UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ALIGN TECHNOLOGY, INC.,	)	
	)	
Petitioner,	)	
	)	
vs.	)	Case No. IPR2024-00052
	)	U.S. Patent No.
DENTAL MONITORING,	)	11,049,248
	)	
Patent Owner	)	

REMOTE DEPOSITION UPON ORAL EXAMINATION OF

JOHN MONGAN, M.D., Ph.D

WEDNESDAY, AUGUST 28, 2024

8:59 A.M.

(All participants appeared remotely)

TAKEN AT THE INSTANCE OF THE PETITIONER

REPORTED BY:

MONNA J. NICKESON, RPR, CRR, CCR, CSR CA 14430

JOB: 6876038

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ALIGN - EXHIBIT 1051

Align Technology, Inc. v. Dental Monitoring SAS - IPR2024-00110

APPEARANCES:

FOR THE PLAINTIFF:

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I N D E X

ALIGN TECHNOLOGY VS. DENTAL MONITORING
Case No. IPR2024-00052
U.S. Patent No. 11,049,248
WEDNESDAY, AUGUST 28, 2024

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MARKED EXHIBITS

NUMBER	DESCRIPTION	PAGE
Exhibit 1006	Invisalign Clinical Monitoring Guide 2003	31
Exhibit 1002	Declaration of Dr. Hassan Foroosh	44
Exhibit 1008	Salah WO 2016/066651 A1	52
Exhibit 1005	U.S. Patent Application Publication Kim	83
Exhibit 2053	Declaration of Nathaniel E. Frank-White	88

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BE IT REMEMBERED that on WEDNESDAY, AUGUST 28, 2024, at 8:59 A.M., the remote deposition of JOHN MONGAN, M.D., Ph.D, was taken before Monna J. Nickeson, Certified Realtime Reporter, Registered Professional Reporter, Certified LiveNote Reporter, Certified Court Reporter (WA 3322), Certified Shorthand Reporter (ID 1045), (OR 16-0441), (CA 14430), the following proceedings took place:

* * * * * 08:35

THE COURT REPORTER: Good morning. 08:35
This is the remote deposition of 08:35
Dr. John Mongan, M.D., Ph.D., in the matter 08:35
of Align Technology versus Dental 08:35
Monitoring SAS. Today's date is Wednesday, 08:35
August 28th, 2024 and the time is 08:35
approximately 8:59 a.m. 08:36
Doctor, would you please raise your 08:36
right hand. 08:36
JOHN MONGAN, M.D., Ph.D, 08:45
having been first duly sworn to tell the truth, the whole truth, and nothing but the truth, testified as follows:

EXAMINATION

BY MR. ARGENTI:

Q. Good morning, Dr. Mongan. Could you please state your full name for the record? 09:00

A. Yes. My name is John Thomas Mongan. 09:00

Q. Where are you currently located? 09:00

A. I'm currently located at my office at U.C. San Francisco. I believe the address is (indecipherable). 09:00

(The Court Reporter requested clarification.) 09:00

THE WITNESS: I believe it's 500 Parnassus Avenue. 09:00

BY MR. ARGENTI: 09:00

Q. Given that we are conducting this deposition remotely, is there anyone in the room with you today? 09:00

A. There's no one in the room with me. 09:00

Q. Do you have printed hard copies of your declarations and the cited exhibits available to you today? 09:00

A. I have printed hard copies of my declarations and of the '945 and the '248 patent. 09:00

Q. Do you have copies of the prior art 09:00

at issue in this case? 09:00
A. I do not. 09:00
Q. Okay. No problem. I know you're 09:00
connected to the Exhibit Share system, so we 09:01
can use that system when we need to. 09:01
A. Great. 09:01
Q. For your declaration and the patents 09:01
that you mentioned, are those clean copies? 09:01
A. They are clean copies. 09:01
Q. Do you have any notes with you in 09:01
the room today? 09:01
A. There are no notes that are 09:01
immediately accessible to me. 09:01
Q. You understand that you're here 09:01
today with regard to two IPR proceedings, 09:01
correct?
A. I understand that, yes.
Q. One of those IPRs is IPR 2024-00052 09:01
and it is related to U.S. patent number 09:01
11,049,248. Is that your understanding? 09:01
A. That's my understanding. 09:01
Q. And if I refer to that patent as the 09:01
'248 patent today will you understand what I'm 09:01
referring to? 09:01
A. Yes, I will. 09:01

Q. The other IPR that you're here to 09:01
talk about today is IPR 224-00110 which relates 09:01
to U.S. patent number 11,109,945, right? 09:02
A. Yes. My understanding is that's the 09:02
other -- the other IPR that we're here to talk 09:02
about today. 09:02
Q. And if I refer to that second patent 09:02
as the '945 patent you'll know what I'm talking 09:02
about? 09:02
A. Yes, I will. 09:02
Q. And do you recall that I took your 09:02
deposition about a month ago? 09:02
A. I do recall that. 09:02
Q. And that previous deposition 09:02
involved U.S. patent number 10,755,409, right? 09:02
A. I recall that that patent ends in 09:02
409. 09:02
Q. And I may refer to that patent today 09:02
as the '409 patent. Will you understand what 09:02
I'm referring to? 09:02
A. Yes, I will. 09:02
Q. Have you had your deposition taken 09:02
since the one regarding the '409 patent? 09:02
A. I've not had any other depositions 09:02
since the last time that you deposed me. 09:02

Q. So that would make this -- today the 09:02
third time that you've given a deposition this 09:03
year; is that right? 09:03
A. This is the third deposition that 09:03
I've given, yes. 09:03
Q. So the same ground rules apply today 09:03
as in your previous deposition that we did 09:03
together. I'm going to run through them just 09:03
to be clear for the record. 09:03
You understand that you're providing 09:03
your testimony under oath and you're expected 09:03
to tell the truth? 09:03
A. I do understand that. 09:03
Q. Is there any reason you cannot 09:03
provide complete and accurate testimony today? 09:03
A. No. 09:03
Q. Hopefully, my questions are clear. 09:03
If you don't understand any question, please 09:03
let me know that it's unclear. 09:03
Under the guidelines for this 09:03
proceeding, you must ask me for any 09:03
clarification. If you do not tell me 09:03
otherwise, I will assume that you understood 09:03
the question, okay? 09:03
A. I'll ask for clarification if 09:03

I don't understand the question. 09:03
Q. Please provide verbal answers rather 09:03
than nodding your head for the benefit of the 09:03
record and the reporter, okay? 09:03
A. I will try to remember to do that. 09:04
If I don't remember, I am happy to be reminded. 09:04
Q. And we can take a break at any time 09:04
that you'd like one as long as there's not a 09:04
question pending. If there is a question 09:04
pending, you have to answer the question before 09:04
we take a break, you understand? 09:04
A. Understood. 09:04
Q. And as with our last deposition, my 09:04
plan will be to take a break approximately 09:04
every hour or so, but if you'd like one more 09:04
frequently or before I suggest one, just let me 09:04
know. 09:04
A. Okay. 09:04
Q. Can you please pull out your 09:04
declaration for the '248 patent? That's 09:04
Exhibit 2028 in IPR 2024-00052. 09:04
A. I have that exhibit in front of me. 09:04
Q. Can you turn to page 138 of the 09:04
declaration at the end? 09:04
A. Yes. 09:04

Q. Is that your electronic signature on 09:04
this page? 09:04
A. Oh. 09:04
Q. Sorry, it's the -- 09:05
A. Yeah, I realize that. 09:05
Q. It's page 143 of 143 by the bottom 09:05
numbering. 09:05
A. Yeah, it's labeled as 138. 09:05
I understand. Yes, I recall typing my name 09:05
into that as an electronic signature. 09:05
Q. Sitting here today, do you believe 09:05
that this declaration is accurate? 09:05
A. To the best of my knowledge, this 09:05
declaration is accurate. 09:05
Q. So at this point there's nothing 09:05
that you'd like to modify or correct? 09:05
A. There's nothing that I'm aware of at 09:05
this moment that I need to modify or correct. 09:05
Q. Okay. Similar questions for the 09:05
'945 declaration. Can you pull that one out, 09:05
please? That's Exhibit 2028 in IPR 2024-00110. 09:05
A. Yes, I have that in front of me. 09:05
Q. And if we look at page 91, which 09:05
I believe is, again, going to be the upper page 09:05
number, is that your typed signature? 09:05

A. Yes, I recall typing my name into 09:06
this page as my signature. 09:06
Q. Is there anything about this 09:06
declaration for the '945 patent that you'd like 09:06
to update? 09:06
A. There's nothing I'm aware of at this 09:06
moment that I'd like to update. 09:06
Q. Did you do anything to prepare for 09:06
this deposition? 09:06
A. Yes. 09:06
Q. What did you do? 09:06
A. Excuse me. I reviewed my 09:06
declarations, I met with counsel for Dental 09:06
Monitoring, and I reviewed some of the 09:06
exhibits. 09:06
Q. Which exhibits did you review? 09:06
MS. PARKS: And I'm going to object 09:06
to that question on the basis of privilege. 09:06
So, Dr. Mongan, please do not answer 09:06
that question. 09:06
MR. ARGENTI: So, again, we went 09:06
through a similar exercise last time, 09:06
Dr. Mongan, and we're just going to have to 09:06
get this out for the record. 09:06
First off, I think a privilege 09:07

1 objection is incorrect here. Are you 09:07
2 claiming attorney-client privilege with 09:07
3 this witness who's an expert witness on 09:07
4 behalf of Dental Monitoring? 09:07
5 MS. PARKS: I'm claiming work 09:07
6 product privilege over the documents that 09:07
7 we shared during our deposition prep. 09:07
8 You're free to ask him if he 09:07
9 reviewed particular documents, yes or no, 09:07
10 but if you're asking him about the 09:07
11 collection of documents that we assembled 09:07
12 for him for his deposition prep, then that 09:07
13 is inappropriate. 09:07
14 MR. ARGENTI: All right. And 09:07
15 I disagree. 09:07
16 BY MR. ARGENTI: 09:07
17 Q. Did you -- Dr. Mongan, in preparing 09:07
18 for your deposition, did you review any 09:07
19 documents that refreshed your recollection for 09:07
20 this testimony today? 09:07
21 A. There were no documents that 09:07
22 I reviewed that refreshed my recollection. 09:07
23 Q. In preparing for this deposition, 09:07
24 did you review any documents that informed your 09:07
25 testimony that you're providing today? 09:07

A. So I reviewed my declaration and 09:07
I reviewed several of the exhibits, and those 09:08
exhibits are cited in my declaration. 09:08
And so to the extent that they are 09:08
cited in my declaration and were important in 09:08
the conclusions in my declarations, they 09:08
informed those declarations and they refreshed 09:08
my testimony today. 09:08
Q. In preparing for this deposition, 09:08
did you review documents that are not cited in 09:08
your declaration? 09:08
A. No, I don't think I did. 09:08
Q. Have you reviewed the board's 09:08
institution decisions in the '248 and 09:08
'945 IPRs? 09:08
A. I have read them, yes. 09:08
Q. Did you review the institution 09:08
decisions in preparing for your deposition 09:08
today? 09:09
A. No, I don't believe I did. 09:09
Q. Did you review the institution 09:09
decisions in preparing your declarations that 09:09
are both marked Exhibit 2028? 09:09
A. Excuse me. I read them before 09:09
preparing these declarations, and they -- the 09:09

knowledge of what was in there helped to guide 09:09
my preparation of the declarations. 09:09
Q. In both your declaration on the 09:09
'248 patent and on the '945 patent, you state 09:09
that you consulted with Dr. Kusnoto, correct? 09:09
A. I have spoken with Dr. Kusnoto. 09:10
I believe that it states that somewhere in the 09:10
declaration. But if you'd like to point out 09:10
the specific statement that you're referring 09:10
to, I'd be happy to -- 09:10
Q. Sure. For example, we could look at 09:10
paragraph 50 in the '248 declaration, which -- 09:10
yep. 09:10
A. Paragraph 50, you said, correct? 09:10
Q. Paragraph 50, and the portion toward 09:10
the end at the top of page 20. 09:10
A. Yes, I see that it says I've 09:10
consulted with Dr. Kusnoto. 09:10
Q. So is it accurate that as in the 09:10
'409 patent IPR, you relied on Dr. Kusnoto's 09:11
views to inform you here as to the 09:11
understanding that a dental professional would 09:11
have with regard to certain prior art in these 09:11
IPRs? 09:11
A. I consulted with Dr. Kusnoto and 09:11

relied on his dental expertise for 09:11
understanding the portions of the prior art 09:11
that go towards dental expertise or a dental 09:11
audience. 09:11
Q. Have you reviewed any of 09:11
Dr. Kusnoto's declarations in these IPRs? 09:11
A. I have not. 09:11
Q. So when you say you have consulted 09:11
with Dr. Kusnoto in, for example, paragraph 50 09:11
in the '248 declaration, you're referring to 09:11
discussions that took place; is that right? 09:11
A. Yes. 09:11
Q. How many discussions did you have 09:11
with Dr. Kusnoto regarding these two patents, 09:11
the '248 and '945? 09:12
A. I have spoken with Dr. Kusnoto 09:12
several times. It's difficult for me to 09:12
remember exactly which conversations were with 09:12
regard to which -- which matters. I had spoken 09:12
with him regarding three IPRs in the District 09:12
Court proceedings. 09:12
So I have spoken with him several 09:12
times, but I'm not sure exactly how many times 09:12
I spoke with him regarding the two IPRs that 09:12
are at issue today. 09:12

Q. Have you spoken with Dr. Kusnoto 09:12
since your deposition regarding the 09:12
'409 patent? 09:12
A. No. 09:12
Q. Did you speak with Dr. Kusnoto when 09:12
you were preparing your declarations in these 09:13
two IPRs, the '248 and the '945 declarations? 09:13
A. Yes, I think I spoke with him during 09:13
the preparation of these declarations. 09:13
Q. Who was present during those 09:13
discussions? 09:13
A. I was present, Dr. Kusnoto was 09:13
present, and some of the Gibson Dunn counsel 09:13
were present. I should say, these were virtual 09:13
conversations over Zoom. So by present, 09:13
I mean, joined to the Zoom. 09:13
Q. Uh-huh. 09:13
And when you say in paragraph 50 09:13
that you consulted with Dr. Kusnoto regarding 09:13
the dental and/or orthodontic aspects of Kim, 09:13
Invisalign, and Salah in forming your opinions, 09:14
did you consult with Dr. Kusnoto regarding 09:14
anything else beyond that? 09:14
A. My recollection is that we focused 09:14
on the -- we focused on those three documents. 09:14

And we also discussed some general questions 09:14
I had of orthodontics and orthodontic 09:14
background that were relevant to my 09:14
understanding of the issues in the IPR. 09:14
Q. What questions were those? 09:14
A. I don't remember all of those in 09:14
detail. I think, for example, I asked him what 09:15
a scaler was. 09:15
Q. Any other examples that you 09:15
remember? 09:15
A. I don't remember any other specific 09:15
examples. 09:15
Q. Did you discuss the '248 patent with 09:15
Dr. Kusnoto? 09:15
A. I can't recall whether I 09:15
specifically discussed the '248 patent with 09:15
Dr. Kusnoto. 09:15
Q. Did Dr. Kusnoto give you any 09:15
information that informed your understanding of 09:15
the subject matter of the '248 patent? 09:15
A. So I've spoken with Dr. Kusnoto 09:16
several times, including, I believe, one time 09:16
prior to my District Court deposition. 09:16
And the general knowledge regarding 09:16
dentistry and orthodontics that I've gained 09:16

from Dr. Kusnoto has, you know, helped me to 09:16
better understand the dental and orthodontic 09:16
aspects of the documents and patents that are 09:16
at issue here. 09:16
Q. Did you discuss the '945 patent with 09:16
Dr. Kusnoto? 09:16
A. I don't recall whether I 09:16
specifically discussed the '945 patent with 09:16
Dr. Kusnoto. 09:17
Q. Have you offered any testimony 09:17
regarding the '945 patent in the District Court 09:17
case? 09:17
A. I'm sorry, I'm not sure. I can't 09:17
remember off the top of my head which patents 09:17
were at issue in the District Court case. 09:17
Q. Let's turn to page 34 of your '248 09:17
declaration, please, and look at paragraph 71. 09:17
A. This is page 34, the top number? 09:17
Q. Yeah, yeah, yeah. That's -- 09:17
A. I have it. 09:17
Q. That's how my outline is set up, 09:17
so today -- 09:17
A. That's fine. We'll go by those 09:17
numbers. 09:17
(Parties speaking simultaneously.)

