaluate the accuracy of -- we  
8 call it American Board Orthodontics Index, degree  
9 of difficulty of a face, and then we evaluate  
10 whether if you are doing it in computers or you are 13:10:53  
11 doing it manually by measuring which one is more --  
12 it's more accurate.

13 Q. What was the source of funds for the  
14 research project?

15 A. Usually, it's from UIC. Occasionally,  
16 it's from, you know, other agency like American  
17 Association of Orthodontic Foundation, those.

18 Q. Where do the images come from that you  
19 used for that project?

20 A. It's a -- it's a -- our clinic, our 13:11:34  
21 university clinic.

22 Q. So it was a collection of pre-existing  
23 images?

24 A. Yes.

25 Q. You didn't need to take new images

1 specifically for the project?

2 A. No.

3 Q. How many images did that project involve?

4 A. Oh, it's been many years. I really cannot  
5 recall exactly, but it's hundreds.

6 Q. And were you labeling just the edges of  
7 the teeth and the tooth numbers or was there  
8 additional labeling?

9 A. There are some additional parameters like  
10 inter-molar width, inter-canine width, the depth of 13:12:32  
11 the arch, the contour of the tongue, a few other  
12 parameters.

13 Q. Did that project involve labeling any  
14 issue with the teeth, like malocclusion?

15 A. Could be, yeah. Could be. The one with  
16 the American Board of Orthodontics, I think it is,  
17 yeah.

18 Q. And I think you say in your declaration  
19 here that that labeling took about 20 minutes per  
20 image; is that right? 13:13:19

21 A. Yeah, roughly, yeah.

22 Q. And then at the end of the paragraph, you  
23 estimate that it would take more than two years for  
24 unlicensed dental students to create a learning  
25 base of 10,000 cell phone images of dental arches;

1 right?

2 A. That's reasonable.

3 Q. How many students did you base that  
4 estimate on?

5 A. What?

6 Q. How many students did you base that  
7 estimate on?

8 A. Five.

9 Q. So if it was ten students, it would take  
10 one year? 13:14:10

11 A. Yeah, it would depend. Some students are  
12 faster than the other. Some takes time. Some  
13 full-time some -- actually, rarely full-time. Most  
14 of them part-time, but they do pool their hours.  
15 So, again, it's hard to say.

16 Q. Can you walk me through the math of how  
17 you calculated a cost of upwards of \$1.5 million to  
18 create that learning base?

19 A. I have -- I don't have it with me here,  
20 but it's just a -- it's kind of hard now to 13:15:03  
21 explain, but, you know, it's -- let's say we have a  
22 thousand patients. That thousand patients needs to  
23 be all de-identified. Each patient might have more  
24 than a time point. Okay? So each patient have,  
25 let's say, eight images -- ten, make it ten images.

1 So that's like 10,000 images. Right? 10,000  
2 images, that means if we have ten people doing the  
3 labeling, then it's one person have, like --  
4 what? -- a thousand images to work with. It takes  
5 20 minutes an image.

6 So I don't have a calculator with me here  
7 but an hour is, like, three images. We have a  
8 thousand. So 300 hours, 350 hours' worth of labor.  
9 Okay. So then you have -- like, if this is a  
10 dentist, my dental students are all residents. 13:17:13  
11 Okay? So they are all dentists already. So they  
12 would not take less than let's say -- I don't  
13 know -- 50, \$60 an hour kind of thing.

14 So, no, I don't have a pen here. So I  
15 cannot write. So I'm assuming you take the notes.  
16 I don't know the math exactly where it is, but  
17 that's how I come up with this. Okay?

18 So, then, people don't work at 350,  
19 400 hours straight. So they -- you take maybe five  
20 hours, ten hours a week kind of thing. You spread 13:18:03  
21 them out. Then you have to go to quality check.  
22 So the supervisor have to check again, check again.  
23 The supervisor is a faculty, like, \$200 an hour  
24 rate. So then it all compounded to about two  
25 years' project and the value of this value, the one

1       that I say here. So that's kind of how I...