BY MR. ARGENTI: 09:17
Q. -- (indecipherable) it's going to be 09:17
the top number of the -- yes, of the 09:18
declaration. 09:18
So paragraph 71 is in a section of 09:18
your declaration addressing the Kim reference, 09:18
correct? 09:18
A. Yes. It's in section 6-A, which 09:18
is -- section A is labeled "Kim." 09:18
Q. And in paragraph 71, you address a 09:18
number of different figures in Kim that depict 09:18
photos of a patient's teeth, correct? 09:18
A. I'll just take a moment to review 09:18
paragraph 71. 09:18
(An off-the-record discussion was 09:19
held between counsel and the court
reporter.) 09:19
THE WITNESS: I've reviewed 09:19
paragraph 71. 09:19
BY MR. ARGENTI: 09:19
Q. In paragraph 71 you address a number 09:19
of different figures in Kim that depict photos 09:19
of a patient's teeth, correct? 09:19
A. Yes, I see that I reference 09:19
Figures 8 through 13, and I believe also 16, 09:20

19, and 23. 09:20
(The Court Reporter requested 09:20
clarification.) 09:20
THE WITNESS: 8 through 13, 16, 19, 09:20
and 23. 09:20
BY MR. ARGENTI: 09:20
Q. And you note in this paragraph that 09:20
those figures you just listed are all images of 09:20
the patient's teeth taken without an aligner in 09:20
a service position, right? 09:20
A. Yes, I see the statement: 09:20
These are all images of the 09:20
patient's teeth taken without an 09:20
aligner in the service position. 09:20
Q. And you go on then to conclude that 09:20
Kim does not disclose capturing photographs 09:20
while the patient wears their aligner in a 09:20
service position, correct? 09:20
A. The final sentence of this paragraph 09:20
is: 09:20
Kim discloses the use of programs 09:20
to, quote, "display a virtual 09:21
face contour line on a screen," 09:21
end quote, to guide camera 09:21
positioning and automatically 09:21

capture photographs, although it 09:21
does not disclose doing so while 09:21
the patient wears their aligner 09:21
in the service position. 09:21
Q. And is it your understanding that 09:21
Kim does not disclose capturing photographs 09:21
while the patient wears their aligner in a 09:21
service position? 09:21
A. It is my understanding that Kim does 09:21
not disclose capturing photographs of the 09:21
aligner in the service position. 09:21
Q. And that understanding is because 09:21
you don't see that in the figures that are 09:21
cited in this paragraph; is that right? 09:21
A. That is not the entire basis for 09:21
that understanding. 09:21
Q. What else is that understanding 09:21
based on? 09:21
A. That understanding is based on the 09:21
patent as a whole. And my understanding 09:22
reading the patent as a whole is that a POSA 09:22
would not see anything there that they would 09:22
understand to be disclosure of taking 09:22
photographs of the aligner in the service 09:22
position. 09:22

Q. If we turn to the next paragraph, 09:22
paragraph 72 in your '248 declaration. 09:22
A. I'm on paragraph 72. 09:22
Q. In the first sentence, you say: 09:22
I understand from Dr. Kusnoto 09:22
that, as of 2017, assessing the 09:22
fit of an aligner and assessing 09:22
the alignment of teeth were two 09:22
different analyses. 09:22
Do you see that? 09:22
A. I see that sentence. 09:22
Q. Is it your understanding that 09:22
assessing the fit of an aligner and assessing 09:22
the alignment of teeth were both important 09:22
aspects of aligner treatment? 09:22
MS. PARKS: Objection to form. 09:23
THE WITNESS: I think that's a 09:23
question that goes to -- the importance, 09:23
I think, is a question that goes to dental 09:23
or orthodontic expertise. 09:23
These are both things that 09:23
Dr. Kusnoto described to me, so 09:23
I understand that they both have some 09:23
relevance in this process. 09:23
As to whether or not they would be 09:23

1 characterized as important or how important 09:23
2 they are relative to each other, I think 09:23
3 that's a question that goes to orthodontic 09:23
4 expertise. 09:23
5 BY MR. ARGENTI: 09:23
6 Q. Do you know whether an orthodontist 09:23
7 could effectively use aligners to treat a 09:23
8 patient if they were unable to assess the 09:23
9 alignment of teeth? 09:24
10 A. I don't know. 09:24
11 Q. Do you know whether an orthodontist 09:24
12 could effectively treat a patient using 09:24
13 aligners if they were unable to assess aligner 09:24
14 fit? 09:24
15 A. My understanding from Dr. Kusnoto is 09:24
16 that assessment of aligner fit is a routine 09:24
17 part of the treatment with aligners. 09:24
18 So based on that, I would understand 09:24
19 that it would, at best, be a sub-optimal way of 09:24
20 doing it, but I don't know whether it would be 09:25
21 impossible to perform the treatment without 09:25
22 being able to assess aligner fit, or just less 09:25
23 optimal. 09:25
24 Q. Do you have an understanding whether 09:25
25 a POSA would have found it desirable to provide 09:25

for a way of assessing aligner fit when 09:25
designing a method for providing remote teeth 09:25
alignment services as in Kim? 09:25
MS. PARKS: Objection to form. 09:25
THE WITNESS: Excuse me. It sounds 09:25
like you're quoting a section -- 09:25
BY MR. ARGENTI: 09:25
Q. No. 09:25
A. -- there. Okay. 09:25
Can you repeat that? There was a 09:26
long statement. Can you repeat that for me 09:26
again a little more slowly? 09:26
Q. Do you have an understanding whether 09:26
a POSA would have found it desirable to provide 09:26
a way of assessing aligner fit when designing a 09:26
method or providing remote teeth alignment 09:26
services as in Kim? 09:26
MS. PARKS: Same objection. 09:26
THE WITNESS: Okay. Sorry, that's a 09:26
long statement and I'm trying to hold it 09:26
all in my head. It's a little bit 09:26
difficult for me without seeing it written 09:26
out. So there were a lot of parts to that. 09:26
BY MR. ARGENTI: 09:27
Q. So you would agree that Kim 09:27

1 describes a method for providing remote teeth 09:27
2 alignment services, correct? 09:27
3 A. Give me a minute to review my 09:27
4 summary of Kim, please. 09:27
5 So in my declaration, I stated that: 09:27
6 Kim thus relates to a method for 09:27
7 remotely determining the 09:27
8 alignment of teeth by providing 09:27
9 remote teeth alignment services 09:27
10 to assess whether treatment is 09:27
11 progressing correctly and not for 09:27
12 evaluating aligner fit. 09:28
13 Q. And so my question again is, do you 09:28
14 have an understanding whether a POSA would have 09:28
15 found it desirable to provide a way of 09:28
16 assessing aligner fit when designing a system 09:28
17 for remote tooth alignment services as Kim 09:28
18 describes? 09:28
19 MS. PARKS: Objection. Objection to 09:28
20 form. 09:28
21 THE WITNESS: So I think that Kim 09:28
22 relates to remote determination of the 09:29
23 alignment of teeth. And I think that a 09:29
24 POSA at the time of Kim would not have 09:29
25 understood assessment of fit as something 09:29

that could be done remotely. 09:29
BY MR. ARGENTI: 09:29
Q. I guess that wasn't my question, 09:29
Dr. Mongan. 09:29
My question was, would it have been 09:29
desirable to do it remotely? 09:29
MS. PARKS: Objection to form. 09:29
THE WITNESS: I'm not sure whether a 09:30
POSA would have considered it desirable to 09:30
be able to assess fit remotely or not. 09:30
I think the Align document that you 09:30
presented as prior art describes a number 09:30
of things that are done along with the 09:30
assessment of fit that can't be done 09:30
remotely. 09:30
So I'm not sure whether a POSA 09:30
consulting with data as an orthodontist at 09:30
that time would find remote assessment of 09:30
fit desirable or not. 09:30
BY MR. ARGENTI: 09:30
Q. If we look at the next sentence of 09:30
paragraph 72 of your '248 declaration, I'm just 09:30
going to read it. It says -- 09:31
A. Sorry, do you mean paragraph 70 or 09:31
paragraph 72? 09:31

Q. Paragraph 72 of the '248 declaration. 09:31
A. Okay. 09:31
Q. All right. That sentence reads: 09:31
At that time, assessing the fit of an aligner involved checking that the aligner provided adequate and effective pressure on the patient's teeth to bring about the desired movement of teeth. 09:31
Do you see that? 09:31
A. I see that sentence, yes. 09:31
Q. Is that an understanding that you got from Dr. Kusnoto? 09:31
A. Yes, I believe that's an understanding that I got from Dr. Kusnoto. 09:31
Q. Do you know whether assessing the fit of an aligner involved anything else beyond checking whether the aligner provided adequate and effective pressure? 09:31
A. My understanding from Dr. Kusnoto was that at least one of the goals of checking the fit of the aligner was to ensure that it was providing adequate and effective pressure. 09:32

Q. Was that the only goal? 09:32
A. I believe we also discussed that it 09:32
was important to determine that the aligner was 09:32
appropriately seated. 09:33
Q. Do you know whether assessing 09:33
aligner fit in 2017 involved a visual 09:33
assessment of the aligner's location relative 09:33
to the teeth? 09:33
A. So as I said a little bit later in 09:33
that paragraph: 09:33
During an in-person appointment 09:33
this typically involved a 09:33
combination of visual and manual 09:33
inspections that were performed 09:33
by the dental professional. 09:33
So I believe that a visual 09:33
inspection of the aligner was part of that 09:33
assessment. 09:33
Q. And was the visual inspection 09:33
related to the separate goal that you mentioned 09:34
of checking whether the aligner was seated 09:34
properly? 09:34
MS. PARKS: Objection to form. 09:34
THE WITNESS: My understanding from 09:34
Dr. Kusnoto was that visual inspection 09:34

could be relevant to at least seating and 09:34
fit. 09:34
BY MR. ARGENTI: 09:34
Q. If we turn to paragraph 81 of your 09:34
'248 declaration, on page 42 by the upper 09:34
numbering. 09:34
A. Yes, I'm on paragraph 81. 09:34
Q. In this paragraph, you discuss Kim's 09:35
discussion in paragraph 66 regarding taking a 09:35
photo or video of a currently worn clear 09:35
aligner, correct? 09:35
A. I'm just going to review this 09:35
paragraph here. 09:35
Okay. I've reviewed the paragraph. 09:36
Q. So my question again was that in 09:36
this paragraph you discuss Kim's discussion in 09:36
Kim's paragraph 66 regarding taking a photo or 09:36
video of a currently worn clear aligner, 09:36
correct? 09:36
A. This paragraph references Kim 66 and 09:36
includes a quote about a currently worn, clear 09:36
aligner and discussion of what that would mean 09:36
to a POSA. 09:36
Q. You don't mention Dr. Kusnoto in 09:36
this paragraph, right? 09:36

A. I don't see Dr. Kusnoto's name in 09:36
this paragraph. 09:37
Q. If we turn to paragraph 82 on the 09:37
next page. In this paragraph you say that: 09:37
A POSA would not have understood 09:37
the currently worn clear aligner 09:37
to be worn at the exact moment of 09:37
the photograph. 09:37
Right? 09:37
A. So I see that the declaration says: 09:37
A POSA would not have understood 09:37
the currently worn aligner to be 09:37
worn at the exact moment of the 09:37
photograph but instead during the 09:37
patient's current phase of 09:37
treatment. 09:37
Q. You don't mention Dr. Kusnoto in 09:37
this paragraph either, correct? 09:37
A. I don't see Dr. Kusnoto's name in 09:38
this paragraph. 09:38
Q. Did you reach your opinions in these 09:38
two paragraphs on your own, independent of your 09:38
discussions with Dr. Kusnoto? 09:38
A. I believe I developed an 09:39
understanding of what this phrase meant prior 09:39

to talking with Dr. Kusnoto. 09:39
Q. So you felt qualified based on your 09:39
background to reach that conclusion after 09:39
reviewing Kim; is that right? 09:39
MS. PARKS: Objection to form. 09:39
THE WITNESS: I felt that based on 09:39
my understanding -- my expertise in the 09:39
areas of artificial intelligence and 09:39
software, and the description of how -- the 09:39
context of where these currently worn 09:40
photographs were used within the software 09:40
system described, and how the -- how that 09:40
data flowed and was described as being used 09:40
in the patent, that that gave me the basis 09:40
to understand what was meant here. 09:40
BY MR. ARGENTI: 09:40
Q. All right. Now we're going to turn 09:40
to the Invisalign exhibit, which means I need 09:40
to upload into Exhibit Share, so bear with me 09:40
for a second. 09:40
A. Okay.
(Exhibit 1006 was marked.)
BY MR. ARGENTI:
Q. It should be available now. 09:41
A. Okay. I see Exhibit 1006, 09:41

Invisalign Clinical Monitoring Guide. 09:42
Q. Could you go ahead and open that up, 09:42
please? 09:42
A. I'm having some difficulty opening 09:42
this. When I -- I don't see a link to download 09:42
it. When I click on it, it takes me to a 09:42
screen that's black with a gray circle in the 09:42
center -- okay, now it's very slowly loading 09:42
here. 09:42
MS. PARKS: Mine just loaded, so it 09:42
might take a minute for the witness. 09:42
THE WITNESS: Is there a way I can 09:43
download this exhibit and open it in a 09:43
local viewer? 09:43
THE COURT REPORTER: I don't think 09:43
that you can as a guest in Exhibit Share. 09:43
THE WITNESS: Okay. Is there a way 09:43
for me to not be a guest in Exhibit Share? 09:43
THE COURT REPORTER: Can I go off 09:43
the record? 09:43
MR. ARGENTI: Please. 09:43
(A recess was taken.) 09:57
THE COURT REPORTER: Back on the 09:57
record at 9:57. 09:57

BY MR. ARGENTI: 09:57
Q. Dr. Mongan, do you now have 09:57
Exhibit 1006, the Invisalign guide? 09:57
A. Yes, I have the PDF of that open. 09:58
Q. Could you turn to the page marked 09:58
page 1, please, which I believe is page 7 of 09:58
the PDF? 09:58
A. Yes, I'm on that page. 09:58
Q. This page has the heading "Managing 09:58
Aligner fit and seating," correct? 09:58
A. I see the heading "Managing Aligner 09:58
fit and seating." 09:58
Q. And under that are heading, it 09:58
reads, "General fit issues." 09:58
Do you see that? 09:58
A. I see where it says, "General fit 09:58
issues." 09:58
Q. And then, in parentheses, it goes on 09:58
to say: 09:58
Aligners are not seating well, 09:58
greater than 1 millimeter, close 09:58
parentheses.
Right? 09:58
A. I see that, yes. 09:58
Q. Can you read the next line of text 09:58

for me, please? 09:58
A. If aligner discrepancy is less than 09:58
1 millimeter, this is natural 09:59
deflection that should occur so 09:59
the aligner can move the tooth. 09:59
Continue treatment, continuing to 09:59
monitor aligner fit. 09:59
Q. The Invisalign guide teaches that 09:59
separation of more than 1 millimeter between
the aligner and teeth -- 09:59
(The Court Reporter requested 09:59
clarification.) 09:59
BY MR. ARGENTI: 09:59
Q. The Invisalign guide teaches that 09:59
separation of more than 1 millimeter between 09:59
the aligner and the teeth indicates a fit 09:59
issue, correct? 09:59
MS. PARKS: Objection to form. 09:59
THE WITNESS: So I see that in the 09:59
sentence that you just asked me to read, it 09:59
states that if there's a discrepancy of 09:59
less than 1 millimeter, that's considered a 10:00
natural deflection. 10:00
And there is a parenthetical after 10:00
the heading of general fit issues that 10:00

says: 10:00
Aligners are not seating well, 10:00
greater than 1 millimeter. 10:00
BY MR. ARGENTI: 10:00
Q. Is it your understanding that the 10:00
Invisalign guide teaches that separation of 10:00
more than 1 millimeter between the aligner and 10:00
the teeth indicates a fit issue? 10:00
A. So I think we're -- you know, this 10:01
is a document that was produced for dental and 10:01
orthodontic professionals, and I think that 10:01
your questions here go to dental and 10:01
orthodontic expertise. 10:01
Based on my recollection of 10:01
reviewing this document with Dr. Kusnoto, 10:01
I think that a gap of greater than 10:01
1 millimeter, that one of the things that that 10:01
could indicate is a fit issue. 10:01
Q. Do you have any reason to doubt the 10:01
statement in the Invisalign guide that if the 10:01
aligner discrepancy is less than 1 millimeter 10:01
this is a natural deflection that should occur 10:01
so the aligner can move the tooth? 10:01
A. I don't have independent dental or 10:01
orthodontic expertise, so I would not have any 10:02

reason to opine on that here. No, I don't have 10:02
a reason to doubt that. 10:02
Q. Still on page 1. There are a number 10:02
of photos on the left, correct? 10:02
A. Yes, I see a column of photos on the 10:02
left. 10:02
Q. And at the top of the column of 10:02
photos, do you see the one marked A? 10:02
A. I see that. 10:02
Q. The photograph marked A in the 10:02
Invisalign exhibit is an image of an aligner 10:02
worn on a patient's teeth, correct? 10:02
A. So I see that there is a caption of 10:02
that that says, "Aligner seating poorly." And 10:02
my understanding is that there's an aligner in 10:03
that image that is poorly seated on the 10:03
patient's teeth. 10:03
Q. The Invisalign guide explains that 10:03
that first photo A is an example of the aligner 10:03
fit issue where the aligner is separated from 10:03
the teeth by more than 1 millimeter, correct? 10:03
A. So that image is captioned, "Aligner 10:03
seating poorly, greater than 1 millimeter." 10:03
Q. The next photo down marked B is an 10:03
example of the image where the aligner is 10:03

seating well, correct? 10:03
A. Image B is captioned, "Aligner 10:03
seating well." 10:03
Q. So the aligner fit issue in photo A 10:03
is not seen in photo B, correct? 10:04
A. So the aligner is seated poorly 10:04
in -- my understanding from this is that the 10:04
aligner is seated poorly in A and seated well 10:04
in B. 10:04
Q. Let's turn back to page romanette 2 10:04
of Exhibit 1006, please, which is the third 10:04
page of the PDF. Let me know when you're 10:04
there. 10:04
A. I'm on page 3 of the PDF. 10:04
Q. On the right-hand side of this page, 10:04
do you see the section that begins: 10:04
Careful monitoring of treatment 10:04
will help catch issues before 10:05
they become a problem. 10:05
A. I see that section. 10:05
Q. And below that, at number 2, it 10:05
says: 10:05
At each appointment review four 10:05
things. 10:05
Do you see that? 10:05

A. I see that. 10:05
Q. The first thing to review is that 10:05
the current aligner is a good fit, right? 10:05
A. 2-A says that the current aligner is 10:05
a good fit. 10:05
Q. The second thing to review, 2-B, is: 10:05
IPR instructions. 10:05
Do you see that? 10:05
A. I see 2-B says IPR instructions, 10:05
with the following parenthetical. 10:05
Q. What does IPR refer to there? 10:05
A. Give me just a moment to review my 10:05
declaration on that so I can respond 10:05
accurately. 10:06
So I believe IPR means interproximal 10:07
reduction. 10:07
Q. What is interproximal reduction? 10:07
A. Excuse me. I think that's a 10:07
question that goes to orthodontic expertise, 10:07
and I don't think I'm best suited to opine on 10:07
it. 10:07
Q. Do you have an understanding of what 10:07
interproximal reduction is? 10:07
A. I believe it's related to moving the 10:07
teeth with the aligner. 10:08

Q. Turning back to that list of things 10:08
to review at each appointment, the third thing, 10:08
item 2-C, is: 10:08
The condition and engagement of 10:08
attachments. 10:08
Do you see that? 10:08
A. I see that. 10:08
Q. Do you know what the attachments are 10:08
that are being referred to? 10:08
A. So, again, this is a question that 10:08
goes to orthodontic expertise. I believe that 10:08
attachments are things that the orthodontist 10:08
has attached to a tooth to enable force to be 10:09
exerted on the tooth. 10:09
Q. Is that different from the aligner? 10:09
A. I think it is, but I'm not certain. 10:09
Again, this is an area that's outside my 10:09
expertise. 10:09
Q. And then the fourth thing on the 10:09
list of things to review during an appointment, 10:09
item 2-D, is: 10:09
Evaluate for tight contacts with 10:09
unwaxed floss and relieve with 10:09
finishing strips if present. 10:09
Do you see that? 10:09

A. I see that. 10:09
Q. What are the contacts that are being 10:09
referred to there? 10:10
A. I think they're contacts between 10:10
teeth. But, again, this is a question that 10:10
goes to orthodontic expertise, which is outside 10:10
my area of expertise. 10:10
Q. Can you floss teeth when the aligner 10:10
is being worn? 10:10
A. I wouldn't think so. But I, again, 10:10
don't know for certain as this is something 10:10
that's outside my areas of expertise. I don't 10:10
have expertise in doing that. 10:10
Q. When Invisalign says to evaluate for 10:10
tight contacts with unwaxed floss and relieve 10:11
with finishing strips, that's not referring to 10:11
a way of checking aligner fit, is it? 10:11
MS. PARKS: Objection to form. 10:11
THE WITNESS: I don't know whether 10:11
an orthodontist would consider that as part 10:11
of the assessment of fit or not. 10:11
BY MR. ARGENTI: 10:11
Q. Let's turn back to your declaration 10:11
on the '248 patent, please. And we'll turn to 10:11
page 102. 10:11

A. I'm on page 102. 10:11
Q. In paragraph 176 on this page, you say: 10:11
I have illustrated below an example of the labeling and output that Dr. Foroosh proposes in his combination using the image Dr. Foroosh cites from Invisalign. 10:11 10:11 10:11 10:12 10:12
Do you see that? 10:12
A. I see that. 10:12
Q. So you yourself performed the annotations that we see in the figure on the next page; is that right? 10:12 10:12 10:12
A. Excuse me. So my declaration was prepared collaboratively with Dental Monitoring's counsel. My recollection is that I described in detail what the annotation should look like, and then it was then prepared by another party. And I reviewed and verified that it was annotated as I had indicated it should be. 10:12 10:12 10:12 10:12 10:12 10:12 10:12 10:12 10:13 10:13
Q. Do you know how the annotation was accomplished? What was the process? 10:13 10:13
MS. PARKS: And objection to form to 10:13

the extent that relates to our work 10:13
product, Dr. Mongan. 10:13
THE WITNESS: Can you clarify for me 10:13
what aspect of the process you're looking 10:13
for? 10:13
BY MR. ARGENTI: 10:13
Q. So if we look at the figure and we 10:13
focus on the red boundary that's designated 10:13
tooth edge; do you see that? 10:13
A. Yes. 10:13
Q. Do you know whether that red 10:13
boundary was added to the figure by hand? 10:13
A. My understanding is that it was 10:13
added to the figure by hand. 10:13
Q. And do you know whether that was 10:13
done in a computer graphics program or with a 10:13
marker? 10:14
A. I don't know. I would imagine based 10:14
on the appearance of the figure that it was 10:14
done in a computer graphics program. 10:14
Q. And is it the same understanding for 10:14
the green line that's designated separation and 10:14
the blue line that's designated aligner edge? 10:14
A. Yes. 10:14
Q. So to the best of your knowledge, 10:14

it's your understanding that somebody 10:14
presumably used a mouse, I guess, to add these 10:14
lines to the figure using a software graphics 10:14
program? 10:14
A. I would have no way of knowing 10:14
whether -- what kind of input device they used. 10:15
Q. How did -- you said that you gave 10:15
instructions on how you wanted the figure 10:15
annotated, correct? 10:15
A. Yes. 10:15
Q. How did you decide where the 10:15
annotation should be located? 10:15
A. Which aspect of the location of the 10:15
annotations are you asking about? 10:15
Q. Well, if we look at the aligner 10:15
edge, the blue line. 10:15
A. Okay. 10:15
Q. How did you decide where that blue 10:15
line should be? 10:15
A. So... 10:16
Q. I can -- let me rephrase that 10:16
question. It might help, Dr. Mongan. 10:16
Before the image was annotated, in 10:16
the original image you were able to visually 10:16
identify the contour corresponding to the edge 10:16

of the aligner, right? 10:16
A. I believe that I was further 10:16
illustrating an image that Dr. Foroosh had 10:17
included in his declaration. So if we had his 10:17
declaration available, then I think I could 10:17
refer to that and that would help me to answer 10:17
your question. 10:17
Q. Sure. I can load that up to Exhibit 10:17
Share. It's been introduced on my end. It 10:17
might take a little bit for it to get uploaded. 10:17
THE COURT REPORTER: What number did 10:18
you mark it as? 10:18
MR. ARGENTI: This is exhibit -- 10:18
I did not mark it. It's premarked, and 10:18
it's Exhibit 1002 in the '248 IPR. 10:18
(Exhibit 1002 was identified.) 10:18
THE WITNESS: I'm still refreshing 10:18
waiting for it to appear. Has it completed 10:18
uploading on your side? 10:19
BY MR. ARGENTI: 10:19
Q. I see distributing files, dot, dot, 10:19
dot. I presume that means it's still 10:19
uploading. 10:19
THE COURT REPORTER: You may need to 10:21
refresh. 10:21

THE WITNESS: Yes, I've been refreshing a couple of times a minute here and still not seeing it. Are other people seeing it in the Exhibit Share? 10:21

MS. PARKS: I'm not. 10:21

THE COURT REPORTER: I'm not seeing it either. 10:22

THE WITNESS: I see folder up. 10:22

MR. ARGENTI: I had get it in on my end. 10:22

BY MR. ARGENTI: 10:23

Q. Are you able to access Exhibit 1002 now? 10:23

A. Yes, I am. Thank you. I have it open in front of me. So the illustration that you've drawn my attention to on page 103 of my declaration is a further annotation and illustration of the figure titled "Simple edge detection" on page 63 of Exhibit 1002, which is Dr. Foroosh's declaration. 10:23

And the -- my figure here is illustrating what I understand that the annotations that Dr. Foroosh suggests would be made for the learning base would look like. 10:24

And so I instructed that these 10:24

annotations in terms of where -- you asked me, 10:24
you know, how did I decide where the aligner 10:24
edge would be. I used the annotation that 10:24
Dr. Foroosh had applied here as indicating the 10:24
aligner edge and instructed that that's where 10:24
that should be located. 10:24
Q. That's helpful. 10:24
So you took the image on page 63 of 10:24
Dr. Foroosh's '248 declaration that's labeled 10:25
"Simple edge detection" and, for example, for 10:25
the aligner edge that you were just referring 10:25
to, you looked at his designation of the 10:25
aligner edge and you were able to visually 10:25
identify the line that that's being designated 10:25
as the aligner edge and then you instructed 10:25
blue annotation for that line. Is that what 10:25
happened? 10:25
MS. PARKS: Objection to 10:25
(indecipherable). 10:25
THE WITNESS: So my goal here was to 10:25
illustrate what a semantic annotation of 10:25
boundaries would look like. 10:25
And so I instructed that this image 10:26
from Dr. Foroosh's declaration to be -- 10:26
excuse me -- to be annotated consistent 10:26

with where he had identified these three 10:26
elements of tooth edge separation in the 10:26
aligner edge with semantic boundaries 10:26
around those regions. 10:26
BY MR. ARGENTI: 10:26
Q. And this image in Dr. Foroosh's 10:26
declaration, the simple edge detection image, 10:26
it was generated by a Canny edge detector, 10:26
correct? 10:26
MS. PARKS: Objection to form. 10:26
THE WITNESS: So Dr. Foroosh says in 10:26
his declaration that he used a Canny edge 10:26
detector to generate this from the image in 10:26
the Invisalign Exhibit 1006 that we had 10:27
been looking at on page 1 labeled A. 10:27
I do note that that is labeled in 10:27
Invisalign as a poorly seated aligner. And 10:27
I understand from Dr. Kusnoto that in 10:27
assessing fit, that's not the typical 10:27
appearance that you would be working with 10:27
where you have very large spacings between 10:27
the teeth and the aligner like that. 10:27
BY MR. ARGENTI: 10:27
Q. In the image from the Invisalign 10:27
guide that appears on page 62 of Dr. Foroosh's 10:27