2           Q.    And when you refer to that estimate in the  
3       last sentence of paragraph 49 and you talk about  
4       the work to capture, compile, anonymize, and label,  
5       you're referring to the anonymization steps that  
6       you talk about in the preceding paragraph 48;  
7       right?

8           A.    Yes.

9           Q.    And when you talk about the time that it  
10      would take to label and your estimate of that and       13:19:18  
11      the 20 minutes that you think it would take to  
12      label, that's based on your own experience that you  
13      just described earlier in that project from 2016;  
14      right?

15          A.    Yeah, when the -- as I said, there are  
16      multiple times we are doing similar things. So the  
17      number always came up would be about the same per  
18      image.

19          Q.    So in all those projects that you talked  
20      about in your personal experience, it was taking       13:19:47  
21      you or your team about 20 minutes to label each  
22      image?

23          A.    Uh-huh.

24          MR. ARGENTI: Okay. We've been going about an  
25      hour again. So I think this is probably a good

1 time for a short break. Should we come back --  
2 I think it's, I guess, 1:30 your time?

3 MR. BLYTHE: Let's stop for lunch here.

4 (A short break was taken.)

5 MR. ARGENTI: Back on the record.

6 That's all the questions from me for now  
7 subject to any follow-up after redirect.

8 MR. BLYTHE: Okay. Let's take a five-minute  
9 break, and we'll come back, and I'll see if I have  
10 any follow-up for the witness. 13:31:31

11 MR. ARGENTI: Okay.

12 (A short break was taken.)

13 EXAMINATION

14 BY MR. BLYTHE:

15 Q. Dr. Kusnoto, do you recall earlier when  
16 counsel was asking you about paragraph 25 of your  
17 declaration? Could you please turn to that?

18 A. (Inaudible).

19 Q. Yes, on page 12.

20 A. Yes. 13:35:24

21 Q. Do you see, in the last sentence, your  
22 declaration refers to terms that would have had a  
23 specific meaning to dental professionals? Do you  
24 see that?

25 A. The paragraph that says "This is because,

1 as I discuss further below, both references concern  
2 dental imaging, they discuss technical concepts  
3 from the dental field, and they use terms that  
4 would have had a specific meanings to dental  
5 professionals."

6 Q. Do you recall earlier in your deposition  
7 when Mr. Argenti asked you what terms in the  
8 Carrier Provisional reference you were referring  
9 to? Do you recall that?

10 A. Yes, I recall that.

13:36:09

11 Q. Okay. Could you please turn to  
12 Exhibit 1006, the Carrier Provisional, and  
13 specifically on page 2.

14 A. Exhibit. Let's see.

15 Okay. Carrier Provisional at page 2?

16 Q. Yes. It will say 2 of 32 at the bottom  
17 and specifically paragraph 4. Just let me know  
18 when you're there.

19 A. Yes, paragraph 4.

20 Q. Do you see the second-to-last sentence in  
21 paragraph 4 states that "If the camera of the  
22 mobile phone is too far to the teeth, dental photos  
23 cannot meet the orthodontic standards."

13:37:07

24 Do you see that?

25 A. Yes.

1           Q.    Is "orthodontic standards" also a term  
2   that would have also had a specific meaning to  
3   dental professionals?

4           A.    Yes.

5           MR. BLYTHE:  No further questions.

6           MR. ARGENTI:  Nothing from me.

7                               (The proceedings concluded  
8                               at 1:37 p.m.)

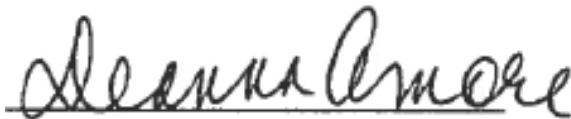
C E R T I F I C A T E

I, DEANNA AMORE, a Shorthand Reporter and  
notary public, within and for the State of  
Illinois, County of DuPage, do hereby certify:

That BUDI KUSNOTO, DDS, MS, the witness  
whose examination is hereinbefore set forth, was  
first duly sworn by me and that this transcript of  
said testimony is a true record of the testimony  
given by said witness.