'248 declaration, right? 10:27
MS. PARKS: Objection to form. 10:27
THE WITNESS: So there is an image 10:28
on page 62 of Dr. Foroosh's declaration 10:28
which is -- appears to correspond to just 10:28
the image A from page 1 with the caption: 10:28
Any other images in that column 10:28
cropped out are not included. 10:28
BY MR. ARGENTI: 10:28
Q. And then the method that Dr. Foroosh 10:28
used to generate the simple edge detection 10:28
figure on the following page was able to detect 10:28
the aligner edge in the original image and 10:28
depicted as aligned in the simple edge 10:28
detection image, correct? 10:28
A. So Dr. Foroosh describes using a 10:28
Canny edge detector. And in the image on the 10:29
following page, page 63, we can see that many, 10:29
many edges, many lines have been detected. 10:29
The Canny edge detector would not 10:29
distinguish between these lines or between 10:29
these edges. And I see that Dr. Foroosh has 10:29
manually, by his own visual inspection, 10:29
selected a few of these lines and labeled them. 10:29
Q. And then you were further able to 10:29

detect the lines by your own visual inspection 10:29
and have them manually labeled with the color 10:29
lines that we see on page 103 of your '248 10:29
declaration, right? 10:30
A. So, yes, by correlation with the 10:30
original image, I was able to visually and 10:30
manually identify where the boundaries of 10:30
those -- of those regions would be. 10:30
Q. So let's take another look at that 10:30
Figure A from Invisalign. And it might be 10:30
easier to look at the version of it that's on 10:30
page 62 of Dr. Foroosh's declaration just 10:30
because of size. 10:30
A. Okay. 10:30
Q. How big is the gap between the 10:31
aligner and the teeth in this image? 10:31
A. Well, I'm told from the label of the 10:31
original figure in the Invisalign document that 10:31
it's greater than 1 millimeter. 10:31
Q. Do you know how much greater than 10:31
1 millimeter the gap is? 10:31
A. I don't know. 10:31
Q. Have you measured the gap? 10:31
A. I have not measured the gap. 10:31
Q. Dr. Kusnoto told you that this image 10:31

was inept for illustrating an aligner in a 10:31
service position; is that right? 10:31
A. That's not how I'd characterize what 10:31
Dr. Kusnoto told me. 10:31
Q. You would not characterize it as 10:32
Dr. Kusnoto informing that this image is inept 10:32
for illustrating an aligner in a service 10:32
position? 10:32
A. Those aren't the words that I would 10:32
use, no. 10:32
Q. Did you ask Dr. Kusnoto if he had an 10:32
understanding of how much greater than 10:32
1 millimeter this gap is? 10:32
A. I don't recall asking Dr. Kusnoto to 10:32
quantify this gap. I do recall him saying that 10:32
this aligner was very poorly seated. 10:33
Q. Did you ask Dr. Kusnoto if he 10:33
thought a 1 millimeter gap between the aligner 10:33
and teeth would be considered very poorly 10:33
seated? 10:33
A. I don't recall asking him that. 10:33
Q. Do you yourself have an 10:33
understanding of whether a 1 millimeter gap 10:33
between the aligner and teeth would be 10:33
considered very poorly seated? 10:33

A. So the caption in the Invisalign 10:34
document is: 10:34
Aligner seated poorly, greater 10:34
than 1 millimeter. 10:34
So I would surmise from that that a 10:34
gap of 1 millimeter would probably not be 10:34
considered very poorly seated. 10:34
Q. But anything over 1 millimeter would 10:34
be considered very poorly seated? 10:34
A. I don't know at what distance it 10:34
would be considered very poorly seated. 10:34
I think that's a question that goes to 10:34
orthodontic expertise. 10:34
Q. Let's turn to page 66 of your 10:34
declaration on the '248 patent, and 10:34
paragraph 124. Let me know when you're there. 10:35
A. Yes, I'm on page -- I'm on 10:35
paragraph 124. 10:35
Q. At the bottom of the page, you see 10:35
where it says: 10:35
In other words, Salah teaches 10:35
that high contrast is required to 10:35
achieve a quality analysis. 10:35
A. I see those words, yes. 10:35
Q. Does Salah describe a particular 10:35

methodology that must be used to assess 10:35
contrast? 10:35
A. It would be helpful if I could refer 10:35
to the Salah. 10:35
Q. Absolutely. Let me load that. 10:36
Okay. I think I have just... 10:36
A. Yes.
Q. It's still in the process of 10:36
loading, but it should be there shortly. 10:36
A. It's there now. 10:36
Q. While it's loading, this is going to 10:36
be Exhibit 1008 from -- this version is from 10:36
the '248 IPR, but it's the same Exhibit 1008 in 10:36
the '945 IPR. This is the translation of 10:36
Salah. 10:36
(Exhibit 1008 was identified.)
THE WITNESS: I have the document 10:37
open. Just give me a minute to review the 10:37
document in my declaration. 10:37
Can you repeat your question, 10:39
Mr. Argenti? 10:39
BY MR. ARGENTI: 10:39
Q. Does Salah describe a particular 10:39
methodology for assessing contrast? 10:39
A. Yes, I believe it does. 10:39

Q. Where? 10:39
A. On page 60. 10:39
Q. And what part of Salah are you 10:39
referring to on page 60 is providing a 10:39
methodology for assessing contrast? 10:40
A. So it discusses assigning measures 10:40
of quality to the discriminant information and 10:40
then filtering the discriminant information on 10:40
the basis of a quality threshold. 10:40
And with respect to contrast used as 10:40
discriminant information, it indicates that low 10:41
contrast would be assigned low quality and high 10:41
contrast would be assigned high quality. 10:41
So, therefore, this filtering based 10:41
on a quality threshold would be a means of 10:41
distinguishing contrast in an image. 10:41
Q. I thought it's the opposite. 10:41
I thought it's using contrast to determine 10:41
whether it's -- to determine whether it's high 10:41
quality or low quality? 10:41
A. Can you rephrase that question? 10:42
THE COURT REPORTER: The first word 10:42
you said didn't come out very well. 10:42
BY MR. ARGENTI: 10:42
Q. So in your previous answer, 10:42

Dr. Mongan, you said that Salah indicates that 10:42
low contrast would be assigned low quality and 10:42
high contrast would be assigned high quality. 10:42
Does Salah say how to determine 10:42
whether something is high contrast or low 10:42
contrast? 10:42
A. So it describes using the 10:43
probability with which points can be 10:43
assimilated to a contour. 10:43
Q. That comes after the contrast 10:43
determination, right? 10:43
A. I'm not sure that I understand what 10:44
you mean by that comes after the contrast 10:44
determination. 10:44
Q. That's so the contrast information 10:44
is -- you're filtering between high and low 10:44
contrast information because the high contrast 10:44
information gives you better results, do you 10:44
agree? 10:44
MS. PARKS: Objection to form. 10:44
THE WITNESS: Can you repeat the 10:44
question one more time, please? 10:44
BY MR. ARGENTI: 10:44
Q. Salah describes filtering between 10:45
high and low contrast in order to achieve 10:45

better results by using high contrast 10:45
information, correct? 10:45
MS. PARKS: Objection to form. 10:45
THE WITNESS: I believe that Salah 10:45
describes filtering the discriminant 10:45
information. I believe that the example 10:45
given -- in the example given on page 60 10:45
the discriminant information is contours. 10:45
So I believe it's contours that they are 10:45
filtering. 10:45
You'll see on line 25, it says: 10:46
A quality threshold is used to 10:46
filter the initial discriminant 10:46
information. 10:46
BY MR. ARGENTI: 10:46
Q. And above that, around line 17, it 10:46
says: 10:46
In step C1, the quality of the 10:46
initial discriminant information 10:46
is assessed. In the case of a 10:46
contour, for example, contrast 10:46
analysis provides more or less 10:46
reliable information: An area of 10:46
high contrast can be a 10:46
assimilated to an area 10:46

corresponding to a contour with a 10:46
high probability. 10:46
So do I have it right that they're 10:46
starting with contrast information in an effort 10:46
to achieve the contour information? 10:47
A. That's not how I would understand 10:47
this, no. 10:47
Q. Why don't we turn back to page 66 of 10:47
your declaration, that sentence that we looked 10:47
at before where it says: 10:47
In other words, Salah teaches 10:47
that high contrast is required to 10:47
achieve a quality analysis. 10:47
Do you remember that? 10:47
A. I see that sentence, yes. 10:47
Q. Does Salah provide a way of 10:47
measuring the contrast to determine whether 10:47
it's high contrast? 10:47
MS. PARKS: Objection to form. 10:47
THE WITNESS: Salah provides a way 10:47
of ensuring that the discriminant 10:47
information, at least when that 10:48
discriminant information is contours, are 10:48
derived -- let me back that up. 10:48
That the contour discriminant 10:48

information is filtered such that the final 10:48
discriminant information that is used 10:48
corresponds only to regions of the image 10:48
where there's high contrast. 10:48
BY MR. ARGENTI: 10:48
Q. And how does Salah decide whether a 10:48
particular region is high contrast? 10:48
A. By assigning a quality measure to 10:48
the initial discriminant information, so that 10:49
would be the initial contours in this example, 10:49
and then comparing that quality information to 10:49
a quality threshold. 10:49
Q. And does Salah give a particular 10:49
threshold as to what qualifies as high contrast 10:49
for its purposes? 10:49
A. I don't see a quantitative or 10:49
numeric value provided here. I think a POSA 10:49
reading this would understand that that would 10:49
be -- likely be a parameter they would have to 10:49
do. 10:50
Q. Salah leaves it up to the user to 10:50
decide where to set the filtering threshold for 10:50
what contrast is acceptable; is that right? 10:50
MS. PARKS: Objection to form. 10:50
THE WITNESS: I'm not sure who the 10:50

1 user is in your question. But I think what 10:50
2 Salah is teaching is that contrast is very 10:50
3 important in obtaining reliable 10:50
4 discriminate information. 10:50
5 I think they're teaching a method 10:50
6 for distinguishing between -- for filtering 10:50
7 that discriminant information on the basis 10:50
8 of contrast. 10:50
9 And I think a POSA would understand 10:50
10 that the exact details of where that 10:50
11 threshold would need to be set for optimal 10:51
12 performance would probably vary on a -- 10:51
13 vary based on a large number of 10:51
14 implementation details, and that's 10:51
15 something that they would have to fine tune 10:51
16 in an implementation. 10:51
17 BY MR. ARGENTI: 10:51
18 Q. If we turn back to page 66 of your 10:51
19 '248 declaration, the next sentence after the 10:51
20 one that we looked at previously at the bottom 10:51
21 of the page says: 10:51
22 A POSA would have understood that 10:51
23 an aligner would not provide a 10:51
24 high contrast with the patient's 10:51
25 teeth or mouth because aligners 10:51

visually blend with teeth. 10:51
Do you see that? 10:51
A. Yes, I see that. 10:51
Q. What is the basis for your 10:51
understanding in that sentence? 10:51
A. The basis for my understanding, that 10:52
is my understanding and experience with the 10:52
appearance of objects viewed through 10:52
transparent or translucent objects overlaying 10:52
them, and generally confirmed by my discussions 10:52
with Dr. Kusnoto. 10:52
Q. In preparing your declaration, did 10:52
you make any visual inspections of aligners on 10:52
teeth to gain an understanding of the contrast 10:52
between the two? 10:52
MS. PARKS: Objection to form. 10:52
THE WITNESS: I've not personally 10:52
made a visual inspection of aligners 10:52
applied to teeth. 10:52
I think that a POSA would understand 10:52
that whatever level of contrast there would 10:53
be between tooth edges and -- whatever 10:53
level of contrast there might be for tooth 10:53
edges in an image, that that contrast would 10:53
be diminished by interposing another object 10:53

over them that would reflect and refract 10:53
light. 10:53
And that understanding was confirmed 10:53
in my discussions with Dr. Kusnoto. 10:53
BY MR. ARGENTI: 10:53
Q. In preparing your declaration, did 10:53
you run any tests to determine whether there's 10:53
a high contrast between an aligner and 10:53
patients' teeth? 10:53
A. I didn't see a need to run any tests 10:53
to confirm something that I think was clear to 10:53
me and was confirmed by, you know, a dental 10:54
expert who spends a lot of time looking at 10:54
this. 10:54
Q. Do you have any underlying data to 10:54
support your assertion that an aligner would 10:54
not provide a high contrast with a patient's 10:54
teeth? 10:54
MS. PARKS: Objection to form. 10:54
THE WITNESS: So it's a similar 10:54
response to your previous questions. 10:54
I didn't see a need to collect such data 10:54
because I am familiar with the optical 10:54
properties of, you know, introducing a 10:54
clear, plastic object into -- you know, 10:54

that will have reflections and will have 10:54
refraction. So I did not see any need to 10:54
collect such data. 10:54
BY MR. ARGENTI: 10:54
Q. What's the basis of that 10:54
familiarity? 10:55
A. My coursework in physics and optics. 10:55
Q. Where do you draw the line between 10:55
high and low contrast when testifying that an 10:55
aligner doesn't provide a high contrast for the 10:55
patient's teeth? 10:55
A. So I think the relevant teaching 10:55
here from Salah is that high contrast is very 10:55
important. And so I think that a POSA reading 10:55
this would understand that, to obtain the best 10:55
results, they would want to maximize the 10:55
contrast of the edges of the teeth so that they 10:55
could obtain the best discriminate information 10:55
for mapping 2 to 3D model that's described in 10:56
Salah. 10:56
So I think a POSA would not -- you 10:56
know, would be motivated to take steps to 10:56
maximize that contrast, and would recognize 10:56
that having photographs taken with an aligner 10:56
overlying the teeth would work against that 10:56

goal. And so I think they would not want to 10:56
have an aligner in place for those photographs. 10:56
Q. So if I understand, now you're not 10:56
saying that an image of an aligner and teeth 10:56
would have a low contrast necessarily, you're 10:56
just saying it wouldn't be the highest possible 10:56
contrast; is that right? 10:56
MS. PARKS: Objection to form. 10:56
THE WITNESS: I'm saying that 10:56
I think a POSA would understand that a 10:56
image with an aligner in a service position 10:57
would very likely have lower contrast than 10:57
equivalent image without the aligner there. 10:57
BY MR. ARGENTI: 10:57
Q. Is it your understanding that when 10:57
Salah is referring to high contrast, it means 10:57
the maximum possible contrast? 10:57
MS. PARKS: Objection to form. 10:57
THE WITNESS: It's my understanding 10:57
that when Salah is referring to high 10:58
contrast, they're referring to contrast 10:58
that is above their quality threshold. 10:58
And I note that they say that: 10:58
In preferred embodiment, the 10:58
quality threshold is high in 10:58

order to retain only highly 10:58
reliable discriminating test 10:58
information. 10:58
That's on page 61. 10:58
MR. ARGENTI: Why don't we take a 10:58
break. We've been going a little over an 10:58
hour. We can go off the record. 10:58
(A recess was taken.) 11:10
THE COURT REPORTER: Back on the 11:10
record. 11:10
BY MR. ARGENTI: 11:10
Q. Dr. Mongan, could you turn to 11:10
page 67 of your '248 declaration? 11:10
A. I'm on page 67. 11:10
Q. Starting in paragraph 125, you 11:10
address the Maninis reference, right? 11:10
A. Yes. Paragraph 125 is the first 11:10
paragraph in a section titled "D Maninis." 11:10
Q. And in this paragraph 125, you say 11:10
that Maninis processes a technique that you 11:10
refer to in your declaration as the Maninis COB 11:10
neural network, right? 11:10
A. Yes. I say that the authors: -- 11:10
A technique which the authors 11:10
refer to as Convolutional 11:11

Oriented Boundaries, parentheses, 11:11
COB, for determining boundaries 11:11
in an image using a convolutional
neural network -- 11:11
(The Court Reporter requested 11:11
clarification.) 11:11
THE WITNESS: For determining 11:11
boundaries in an image using a 11:11
convolutional neural network, referred to 11:11
in this declaration as the Maninis COB 11:11
neural network. 11:11
BY MR. ARGENTI: 11:11
Q. Do you recall that I asked you some 11:11
questions about the Maninis COB neural network 11:11
during your deposition in the '409 patent IPR? 11:11
A. I recall that we discussed that at 11:11
some length, yes. 11:11
Q. When you use the term "Maninis COB 11:11
neural network" in your declaration in the 11:11
'248 patent, does it have the same meaning as 11:11
when you use that term in your declaration in 11:11
the '409 patent? 11:11
MS. PARKS: Objection to form. 11:11
THE WITNESS: I believe that when 11:12
I refer to the COB neural network in the 11:12

'248 IPR, I'm referring to the same thing 11:12
as that when I refer -- when I use the term 11:12
"COB neural network" in the '409 IPR. 11:12
BY MR. ARGENTI: 11:12
Q. So then your testimony in the 11:12
'409 IPR regarding what is and is not part of 11:13
the Maninis COB neural network also applies 11:13
here; is that right? 11:13
A. Yes, I would think it generally 11:13
does. Is there a particular aspect of that 11:13
testimony that you'd like to -- 11:13
Q. No. I'm really just trying to take 11:13
a shortcut here and not ask you all the same 11:13
questions that we asked in the '409. 11:13
And I think we've established that 11:13
you're using the term "Maninis COB neural 11:13
network" here in the same way you did in the 11:13
'409 IPR. Correct me if I'm wrong. 11:13
A. I'm -- when I use COB neural network 11:13
I'm referring to what the Maninis authors 11:13
called the Convolutional Oriented Boundaries, 11:13
or COB, which is the same definition I was 11:14
using for COB neural network in the '409 IPR. 11:14
Q. Well, then, in that case, we can do 11:14
ourselves a favor and move on from Maninis and 11:14

turn to page 1 of your declaration, please. 11:14
A. I'm on page 1. 11:14
Q. At the bottom of that page, in the 11:14
second bullet, you say that: 11:14
Kim, Invisalign, and Salah failed 11:14
to disclose or render obvious a 11:14
method of assessing aligner fit 11:14
using an aligner image, and there 11:14
would have been no motivation to 11:14
combine the references as 11:14
proposed to arrive at the claimed 11:14
methods. 11:14
Do you see that? 11:14
A. I see that. 11:14
Q. And then in the next sentence, you 11:14
go on to say: 11:14
Dr. Foroosh misreads each of Kim, 11:14
Invisalign, and Salah, none of 11:15
which disclose or provide a 11:15
reason to capture images of a 11:15
patient's teeth with aligners in 11:15
a service position, let alone for 11:15
the purpose of analyzing such an 11:15
image to determine aligner fit. 11:15
Did I read that right? 11:15

A. Yes, I believe that's what it says here. 11:15

Q. What do you mean when you say there that none of Kim, Invisalign, or Salah provide a reason to capture images of a patient's teeth with aligners in a service position? 11:15

A. I mean that none of them would motivate a POSA to do that. 11:15

Q. And when you assessed whether there was a motivation to combine the references, did you focus on that issue of whether the references provide the reason to do it? 11:16

A. Can -- I'm not sure I understand the question. 11:16

Q. When you formed your opinions regarding whether there was a motivation to combine the references as proposed, did your analysis focus on whether the references themselves provided the reason to make that combination? 11:16

A. Are we talking now about motivation to combine or motivation for acquiring an image in a service position? 11:16

Q. Is it your understanding that the combination prosed in Dr. Foroosh's declaration 11:17

involves capturing an image of an aligner in a 11:17
service position? 11:17
MS. PARKS: Objection to form. 11:17
THE WITNESS: So my understanding is 11:17
that the combination that -- my 11:17
understanding is that Dr. Foroosh describes 11:18
a combination in which images would be 11:18
obtained of an aligner in the service 11:18
position, but I don't see motivation from 11:18
the prior art for images to be obtained in 11:18
such a fashion. 11:18
BY MR. ARGENTI: 11:18
Q. And was your analysis directed to 11:18
whether the prior art that's cited provide the 11:18
motivation to do that? 11:18
A. My analysis of Dr. Foroosh's 11:18
combination focused on the elements of prior 11:18
art that he identified as being the components 11:19
of his combination. 11:19
Q. And it was your conclusion that 11:19
those elements of the cited prior art did not 11:19
motivate a POSA to arrive at capturing images 11:19
of an aligner in a service position; is that 11:19
right? 11:19
A. I did not see motivation for 11:19

capturing an image in a service position in any 11:19
of those pieces of prior art. 11:19
Q. And did you consider -- strike that. 11:19
Was that the focus of your analysis 11:20
as to whether there was a motivation to do so? 11:20
MS. PARKS: Objection to form. 11:20
THE WITNESS: So I was focusing on 11:20
evaluating Dr. Foroosh's combination and 11:20
the elements that he described in his 11:20
combination. 11:20
And I was looking to see whether 11:20
there was motivation and a reasonable 11:20
expectation of success for each of the 11:20
elements that he described in his 11:20
combination. 11:20
BY MR. ARGENTI: 11:20
Q. And because the particular cited 11:20
prior art elements did not, in your view, 11:21
provide a motivation to capture an image of an 11:21
aligner on teeth, you then reached the 11:21
conclusion that there was no motivation for the 11:21
combination; is that right? 11:21
MS. PARKS: Objection to form. 11:21
THE WITNESS: I think that -- that 11:21
question conflated two issues, one about 11:21

motivation to combine and one about 11:21
motivation for obtaining an image with an 11:21
aligner in the service position. 11:21
BY MR. ARGENTI: 11:21
Q. Is there a distinction in your mind 11:21
between the issue of motivation to combine the 11:21
prior art as proposed and the motivation to 11:21
capture an image of an aligner in a service 11:21
position? 11:21
A. I don't think those are identical 11:22
concepts. 11:22
Q. What's the difference between them? 11:22
A. I think that they're -- 11:22
hypothetically, one could identify a motivation 11:23
for acquiring a particular kind of image. And 11:23
one could also identify a motivation for 11:23
combining one piece of prior art with another. 11:23
And it's possible that a single 11:23
thing could be both a motivation for -- could 11:23
motivate both of those things, or it's possible 11:23
that, hypothetically, there would be separate 11:23
motivations. 11:23
Q. And so when you were considering 11:23
whether a POSA would have arrived at capturing 11:24
an image of an aligner in a service position in 11:24

1 view of the cited prior art, you were looking 11:24
2 for something expressly suggesting that or 11:24
3 motivating that in the prior art references; is 11:24
4 that right? 11:24
5 MS. PARKS: Objection to form. 11:24
6 THE WITNESS: So Dr. Foroosh 11:24
7 described a combination that he believes 11:24
8 meets the limitation of the claims of the 11:24
9 '248 patent, and I was looking for where 11:25
10 the motivation comes from in his 11:25
11 combination to reach those limitations. 11:25
12 And that analysis centered on the 11:25
13 elements of prior art that he described as 11:25
14 being the basis for his combination. 11:25
15 BY MR. ARGENTI: 11:25
16 Q. And because the prior art doesn't 11:25
17 describe capturing an image of an aligner in a 11:25
18 service position, you reached the conclusion 11:25
19 that a POSA would not have been motivated to do 11:25
20 that, right? 11:25
21 A. I think -- 11:26
22 MS. PARKS: Object to form. 11:26
23 THE WITNESS: I think what you just 11:26
24 said to me is, did I reach the conclusion 11:26
25 that a POSA would not be motivated to 11:26

capture an image simply because it was not 11:26
disclosed? Is that what you're asking me? 11:26
BY MR. ARGENTI: 11:26
Q. That's not exactly what I'm asking 11:26
you. I could ask you again. 11:26
Because, in your view, the prior art 11:26
doesn't describe capturing an image of an 11:26
aligner in a service position, you, therefore, 11:26
reached the conclusion that a POSA would not 11:26
have been motivated to do that; is that right? 11:26
A. No, that's not right. 11:26
MS. PARKS: Same objection. 11:26
BY MR. ARGENTI: 11:26
Q. So earlier, you, I believe, gave the 11:26
answer that motivation to combine the prior art 11:26
as proposed and motivation to combine the prior 11:26
art to reach a particular claim element such as 11:26
capturing an image of an aligner in a service 11:27
position are separate and distinct issues in 11:27
your mind; is that right? 11:27
A. I believe I -- 11:27
MS. PARKS: Objection to form. 11:27
THE WITNESS: I believe I said 11:27
they're non-identical concepts. 11:27

BY MR. ARGENTI: 11:27
Q. And in what way are they 11:27
non-identical? I think earlier you said they 11:27
could overlap and they're different. 11:27
In what way are they different? 11:27
A. I think that's inherent in the way 11:27
you just asked that question. You said they 11:27
could overlap, would suggest that they don't 11:27
have to overlap. So that could be a 11:27
difference. 11:27
Q. Can you give me an example where 11:27
they wouldn't overlap? 11:27
MS. PARKS: Objection to form. 11:28
THE WITNESS: So you're asking for a 11:28
hypothetical where there would be a 11:28
motivation for some element that would not 11:28
be a motivation to combine? 11:28
BY MR. ARGENTI: 11:28
Q. I'm not sure if I'm asking for a 11:28
hypothetical. 11:28
You just said they might not 11:28
overlap, and I'm asking, how might they not 11:28
overlap? 11:28
MS. PARKS: Objection to form. 11:28
THE WITNESS: I think we're into the 11:28

realm here of hypotheticals that I haven't 11:28
really considered. 11:28
BY MR. ARGENTI: 11:28
Q. It's your understanding that the 11:29
combination proposed involves capturing an 11:29
image of an aligner on teeth, right? 11:29
MS. PARKS: Objection to form. 11:29
THE WITNESS: It's my understanding 11:29
that Dr. Foroosh in his declaration, when 11:29
he describes his combination, describes 11:29
capturing images with an aligner in a 11:29
service position. 11:29
It's also my opinion that that 11:29
element of his combination is not -- that a 11:30
POSA would not be -- would not be motivated 11:30
to reach that element of his combination. 11:30
BY MR. ARGENTI: 11:30
Q. And that opinion is based on the 11:30
fact that Kim, Salah, and Invisalign, in your 11:30
opinion, don't disclose capturing an image of 11:30
an aligner on teeth; is that right? 11:30
A. That is not -- 11:30
MS. PARKS: Objection to form. 11:30
THE WITNESS: That is not the entire 11:30
basis for that opinion. 11:30

BY MR. ARGENTI: 11:30
Q. What is the remainder of the basis 11:30
of that opinion? 11:30
A. That in addition to not disclosing 11:30
capturing an image in a service position, they 11:30
do not motivate capturing an image in the 11:30
service position. They provide no reason why a 11:30
POSA would see it as advantageous to do so. 11:30
Q. "They" being the prior art 11:30
references, Kim, Maninis, and Invisalign; is 11:30
that right? 11:31
MS. PARKS: Objection to form. 11:31
THE WITNESS: I did not see a 11:31
motivation for capturing an image of an 11:31
aligner in a service position in any of 11:31
Kim, Invisalign, or Salah. 11:31
BY MR. ARGENTI: 11:31
Q. Thanks. I think I did misspeak in 11:31
my last question when I referred to Maninis 11:31
rather than Salah. 11:31
So just for clarity, when you said 11:31
in your previous answer, it's also my opinion 11:31
that that element of his combination -- sorry, 11:31
strike that. 11:31
So just to clarify, in your earlier 11:31

answer when you said that, in addition to not 11:32
capturing an image on the service position, 11:32
they did not provide a motivation for capturing 11:32
an image of an aligner in a service position, 11:32
"they" refers to Kim, Invisalign, and Salah, 11:32
right? 11:32
A. "They" refers to Kim, Invisalign, 11:32
and Salah. I also do not see a motivation for 11:32
that in Maninis. 11:32
Q. Why don't we turn to page 94 of your 11:32
'248 declaration, and paragraph 166. 11:32
A. I'm at paragraph 166. 11:32
Q. Beat me to it. 11:32
Do you see about six lines up for 11:33
the bottom -- from the bottom where it says: 11:33
But Invisalign is concerned with 11:33
an analysis that is performed in 11:33
person. It instructs 11:33
orthodontists to perform certain 11:33
steps at each appointment that 11:33
could not be performed remotely. 11:33
A. Yes, I see that section. 11:33
Q. In your mind, what is the 11:33
significance of the fact that Invisalign is 11:33
concerned with an analysis that's performed in 11:33

person? 11:33
A. I think -- I think part of the 11:33
significance here goes to the motivation to 11:34
combine with Kim, since Kim is focused on 11:34
remote assessment. 11:34
And so if Invisalign is focused on 11:34
an assessment that necessarily has to be done 11:34
in person, that goes to the motivation to 11:34
combine those pieces of prior art. 11:34
Q. Is it your understanding that if 11:34
less than all of Invisalign's analysis steps 11:34
can be performed remotely, then it's not 11:34
obvious to do any of them remotely? 11:35
MS. PARKS: Objection to form. 11:35
THE WITNESS: I think that a POSA 11:35
reading Invisalign and understanding that 11:36
there's a need for -- based on the 11:36
teachings of Invisalign, that there's a 11:36
need for an in-person visit, would not see 11:36
a motivation for adding remote assessment 11:36
on top of an in-person visit. 11:36
BY MR. ARGENTI: 11:36
Q. When forming your opinions, did you 11:36
analyze what aspects of Invisalign, if any, 11:36
could be performed remotely? 11:36

A. I just want to refer back to my 11:36
statements on Invisalign here. 11:37
So I recall that I spoke with 11:38
Dr. Kusnoto about the assessments that are 11:38
described in Invisalign, and some of those are 11:38
based on visual inspection and some of them are 11:38
based on hands-on manipulation. 11:38
I recall that we discussed what -- 11:39
I recall that we discussed multiple challenges 11:39
to performing any of the visual inspection or 11:39
visual approximation steps on their own and/or 11:39
remotely. 11:39
Q. So in your discussions with 11:39
Dr. Kusnoto, did you reach the conclusion that 11:40
none of what's described in Invisalign could be 11:40
conducted remotely? 11:40
A. I reached the conclusion that a POSA 11:40
in 2017, in consultation with an orthodontic 11:40
expert, would not have had a reasonable 11:40
expectation of success and would not be 11:40
motivated to try to accomplish the steps 11:40
described in Invisalign remotely. 11:40
Q. And that's Invisalign as a whole? 11:40
MS. PARKS: Objection to form. 11:40
THE WITNESS: That's the steps that 11:41