I further certify that I am not related to  
any of the parties to this action by blood or  
marriage, and that I am in no way interested in the  
outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my  
hand this 13th day of August 2024.

A handwritten signature in cursive script, reading "Deanna Amore", written in dark ink. The signature is fluid and stylized, with the first and last names being clearly legible.

Deanna M. Amore, CRR, RPR, CSR

1 Andrew Blythe, Esq.  
2 ablythe@gibsondunn.com

3 August 13, 2024

4 RE: Align Technology, Inc. v. Dental Monitoring SAS  
5 8/9/2024, Budi Kusnoto , DDS, MS (#6839161)

6 The above-referenced transcript is available for  
7 review.

8 Within the applicable timeframe, the witness should  
9 read the testimony to verify its accuracy. If there are  
10 any changes, the witness should note those with the  
11 reason, on the attached Errata Sheet.

12 The witness should sign the Acknowledgment of  
13 Deponent and Errata and return to the deposing attorney.  
14 Copies should be sent to all counsel, and to Veritext at  
15 Calendar-PNW@Veritext.com.

16 Return completed errata within 30 days from  
17 receipt of testimony.

18 If the witness fails to do so within the time  
19 allotted, the transcript may be used as if signed.

20

21

22 Yours,

23 Veritext Legal Solutions

24

25

1 Align Technology, Inc. v. Dental Monitoring SAS  
2 Budi Kusnoto , DDS, MS (#6839161)  
3 E R R A T A S H E E T  
4 PAGE\_\_\_\_\_ LINE\_\_\_\_\_ CHANGE\_\_\_\_\_  
5 \_\_\_\_\_  
6 REASON\_\_\_\_\_  
7 PAGE\_\_\_\_\_ LINE\_\_\_\_\_ CHANGE\_\_\_\_\_  
8 \_\_\_\_\_  
9 REASON\_\_\_\_\_  
10 PAGE\_\_\_\_\_ LINE\_\_\_\_\_ CHANGE\_\_\_\_\_  
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22 \_\_\_\_\_  
23 \_\_\_\_\_  
24 Budi Kusnoto , DDS, MS Date  
25

1 Align Technology, Inc. v. Dental Monitoring SAS

2 Budi Kusnoto , DDS, MS (#6839161)

3 ACKNOWLEDGEMENT OF DEPONENT

4 I, Budi Kusnoto , DDS, MS, do hereby declare that I  
5 have read the foregoing transcript, I have made any  
6 corrections, additions, or changes I deemed necessary as  
7 noted above to be appended hereto, and that the same is  
8 a true, correct and complete transcript of the testimony  
9 given by me.

10

11

12 Budi Kusnoto , DDS, MS

Date

13 \*If notary is required

14

SUBSCRIBED AND SWORN TO BEFORE ME THIS

15

\_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_.

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|------------------------|-----------------------|------------------------|-----------------------|
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[annotations - association]

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[assume - calculator]

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**[calendar - component]**

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**[declaration - dimensional]**

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[directed - exhibit]

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[hopefully - inventor]

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[okay - part]

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[participants - plan]

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[please - provide]

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

## VERITEXT LEGAL SOLUTIONS

### COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

Veritext Legal Solutions is committed to maintaining the confidentiality of client and witness information, in accordance with the regulations promulgated under the Health Insurance Portability and Accountability Act (HIPAA), as amended with respect to protected health information and the Gramm-Leach-Bliley Act, as amended, with respect to Personally Identifiable Information (PII). Physical transcripts and exhibits are managed under strict facility and personnel access controls. Electronic files of documents are stored in encrypted form and are transmitted in an encrypted

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