Invisalign describes as part of the 11:41
assessment. 11:41
BY MR. ARGENTI: 11:41
Q. Which assessment is that? 11:41
A. That's the assessment that includes 11:42
the four things that we previously discussed on 11:42
page 2 of Exhibit 1006, page Roman numeral 2. 11:42
Q. You're referring to 2-A, 2-B, 2-C, 11:42
2-D; is that right? 11:42
A. Yes. 11:42
Q. My question was a little different. 11:42
And thank you for your clarification, because 11:42
it just confirmed that you didn't actually 11:42
answer my question, which is, when forming your 11:42
opinions, did you analyze what aspects of 11:42
Invisalign, if any, could be performed 11:42
remotely? 11:43
MS. PARKS: Objection to form. 11:43
THE WITNESS: So, yes, I think 11:43
I did. And I don't think I identified 11:44
elements that could be performed remotely. 11:44
Invisalign discusses direct in-person 11:44
visualization and manual manipulation. 11:44
BY MR. ARGENTI: 11:44
Q. So it's your understanding, then, as 11:44

informed by discussions with Dr. Kusnoto, that 11:44
none of what Invisalign describes can be 11:44
performed remotely; is that right? 11:44
MS. PARKS: Objection to form. 11:44
THE WITNESS: I did not identify 11:44
elements of Invisalign that I thought that 11:44
a POSA would be motivated to try to perform 11:45
remotely. 11:45
BY MR. ARGENTI: 11:45
Q. Whether you identified them is a 11:45
different issue from whether you reached a 11:45
conclusion that they could not be performed 11:45
remotely, Dr. Mongan. 11:45
And my question goes to, do you have 11:45
an opinion as to whether any of the elements in 11:45
Invisalign, any of its disclosure, could be 11:45
performed remotely? 11:45
A. So element 2-A or point 2-A says 11:45
that the current aligner is a good fit. And 11:46
you're asking me whether I have an opinion as 11:46
to whether or not this could be performed 11:46
remotely, whether or not that's possible. And 11:46
the '248 patent describes the means of 11:46
assessing fit remotely. 11:46
So to that extent, I believe that 11:46

it's possible. I don't believe that it -- that 11:46
it provides a motivation or makes obvious how 11:46
that would be done to a POSA reading the 11:46
Invisalign document. 11:47
Q. You had asked to break a little bit 11:47
before noon. Is this about the right time for 11:47
that, Dr. Mongan? 11:47
A. Yes, this could be a good time. 11:47
MR. ARGENTI: Okay. We can go off 11:47
the record. 11:47
(A recess was taken.) 12:31
THE COURT REPORTER: Back on the 12:31
record. 12:31
BY MR. ARGENTI: 12:31
Q. Welcome back, Dr. Mongan. Could you 12:31
turn to page 110 of your '248 declaration, 12:31
please, paragraph 187. 12:31
A. Okay. I'm on paragraph 187. 12:31
Q. At the bottom of that page, do you 12:31
see that where your declaration says: 12:31
I understand from Dr. Kusnoto 12:32
that in 2017, in office 12:32
photographs taken by a trained 12:32
dental professional with a 12:32
professional grade camera were of 12:32

significantly higher quality than 12:32
patient-created photographs using 12:32
a cellphone would have been. 12:32
A. I see that sentence. 12:32
Q. Do you know whether Dr. Kusnoto had 12:32
ever seen a patient-created image taken by a 12:32
cellphone as of 2017? 12:32
A. Excuse me. I don't know. 12:32
Q. Did you ask him? 12:32
A. I don't recall whether I asked him. 12:32
Q. Do you know whether Dr. Kusnoto ever 12:32
performed any analysis on such an image? 12:32
MS. PARKS: Objection to form. 12:32
THE WITNESS: I don't recall asking 12:33
him about performing an analysis on that. 12:33
BY MR. ARGENTI: 12:33
Q. The Kim reference describes 12:33
patient-created photographs using a cellphone, 12:33
right? 12:33
A. The Kim reference describes the 12:34
patient taking photographs using the 12:34
orthodontic patient terminal. And my 12:34
understanding of the orthodontic patient 12:34
terminal is that that would be inclusive of a 12:34
cellphone. 12:34

Q. And those images can then be sent to 12:34
a dentist or orthodontist for assessment, 12:34
correct? 12:34
A. Do you have the Kim reference 12:35
available? It would be helpful to be able to 12:35
refer to that. 12:35
Q. I believe that one's been uploaded 12:35
to Exhibit Share already. 12:35
A. Okay. I'm sorry. 12:35
MS. PARKS: It should be 12:35
Exhibit 1005, Dr. Mongan. 12:35
THE WITNESS: I see that now, thank 12:35
you. 12:35
(Exhibit 1005 was identified.) 12:35
THE WITNESS: Okay. Can you repeat 12:35
your question, Mr. Argenti? 12:35
Q. That the patient-created photographs 12:35
taken using a cellphone in Kim are then 12:36
described as being sent to a dentist or 12:36
orthodontist for assessment, right? 12:36
A. So I believe it describes creating 12:36
and sending a teeth alignment -- teeth 12:36
alignment report information, and that that may 12:36
include photos taken by the patient using the 12:36
orthodontic patient terminal. 12:36

Q. Is it your understanding that a POSA 12:36
would have disregarded those teachings of 12:37
Kim -- 12:37
MS. PARKS: Objection -- 12:37
BY MR. ARGENTI:
Q. -- because the photographs were not 12:37
of the same quality as a DSLR? 12:37
THE COURT REPORTER: Was that an 12:37
objection, Ms. Parks? 12:37
MS. PARKS: Withdrawn. Go ahead. 12:37
THE WITNESS: Can you clarify what 12:37
you mean by "disregarded"? 12:37
BY MR. ARGENTI: 12:37
Q. Ignored. 12:37
A. So I think that a POSA who would be 12:37
in consultation with an orthodontist would have 12:38
read and understood Kim, and understood it to 12:38
describe a method that included transmitting 12:38
patient photographs to an orthodontist. 12:38
And would have also understood that 12:38
those photographs would generally be of 12:38
substantially lower quality than photographs 12:38
that the orthodontist might obtain themselves 12:38
in office using a higher quality camera. 12:38
Q. Is it your understanding that those 12:38

photographs would have been of insufficient 12:38
quality for orthodontic assessment? 12:38
A. I think you're asking a question 12:38
that goes to orthodontic expertise. It's my 12:39
understanding that Kim feels that the 12:39
photographs are of at least some utility. 12:39
And I understand from Dr. Kusnoto 12:39
that they would be of less utility, you know, 12:39
or less -- lower quality than the photographs 12:39
that were typically obtained at that time. 12:39
And as to whether or not they would 12:39
be of sufficient quality for guiding 12:39
orthodontic treatment, I -- I don't have the 12:39
expertise to answer that question. 12:39
Q. So you don't have an opinion whether 12:39
the patient-created cellphone photographs that 12:39
Kim describes would have been of sufficient 12:39
quality in order to allow the orthodontic 12:40
assessment that Kim also describes? 12:40
A. Can you clarify what you mean by 12:40
orthodontic assessment? 12:40
Q. Kim describes a purpose for 12:40
transmitting its patient-taken photographs to 12:40
an orthodontist, right? 12:40
A. So my understanding is that Kim 12:40

1 describes remote assessment of teeth alignment. 12:40
2 Is that what you're referring to as -- 12:40
3 Q. Sure. 12:40
4 A. Okay. 12:40
5 Q. And do you have an opinion as to 12:40
6 whether the photographs that Kim describes 12:40
7 taken by the patient with a cellphone would 12:41
8 have been of sufficient quality in order to 12:41
9 allow that remote assessment of teeth 12:41
10 alignment? 12:41
11 A. I think that's a question that goes 12:41
12 to orthodontic expertise. 12:41
13 Q. Do you have an opinion as to whether 12:41
14 photographs -- strike that. 12:41
15 Let's turn to page 114 of your 12:41
16 declaration, please, paragraph 193. 12:41
17 A. I'm on paragraph 193. 12:41
18 Q. In this paragraph you discuss an 12:41
19 entry in Dr. Frey's blog addressing Dental 12:42
20 Monitoring's GoLive product, right? 12:42
21 A. Yes. The first sentence says: 12:42
22 I note that Dr. Frey posted 12:42
23 another post on his blog 12:42
24 approximately two weeks earlier 12:42
25 evaluating Dental Monitoring's

GoLive product.

Q. And you conclude with the opinion 12:42
that: 12:42
The Frey blog teaches away from 12:42
acquiring images of a patient's 12:42
dental arch with aligners in a 12:42
service position to assess 12:42
aligner images. 12:42
Right? 12:42
A. That paragraph ends with: 12:42
Dr. Frey's blog confirms that 12:42
there was no motivation to 12:42
acquire images of a patient's 12:42
dental arch with aligners in a
service position to assess
aligner images -- 12:42
(The Court Reporter requested 12:42
clarification.) 12:42
THE WITNESS: Images of a 12:42
patient's dental arch with 12:43
aligners in a service position to 12:43
assess aligner images, and 12:43
indeed, Frey teaches away from 12:43
doing so. 12:43

BY MR. ARGENTI: 12:43
Q. The basis for that conclusion is 12:43
that Dr. Frey states: 12:43
Weekly photo submissions would 12:43
add additional burdens on 12:43
patients and be counterproductive 12:43
of treatment, as well as adding 12:43
additional cost. 12:43
Correct? 12:43
A. If we're going to be talking about 12:43
this document, could you put Exhibit 2053? 12:43
Q. Sure. So far I've just been asking 12:43
you about what you say in your declaration, but 12:43
I can load -- 12:43
A. Sure. I'd just like to 12:43
contextualize it. 12:43
(Exhibit 2053 was identified.) 12:44
BY MR. ARGENTI: 12:44
Q. Okay. Exhibit 2053 from the 12:44
'248 IPR should be available on Exhibit Share 12:44
now. 12:44
A. Yes, it is. Thank you. 12:44
Q. Would you like me to restate -- 12:44
repeat my question? 12:44
A. If you don't mind, give me just a 12:44

minute to review the exhibit. 12:44
Q. Okay. 12:44
A. Okay. If you could repeat your 12:45
question, that would be great. 12:45
Q. Sure. 12:45
So in paragraph 193 of your '248 12:45
declaration, you state the conclusion about 12:45
Frey teaching away. 12:45
Is it correct that the basis of that 12:45
conclusion is that Dr. Frey states: 12:45
Weekly photo submissions would 12:45
add additional burdens on 12:45
patients and be counterproductive 12:45
to treatment, as well as adding 12:45
additional costs. 12:45
A. That's part of the basis, yes. 12:46
Q. What's the additional basis? 12:46
A. Dr. Frey also notes that the 12:46
patients compliant enough to complete these 12:46
weekly evaluations -- 12:46
(The Court Reporter requested 12:46
clarification.) 12:46
THE WITNESS: I'm sorry, I'll read 12:46
more slowly. 12:46
The patients compliant enough to 12:46

complete these weekly evaluations 12:46
aren't the ones needing the 12:46
service to titrate their aligner 12:46
wear effectively. 12:46
BY MR. ARGENTI: 12:46
Q. I believe that goes to the 12:46
additional compliance burdens that was part of 12:46
my question, right? 12:46
A. I think it's probably related to the 12:46
compliance burden and also a view on the, who 12:46
would be likely to be compliant with that 12:46
burden and the additional advantage that this 12:47
would be likely to provide. 12:47
Q. So what you're pointing to as 12:47
constituting a teaching a way in the Frey blog 12:47
relates to weekly photo submissions, correct? 12:47
MS. PARKS: Objection to form. 12:47
THE WITNESS: I think that Dr. Frey 12:47
is talking specifically here about weekly 12:47
photo submissions. I think that his 12:47
teaching here is not limited solely to 12:47
weekly photo submissions. 12:47
BY MR. ARGENTI: 12:48
Q. So in your understanding when 12:48
Dr. Frey states, and you quote this in your 12:48

declaration, that, "Weekly photo submissions 12:48
add additional compliance burdens on patients," 12:48
that's not specifically related to weekly photo 12:48
submissions? 12:48
A. I think it would be clear to a POSA 12:48
reading this that if, for instance, there were 12:48
daily photo submissions or monthly photo 12:48
submissions, that those would create -- that 12:48
those would have similar burdens of a 12:48
proportionately lesser or greater magnitude, 12:48
depending on the frequency. 12:48
Q. Do you know how often an aligner 12:48
patient needs to visit an orthodontist if their 12:48
treatment doesn't involve remote treatment? 12:48
A. I'm not an orthodontist, so I don't 12:49
have direct experience with this. My 12:49
understanding from what I've seen is that it's 12:49
typically every -- typically, on -- typically, 12:49
every few weeks or so, and that there may be 12:49
some variation from patient to patient and from 12:49
orthodontist to orthodontist. 12:49
Q. The claims of the '248 and 12:49
'945 patents don't require weekly photo 12:49
submissions, do they? 12:49
A. For the '248 patent, at least to 12:51

claims 1 and 15, specify a limitation that more 12:51
than one week after the start of treatment with 12:52
the aligner, the acquisition of it at least one 12:52
image. 12:52
I don't see further limitations in 12:52
the claims of the '248 regarded -- regarding 12:52
the frequency with which images are obtained. 12:52
I'll look next at the '945, if you'd like. 12:52
Q. Actually, Dr. Mongan, I just want to 12:52
make sure that we get a clear record. I'm not 12:53
sure if it was captured in the transcript. 12:53
Was your answer that you do not see 12:53
a limitation in claims 1 or 15 of the 12:53
'248 patent regarding the frequency with which 12:53
the images are obtained? 12:53
A. I do not see a limitation regarding 12:53
the frequency with which images are obtained in 12:53
any of the claims of the '248 patent. 12:53
Q. Thank you. Yeah. 12:53
Now, if you could take a look at the 12:53
'945 for the similar issue. 12:53
A. I don't see a limitation relating to 12:54
the frequency with which images are required in 12:54
the claims for the '945 patent. 12:54
Q. Back on your declaration on 12:54

page 114, and paragraph 192, about halfway down 12:55
in that paragraph do you see where you say: 12:55
It was rare to use dental images 12:55
captured by patients in 2017. 12:55
A. I see that, yes. 12:55
Q. And that's an understanding that you 12:55
got from Dr. Kusnoto? 12:55
A. Yes, that was my understanding from 12:55
Dr. Kusnoto. 12:55
Q. Did he give you any explanation as 12:55
to what he meant by rare? 12:55
A. I understood it to have the plain 12:55
meaning of rare. I did not ask him to quantify 12:55
rare. 12:55
Q. Why don't we turn back to that Frey 12:55
blog, Exhibit 2053, please. 12:56
A. Yes. 12:56
Q. And look at page 5 at the bottom. 12:56
Do you see where it says: 12:56
They -- and I think the "they" 12:56
refers to Dental Monitoring -- 12:56
currently offer three separate 12:56
plans, which are billed per 12:56
patient on a monthly basis and 12:56
you can cancel at any time. 12:56

A. I see that section. 12:56
Q. If we go to the next page, the first 12:56
of those plans is photo monitoring, right? 12:56
A. I see that the left column in the 12:56
light blue color is titled "Photo monitoring." 12:56
Q. And then there's a bullet point 12:56
under that for photo monitoring; do you see 12:56
that? 12:56
A. Yes. 12:56
Q. And it says, in italics: 12:56
Intra-oral pictures are 12:56
automatically organized and 12:56
evaluated by their technicians. 12:57
Do you see that? 12:57
A. Yes. 12:57
Q. And if we go to -- if we go to 12:57
page 7, which I think was the page that you 12:57
were citing as to the views on DM GoLive. If 12:57
you look at the paragraph above that, right 12:57
under where it says: 12:57
How useful is this to your 12:57
practice? 12:57
Do you see that? 12:57
A. Yes. 12:57
Q. Do you see where it says: 12:57

The Dental Monitoring practice is 12:57
built on the premise that 12:57
everyone now carries a 12:57
smartphone; however, that also 12:57
means that photo monitoring and 12:57
FaceTime appointments can be 12:57
implemented without purchasing 12:57
additional software. 12:57
Do you see that? 12:57
A. Yes. I believe it says the Dental 12:57
Monitoring service rather than the Dental 12:57
Monitor practice, but I do see that section. 12:57
Q. Thanks for the correction. 12:57
The next sentence is: 12:58
We routinely do this for 12:58
international and out-of-state 12:58
patients already. 12:58
Do you see that? 12:58
A. I see that sentence, yes. 12:58
Q. So this is saying that, at least in 12:58
Frey's view, remote monitoring of intraoral 12:58
photographs taken with smartphones was routine 12:58
at the time of this blog? 12:58
A. That's not my interpretation of that 12:58
statement. 12:58

Q. What is your interpretation of this 12:58
statement? 12:58
A. My interpretation of this statement 12:58
is that, in Dr. Frey's practice, it's routine 12:58
specifically for his international and 12:58
out-of-state patients. I don't know how many 12:58
international and out-of-state patients he has, 12:58
but I would imagine that it's a small minority. 12:58
I -- also, it's also not clear to me 12:58
that his statement generalizes to other 12:59
practices or whether it's specific to his 12:59
practice. 12:59
Q. So in your view, this could be 12:59
consistent -- 12:59
A. Sorry, I wasn't quite done. 12:59
Q. Sorry. 12:59
A. But based on my understanding from 12:59
Dr. Kusnoto, I would expect that this likely 12:59
didn't generalize to all practices as much, 12:59
given that Dr. Kusnoto informed me that it was 12:59
rare for this to be done in that -- at that 12:59
time. 12:59
Q. Do you have any reason to doubt the 12:59
accuracy of Dr. Frey's statement that we 12:59
routinely do this, i.e., remote monitoring of 12:59

intraoral photographs taken with a cellphone? 12:59
A. Excuse me. I have no reason to 12:59
doubt Dr. Frey, but I would again note that he 12:59
says that he routinely does it not for all of 12:59
his patients, but for a certain class of 12:59
patients, international and out-of-state, 12:59
which, again, I would assume to be a small 01:00
fraction of his patients. 01:00
Q. And you don't know what fraction, 01:00
right? 01:00
A. There would be no way for me to know 01:00
that. But -- there would be no way for me to 01:00
know that. 01:00
Q. Why don't we turn to page 115 of 01:00
your '248 declaration, please, and 01:00
paragraph 196. 01:00
A. Yes. 01:00
Q. In this paragraph you say that it's 01:00
your opinion that a POSA would not have known 01:00
of Maninis, right? 01:00
A. Yes. 01:00
Q. You then note that Maninis is an 01:00
academic paper, correct? 01:00
A. Yes. 01:00
Q. Is it your understanding that a POSA 01:00

would not have been aware of academic papers? 01:00
A. I think that's not the full 01:01
statement there in my declaration. It says: 01:01
Maninis is an academic paper and 01:01
makes no mention of the use of 01:01
its neural network architecture 01:01
for analysis of dental or 01:01
orthodontic images. 01:01
So what I'm indicating there is that 01:01
there is no connection that would bring this 01:01
particular paper to the attention of someone 01:01
working from Kim, Invisalign, and Salah. 01:01
Q. So your point that it's an academic 01:01
paper and the point that it doesn't mention 01:01
dental or orthodontic imaging applications seem 01:01
like separate points to me. So I want to take 01:02
those one at a time and go back to my question. 01:02
Is it your understanding that a POSA 01:02
would not have been aware of academic papers? 01:02
A. I'm not making a blanket statement 01:02
that a POSA would be unaware of academic 01:02
papers. The other prior art are not academic 01:02
papers. 01:02
And so the suggestion here is that 01:02
someone working from patents and documentation 01:02

from aligners would not find this in the same 01:02
sorts of places that the other prior art had 01:02
been found. 01:02
Q. So is it your understanding that 01:02
it's a relevant consideration for an 01:02
obviousness analysis whether one reference is a 01:03
patent and another reference is an academic 01:03
paper? 01:03
A. It's my understanding that for 01:03
considering the motivation to combine, one has 01:03
to consider whether the POSA would have been 01:03
likely to have been aware of it. Because if 01:03
you don't know about it, you can't combine it. 01:03
Q. I don't believe that answered my 01:03
question. 01:03
A. Okay. Would you like to restate 01:03
your question? 01:03
Q. Is it your understanding that there 01:03
is a heightened threshold to demonstrate 01:03
obviousness if the combination of prior art 01:03
involves both the patents and academic 01:04
publications? 01:04
A. No, I don't think that's what I was 01:04
suggesting. 01:04
Q. Is it your understanding that 01:04

academic papers are excluded from the pool of 01:04
prior art a POSA would have been aware of in 01:04
this case? 01:04
A. I think they may have been less 01:04
likely to come across this. 01:04
Q. This being the Maninis paper? 01:04
A. This being the Maninis paper. 01:04
Q. And they may have been less likely 01:04
to come across it by virtue of it being an 01:04
academic paper; is that right? 01:04
A. Predominantly by virtue of it not 01:04
having connection to dentistry or orthodontia. 01:05
So having nothing -- no reason for it to stand 01:05
out to a POSA looking to improve -- looking to 01:05
combine with the other prior art that's been 01:05
described as part of the combination. And 01:05
secondarily, and to a lesser extent, because 01:05
it's an academic paper. 01:05
Q. And if we turn then to your opinions 01:05
about the subject matter and whether it 01:05
discloses or doesn't disclose dental or 01:05
orthodontic images, is it your understanding 01:05
that a POSA would only have been aware of deep 01:05
learning prior art references if they 01:05
specifically mention dental or orthodontic 01:05

imaging applications? 01:05
A. No, that's not what I was 01:06
suggesting. 01:06
Q. What are you suggesting? 01:06
A. So Dr. Foroosh says -- proposes that 01:06
it would have been obvious for a POSA to 01:06
identify this article and this work by Maninis 01:06
as something to combine with Kim, Invisalign, 01:06
and Salah. 01:06
And what I'm suggesting is that from 01:06
the voluminous literature on neural networks, 01:06
I don't see how a POSA would have selected this 01:06
article. 01:06
Q. And is it your opinion that a POSA 01:06
would have selected an article explicitly 01:07
mentioning dental applications? 01:07
A. Hypothetically, an article that 01:07
mentioned dental applications, I can see how a 01:07
POSA would be more likely to identify that and 01:07
be more motivated potentially to combine that. 01:07
Q. More motivated to combine doesn't go 01:07
to whether they would be motivated to combine 01:07
with this reference, right? Simply -- 01:07
MS. PARKS: Objection. 01:08
MR. ARGENTI: Yeah, I'll rephrase 01:08

that. 01:08
BY MR. ARGENTI: 01:08
Q. Simply because a POSA might have 01:08
been more motivated to combine the teachings of 01:08
a deep-learning reference discussing dental 01:08
applications doesn't go to whether a POSA would 01:08
have been motivated to combine the teachings of 01:08
Maninis, does it? 01:08
A. So I think this statement is 01:08
prefaced in my declaration by the statement 01:08
that a POSA would not have known of Maninis. 01:08
And so it's not so much about a 01:08
motivation of a POSA who knows about Maninis to 01:08
combine as to whether or not they would have 01:08
been able to find Maninis or whether they would 01:08
have found Maninis, whether this one article 01:08
would have stood out to them in the literature. 01:08
Q. Do you have an understanding of the 01:09
legal standard for determining the scope of the 01:09
prior art that a POSA would have been aware of? 01:09
A. So on page 9 of my '248 declaration, 01:09
I stated that: 01:09
I understand that the POSA is 01:09
presumed to have knowledge of all 01:09
references that are sufficiently 01:09

related to one another and to the 01:09
pertinent art. 01:10
So my understanding is that the 01:10
legal standard is all references that are 01:10
sufficiently related to one another. And 01:10
I think what I'm identifying here is, I'm not 01:10
sure that I -- I don't see sufficient relation 01:10
between Maninis and the other pieces of prior 01:10
art. 01:10
Q. Under either Dr. Foroosh's 01:10
definition of the POSA or your definition, the 01:10
POSA does not have to have education or 01:10
experience specific to the field of dentistry, 01:10
right? 01:10
A. So under my definition of the POSA, 01:11
the POSA would work as part of a 01:11
multidisciplinary team, which would have 01:11
included individuals familiar with medical 01:11
imaging, dental imaging, dentistry, and 01:11
orthodontics. 01:11
Under Dr. Foroosh's definition, a 01:11
POSA could be a member of a multidisciplinary 01:12
team that could include persons with -- I'm 01:12
omitting some here -- but background such as -- 01:12
background such as electrical engineering, some 01:12

admitted dentistry and orthodontic, and could 01:12
call upon the knowledge of other team members 01:12
as appropriate. 01:12
And I believe that where one is 01:12
reviewing art that's directed towards dentists 01:12
or orthodontists or that presupposes knowledge 01:12
of those things, that it is appropriate to 01:12
consult with a team member who has that 01:12
expertise. 01:12
Q. So you believe that the POSA's 01:12
awareness of prior art in these two IPRs would 01:12
be limited to references specific to dentistry; 01:12
is that right? 01:12
MS. PARKS: Objection to form. 01:13
THE WITNESS: I don't think that's 01:13
what I said, no. 01:13
BY MR. ARGENTI: 01:13
Q. You believe that the POSA's 01:13
awareness of prior art in these two IPRs would 01:13
extend to references that don't mention 01:13
dentistry; is that right? 01:13
A. Excuse me. I believe that a POSA 01:13
would be presumed to have knowledge of all the 01:13
references that are sufficiently related to one 01:13
another, and that Maninis is not sufficiently 01:13

related to the other three references. 01:14
Q. And that doesn't turn on the fact 01:14
that it doesn't mention dentistry, it turns on 01:14
something else? 01:14
A. I think that hypothetically if 01:14
Maninis mentioned dentistry, that would 01:14
indicate sufficient relation. 01:14
Q. Dr. Mongan, I asked you if you 01:14
believe that a POSA's awareness of prior art in 01:14
these two IPRs would be to limit it -- would be 01:14
limited to references specific to dentistry. 01:14
You said, no, that's not what I said. 01:14
So then I asked you if the POSA's 01:14
awareness of prior art would extend to 01:14
references that don't mention dentistry. And 01:14
you said, no, that's not right either. 01:14
Which is it? 01:14
MS. PARKS: Objection to form. 01:15
THE WITNESS: So I don't believe my 01:15
responses to you have been inconsistent. 01:15
I said that if hypothetically Maninis 01:15
mentioned dentistry, that would suggest a 01:15
relationship. That does not necessarily 01:15
mean that it is limited to things that 01:15
mention dentistry. 01:15

BY MR. ARGENTI: 01:15
Q. So potentially, the scope of the 01:15
prior art could extend to references that don't 01:15
mention dentistry; do you agree? 01:15
A. Hypothetically. 01:15
Q. And the reason -- 01:15
A. -- (audio disruption) it doesn't 01:15
mention dentistry. They could be sufficiently 01:15
related in some other aspect. 01:15
Q. And the reason that you feel that a 01:15
POSA would not have been aware of Maninis and 01:15
included it in the scope of prior art is 01:16
because it doesn't mention dentistry; is that 01:16
right? 01:16
A. Because I don't see any sufficient 01:16
relationship between Maninis and the other -- 01:16
the other prior art, including that it doesn't 01:16
mention dentistry. 01:16
Q. Maninis is a paper describing a 01:16
deep-learning approach, correct? 01:16
A. Can you clarify what you mean by 01:16
"approach"? 01:16
Q. Does Maninis involve deep learning? 01:16
A. Maninis involves deep learning. 01:16
Q. Salah's deep learning is one of 36

possible methods -- 01:16
(The Court Reporter requested 01:16
clarification.) 01:16
BY MR. ARGENTI: 01:16
Q. Salah's deep learning is one of 36 01:16
possible methods consistent with its teachings, 01:16
correct? 01:17
A. Salah mentions deep learning on one 01:17
line of the patent as the last of a list of 01:17
non-preferred methods. 01:17
It's not clear to me that that one 01:17
passing mention to a non-preferred approach 01:17
suggests sufficient relation to the entire 01:17
field of deep learning and neural network, the 01:17
entire literature, the entire corpus of the 01:17
literature. 01:17
Q. Why don't we turn to paragraph 147 01:17
of your '248 declaration, please. That's on 01:18
page 84. 01:18
A. Excuse me. I'm on paragraph 147. 01:18
Q. And in this paragraph, you say that: 01:18
Unlike the exemplary tooth 01:18
attribute values of the 01:22
'248 patent, the contour of a 01:18
region cannot be expressed as a 01:18

single value. 01:18
Do you see that? 01:18
A. I see that sentence, yes. 01:18
Q. You go on to say that: 01:18
The contour of a region would 01:18
instead necessarily be expressed 01:18
as a vector of values for each 01:18
pixel in the image. 01:18
Do you see that? 01:18
A. I see that, yes. 01:19
Q. And you say: 01:19
Each value representing whether 01:19
that pixel is part of a tooth or 01:19
aligner boundary line. 01:19
Correct? 01:19
A. I see that section, yes. 01:19
Q. And you appear to distinguish those 01:19
from the tooth attribute values in the 01:19
'248 patent on the basis that a POSA would not 01:19
understand the tooth attribute values to 01:19
include quantities that can only be expressed 01:19
as a complex set of values, right? 01:19
A. A complex set of values, none of 01:19
which individually describe any discernible 01:19
attribute of the tooth. 01:19

Q. Where do you find support for that 01:19
in the '248 patent? 01:19
A. So I draw support for that from the 01:22
specification in the paragraph starting on 01:22
column 7, line 64 that describes tooth 01:22
attributes. 01:22
Q. You were just directing my attention 01:22
to the line that begins, "The tooth attribute 01:22
is preferably chosen from," and goes on; is 01:22
that right? 01:22
A. Yes. 01:22
Q. So is it your understanding that 01:22
this collection of preferable examples in the 01:22
'248 patent defines tooth attribute? 01:23
A. My understanding that this would 01:24
inform a POSA as to what a -- what a tooth 01:24
attribute means in the context of the 01:24
specification in the patent as a whole. 01:24
In particular, that -- the patent 01:24
refers to a tooth attribute value, suggesting a 01:24
single value, and additionally informed by the 01:24
POSA's knowledge of the structure and 01:24
capabilities of the neural networks described 01:25
in the specification and what they were capable 01:25
of producing that's described as a tooth 01:25

attribute value, or leads to the tooth 01:25
attribute value. 01:25
Q. So, then, do you agree that the list 01:26
of preferable examples starting at line 64 of 01:26
column 7 does not provide a definition of tooth 01:26
attribute value? 01:26
A. So I think the paragraph that 01:26
I directed your attention to, while it doesn't 01:27
define the width and breadth of a tooth 01:28
attribute, would inform a POSA's understanding 01:28
of what tooth attribute means in the context of 01:28
this. 01:28
Q. And the understanding is that it 01:28
can't be a complex set of values; is that 01:28
correct? 01:28
A. Yes. 01:28
Q. And you mentioned in your earlier 01:28
answer that the use of the term "tooth 01:28
attribute value" suggests a single value, 01:28
correct? And is that because the word "value" 01:29
in tooth attribute value is the singular? 01:29
A. I think that would further inform a 01:29
POSA's understanding, in addition to the 01:29
context of what produces the value and... 01:29
Q. And you would agree that the 01:29

specification of the '248 patent explains that 01:29
the image attribute value can be a list of 01:29
values, right? 01:29
A. I believe there's a part of the 01:30
specification that refers to an image attribute 01:30
relating to a list of tooth attributes. If you 01:31
know where that is, I may be able to save us 01:31
some time if you can direct me to that. 01:31
Q. Sure. Why don't we take a look at 01:31
column 26, around line 8. That might be what 01:31
you're thinking of. 01:31
A. So for the image attribute value, 01:32
this says that it may be the list of the tooth 01:32
numbers represented. But it can't be any 01:32
arbitrary list of values. It has to be things 01:32
that pertain to the image as a whole. 01:32
Q. So why can an image attribute value 01:32
be a set of values but not a tooth attribute 01:32
value? 01:32
A. I believe that an image attribute 01:33
value can be a set of values when it's 01:33
calculated as a function of tooth attributes. 01:33
(The Court Reporter requested 01:33
clarification.) 01:33
THE WITNESS: As a function of tooth 01:33

attributes. 01:33
BY MR. ARGENTI: 01:33
Q. But the term "image attribute value" 01:33
is a singular value, just like tooth attribute 01:33
value, correct? 01:33
It's a pretty simple question, 01:34
Dr. Mongan. I'm not sure what you're referring 01:34
to right now. 01:34
I'm just asking, the term "image 01:34
attribute value" uses value in the singular, 01:34
just like tooth attribute value, correct? 01:34
A. I'd just like to take a minute to 01:34
review the claim construction that I have here 01:34
on tooth attribute and image attribute. 01:34
Yes, the word "value" is used in the 01:36
singular in both of those. So my statement 01:36
that that would have informed a POSA's 01:36
understanding that the tooth attribute doesn't 01:36
represent a set of values may not have been 01:36
correct. 01:37
MR. ARGENTI: Why don't we -- we've 01:37
been going over an hour. Why don't we take 01:37
a break. 01:37
THE COURT REPORTER: Off the record? 01:37
MR. ARGENTI: Yes, off the record. 01:37

(A recess was taken.) 01:46
THE COURT REPORTER: Back on the 01:46
record, then. 01:46
BY MR. ARGENTI: 01:46
Q. Okay. Dr. Mongan, let's turn to 01:46
your declaration in the '945 IPR now, please. 01:46
That's Exhibit 2028 in IPR 2024-00110. 01:46
A. I have that in front of me. 01:47
Q. And let's turn to page 51 of that 01:47
declaration, please, paragraph 104. 01:47
A. Okay. I'm on paragraph 104. 01:47
Q. And in this paragraph you note that: 01:47
Salah discloses 36 methods of 01:47
determining discriminant 01:47
information such as contours, 01:47
including 18 preferred methods. 01:47
Right? 01:47
A. Yes. 01:47
Q. One of those preferred methods is 01:47
using the Canny algorithm to determine 01:47
contours, right? 01:47
A. One of those preferred methods is 01:47
the Canny algorithm. 01:47
Q. Can the other -- can the other 35 01:47
methods of determining discriminant information 01:48

that Salah describes also be used to determine 01:48
contours? 01:48
A. Excuse me. Can you share the Salah 01:48
reference? Did you already? 01:48
Q. I believe we did, right? 01:48
A. You did. 01:48
Q. It's Exhibit 1008. 01:48
A. That's on page 134. 01:48
Q. That's where the list starts, 01:48
correct? 01:48
A. Some of these can be used to 01:49
determine contours. 01:49
Q. Do you know how many of them can? 01:49
A. Excuse me. I don't know precisely 01:49
how many of them can. 01:49
Q. Now let's turn to page 83 of your 01:49
'945 declaration. 01:50
A. Yes. I'm on page 83. 01:50
Q. In paragraph 162 on page 83, you 01:50
address Dr. Foroosh's example where he used 01:50
Canny edge detection to determine the contours 01:50
of the Invisalign image, right? 01:50
A. So in paragraph 162, I'm discussing 01:50
Dr. Foroosh's application of Canny edge 01:50
detection to Figure A of Invisalign. 01:50

Q. And you note that Dr. Foroosh 01:50
manually labeled the contours that were 01:50
detected using the Canny algorithm, right? 01:51
A. Yes. 01:51
Q. And you say that: 01:51
This fails to qualify as analysis 01:51
by means of image processing 01:51
software. 01:51
Correct? 01:51
A. So the manual identification of 01:51
which edges represent tooth edge and aligner 01:51
edge does not represent determination of the 01:51
interior and exterior tooth outlines by means 01:51
of image processing software. 01:51
Q. You also go on to say that: 01:51
This fails to disclose 01:52
determining a score. 01:52
Right? I think that's in 01:52
paragraph 163. 01:52
A. So, yes, I say that: 01:52
Because it does not distinguish 01:53
between the tooth edge and the 01:53
aligner edge -- 01:53
(The Court Reporter requested 01:53
clarification.) 01:53

THE WITNESS: The tooth edge and the 01:53
aligner edge, it does not disclose 01:53
comparison of the interior and exterior 01:53
tooth outlines so as to determine at least 01:53
one score, according to said comparison. 01:53
BY MR. ARGENTI: 01:53
Q. Is it your understanding that the 01:53
claims of the '945 patent exclude a human 01:53
performing any of its steps? 01:53
A. It's my understanding that, at 01:56
least, step 3 of claim 1 cannot be performed 01:56
entirely by a human. 01:56
Q. What about if we look at step 4, 01:56
which is another step that you quote in 01:56
paragraph 163 of your declaration? Is it your 01:56
understanding that that step cannot be 01:56
performed by a human? 01:56
A. I haven't previously considered 01:58
whether step 4 could be performed by a human. 01:58
I do note that determination of which is the 01:58
interior and which is the exterior tooth 01:58
outline has to be -- is accomplished prior to 01:58
step 4, and that that has to be accomplished by 01:59
means of the imaging processing software. 01:59
Q. And when you said that that step 3 01:59

of claim 1 of the '945 patent cannot be 01:59
performed entirely by a human, can step 3 be 01:59
performed by a human who uses image processing 01:59
software for a portion of the determination 01:59
process? 01:59
A. The imaging processing software 02:00
needs to identify for each tooth -- for each of 02:00
the plurality of teeth the interior and 02:01
exterior tooth outline. So it needs to know 02:00
that those outlines correspond to the same 02:00
tooth. So all of that needs to be done by the 02:00
imaging processing software in step 3. 02:00
Q. And when you say that the image 02:01
processing software needs to identify for each 02:01
tooth outline -- sorry, strike that. The 02:01
transcript, I think, wasn't quite right. 02:01
When you say that the image 02:01
processing software needs to know that 02:01
identified outlines correspond to the same 02:01
tooth, can that knowledge be based on human 02:01
input? 02:02
A. No, I don't think it can. 02:03
Q. Turning back to your declaration 02:03
here, in paragraph 63 [sic], in the first 02:03
sentence, where you say: 02:03

As a result, even if a POSA did 02:03
rely on Salah -- 02:03
A. Sorry, give me just a moment to get 02:03
to paragraph 63, if you don't mind. 02:03
Q. Sorry, I might have misspoken. 163, 02:03
the same paragraph that we were already looking 02:03
at. 02:03
A. 163. Okay. I'm at paragraph 163. 02:03
Q. And in this paragraph where you say: 02:03
As a result, even if a POSA did 02:04
rely on Salah as proposed by 02:04
Dr. Foroosh, it would not have 02:04
resulted in a method to. 02:04
And you go on to list some claim 02:04
language from the '945 patent, right? 02:04
A. I see that section in paragraph 163. 02:04
Q. In this paragraph, are you 02:04
specifically referring to Dr. Foroosh's example 02:04
using Canny edge detection? 02:04
A. I'm going to refer to the portion of 02:05
Dr. Foroosh's declaration. Okay. I believe 02:05
I have Dr. Foroosh's declaration for the '248, 02:05
but not Dr. Foroosh's declaration for the '945. 02:05
Q. Sure. Okay. It should be 02:05
available. 02:06

A. Yes. Thank you. Okay. Thank you. 02:06
Could you repeat the question? 02:08
THE COURT REPORTER: Would you like 02:08
me to read it back? 02:08
MR. ARGENTI: I'm just trying to 02:08
figure out which question it would be. So 02:08
I can just repeat it. 02:08
BY MR. ARGENTI: 02:08
Q. In paragraph 53 of your '945 02:08
declaration, Dr. Mongan -- excuse me -- 02:08
Dr. Mongan, it's been a long day. 02:08
A. I understand. 02:09
Q. In paragraph 163 of your declaration 02:09
on the '945 patent, when you conclude that even 02:09
if a POSA did rely on Salah as proposed by 02:09
Dr. Foroosh, it would not have resulted in the 02:09
number of claim limitations, are you 02:09
specifically referring to Dr. Foroosh's example 02:09
using the Canny algorithm? 02:09
A. So I'm referring to the example that 02:09
Dr. Foroosh gave using the Canny algorithm, but 02:09
this is not limited to the Canny algorithm. 02:10
Because, in general, Salah discloses generic 02:10
contour detection and does not disclose 02:10
assigning those contours to particular objects. 02:10

Q. Did you analyze whether any of the 35 other methods of determining discriminant information in Salah would be capable of determining the outlines of the teeth and the aligner?

A. I think what's relevant is the context in which Salah discloses them. And Salah is discussing them -- excuse me -- Salah is presenting them as things that generically detect contours.

And so whether or not they may -- you know, one or any of them may be capable of doing more than generic contour detection is not the sense in which Salah discloses them.

And so there would be no particular motivation for a POSA to apply them in another sense beyond the way that Salah discloses them, particularly because, as I've discussed elsewhere, a POSA would not be motivated in implementing Salah or in looking at the teachings of Salah to acquire images with an aligner in place.

Q. So it sounds like the answer to my question is, no, you did not consider whether any of the 35 other methods of determining

discriminant information that Salah discloses 02:12
would be capable of determining the outlines of 02:12
the teeth and the aligner; is that correct? 02:12
MS. PARKS: Objection to form. 02:12
THE WITNESS: So I was focused on 02:12
evaluating the combination that Dr. Foroosh 02:12
presented and described in the disclosures 02:12
as they're presented in the prior art that 02:12
he cites. 02:12
So I didn't go looking for alternate 02:12
ways, you know, not disclosed by either 02:12
Salah or proposed by Dr. Foroosh for ways 02:12
that someone might have done something. 02:12
BY MR. ARGENTI: 02:12
Q. But you also didn't consider whether 02:12
the methods that Salah does disclose would be 02:13
capable of determining the outlines of the 02:13
teeth and the aligner, right? 02:13
A. I don't recall that I made that 02:13
analysis because I don't think it -- I don't 02:13
think it was relevant. 02:13
MR. ARGENTI: Why don't we take 02:13
another short break. I think I'm just 02:13
about ready to wrap it up. 02:13
THE WITNESS: Okay. Great. 02:13

MR. ARGENTI: Let's take five minutes. That should be enough. Well, just make it seven minutes. Just do it at 2:20.

THE WITNESS: Sounds good. Thank you.

(A recess was taken.)

THE COURT REPORTER: Back on the record.

BY MR. ARGENTI:

Q. Dr. Mongan, during any of the breaks today did you discuss your testimony with counsel for Dental Monitoring?

A. No, I did not.

MR. ARGENTI: No further questions from me, barring any follow up after redirect.

MS. PARKS: Mr. Mongan, I just have a handful of questions for you.

EXAMINATION

BY MS. PARKS:

Q. Do you recall earlier today when we were looking at Dr. Foroosh's declaration relating to the '248 patent, Mr. Argenti asked you a few questions about a figure in

Invisalign showing what Invisalign calls a poorly seated aligner that is also reproduced in Dr. Foroosh's declaration? 02:21

(The Court Reporter requested 02:21
clarification.)

THE WITNESS: Your audio may be a 02:21
little suboptimal, too. I don't know if 02:21
you have a microphone issue?

MS. PARKS: Is this better? 02:21
I pulled my phone a little bit closer? 02:21

(The Court Reporter requested 02:21
clarification.) 02:21

BY MS. PARKS: 02:21

Q. Dr. Mongan, do you recall that 02:21
earlier today, when we were looking at 02:21
Dr. Foroosh's declaration relating to the 02:21
'248 patent, Mr. Argenti asked you a few 02:21
questions about a figure from Invisalign that 02:21
is also reproduced in Dr. Foroosh's report that 02:21
shows what Invisalign calls a poorly seated 02:21
aligner? 02:21

A. Yes, I do recall that. 02:21

Q. And do you also recall today 02:21
discussing a number of conversations that you 02:22
had with Dr. Kusnoto in connection with this 02:22

case, including about the Invisalign reference? 02:22
A. Yes, I do recall discussing that 02:22
I had discussions with Dr. Kusnoto. 02:22
Q. Can you please take a look at 02:22
page 102 of your '248 declaration? 02:22
A. Yes. I'm on page 102. 02:22
Q. Do you see footnote 9 on page 102? 02:22
A. Yes. 02:22
Q. Is your understanding as set out in 02:22
this footnote 9 consistent with your 02:22
discussions with Dr. Kusnoto? 02:22
A. Yes, it is. And I recognize that -- 02:23
I believe that Mr. Argenti had asked me a 02:23
question related to this phrasing. And I see 02:23
now that this is the phrasing that I used. 02:23
MS. PARKS: Okay. Great. No 02:23
further questions. Thank you, Dr. Mongan, 02:23
for your time. 02:23
MR. ARGENTI: Nothing further for 02:23
me. Thank you, Dr. Mongan. 02:23
THE COURT REPORTER: Ms. Parks, can 02:23
you give me your order? 02:24
MS. PARKS: Sure. Can we do a same 02:24
day rough and then, like, a standard 02:24
turnaround time for the final, please? 02:24

(THEREUPON, the deposition of JOHN MONGAN, M.D., Ph.D, concluded at 2:24 p.m.)

(SIGNATURE RESERVED)

C E R T I F I C A T E

I, MONNA J. NICKESON, CCR, CSR, CLR, RPR, CRR, the undersigned Certified Court Reporter, authorized to administer oaths and affirmations in and for the states of Washington (3322), Oregon (16-0441), Idaho (1045), and California (14430), do hereby certify:

That the sworn testimony and/or proceedings, a transcript of which is attached, was given before me at the time and place stated therein; that the witness was duly sworn or affirmed to testify to the truth; that the testimony and/or proceedings were stenographically recorded by me and transcribed under my supervision. That the foregoing transcript contains a full, true, and accurate record of all the testimony and/or proceedings occurring at the time and place stated in the transcript.

That I am in no way related to any party to the matter, nor to any counsel, nor do I have any financial interest in the event of the cause.

IN WITNESS WHEREOF I have set my hand on September 5, 2024.

Monna J. Nickeson

MONNA J. NICKESON, CCR, CSR, CLR, RPR, CRR

Allyson Parks, Esq.
AParks@gibsondunn.com

September 4th, 2024

RE: Align Technology, Inc. v. Dental Monitoring SAS
8/28/2024, Dr. John Mongan (#6876038)

The above-referenced transcript is available for review.

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

The witness should sign the Acknowledgment of Deponent and Errata and return to the deposing attorney. Copies should be sent to all counsel, and to Veritext at calendar-pnw@veritext.com.

Return completed errata within 30 days from receipt of testimony.

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

Yours,
Veritext Legal Solutions

Align Technology, Inc. v. Dental Monitoring SAS
Dr. John Mongan (#6876038)

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Dr. John Mongan Date

ACKNOWLEDGEMENT OF DEPONENT

I, Dr. John Mongan, do hereby declare that I have read the foregoing transcript, I have made any corrections, additions, or changes I deemed necessary as noted above to be appended hereto, and that the same is a true, correct and complete transcript of the testimony given by me.

_____ _____

Dr. John Mongan Date

*If notary is required

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_____ DAY OF _____, 20___.

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Washington State Court Rules

Rule CR 30

Depositions Upon Oral Examination

(e) Submission to Witness; Changes; Signing. When the testimony is fully transcribed the deposition shall be submitted to the witness for Examination and shall be read to or by the witness, unless such examination and reading are waived by the witness and by the parties. Any changes in Form or substance which the witness desires to make shall be entered upon the deposition by the officer with a statement of the reasons given by the Witness for making them. The deposition shall then be signed by the witness, unless the parties by stipulation waive the signing or the witness Is ill or cannot be found or refuses to sign. If the deposition is not signed by the witness within 30 days of its submission to the witness, the Officer shall sign it and state on the record the fact of the waiver or of the illness or absence of the witness or the fact of the refusal to sign Together with the reason, if any, given therefor; and the deposition may then be used as fully as though signed unless on a motion to suppress under

Rule 32(d)(4) the court holds that the reasons given for the refusal to sign require rejection of the deposition in whole or in part.

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