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1 A P P E A R A N C E S

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1 (Whereupon, the following proceedings
2 were had, to-wit:)

3 MR. LAYDEN: Tim Layden on behalf
4 of patent owner, Cleveland Medical Devices; and
5 with me is Jenna Fuller.

6 MS. ALEXANDER: Kamilah Alexander
7 on behalf of petitioner, ResMed Corporation; and
8 with me is Rachel Wu Hankinson.

9 COURT REPORTER: Counsel agrees I
10 can swear the witness in remotely?

11 MR. LAYDEN: Agreed.

12 MS. ALEXANDER: Yes.

13 JASON PAUL KIRKNESS, Ph.D.

14 having been first duly sworn,
15 was examined and testified as follows:

16 DIRECT EXAMINATION

17 BY MR. LAYDEN:

18 Q. Dr. Kirkness, welcome back.

19 A. Thank you.

20 Q. So we'll start much the same way. As
21 far as -- sorry. Screen just changed.

22 Entering the copy of your declaration
23 in this instance in this case, as well as your
24 CV.

25 Your declaration is Exhibit No. 1003,

1 and it's your declaration in support of
2 inter partes review about the '512 patent; and
3 your CV is Exhibit 1004.

4 Do you have those in front of you?

5 A. Yes, I do.

6 Q. And for purposes of just, I guess, the
7 deposition and record taking, your declaration
8 will be Exhibit 1; your CV will be Exhibit 2.

9 (Exhibit 1 and Exhibit 2
10 marked for identification.)

11 BY MR. LAYDEN:

12 Q. But in speaking with counsel, I
13 understand that we will refer to them more
14 generally as your declaration and CV, if that
15 works for you.

16 A. That's fine.

17 Q. Thank you.

18 Dr. Kirkness, looking at your
19 declaration, is that your signature at the very
20 end?

21 A. Yes, it is.

22 Q. And all your opinions in this case are
23 contained within the confines of your
24 declaration. Is that accurate?

25 A. So all the opinions that I've been

1 asked to provide are contained within this
2 declaration, correct.

3 Q. And how long did you spend preparing
4 your declaration?

5 A. It's -- I couldn't -- I couldn't tell
6 you in terms of number of hours or days, but
7 considerable time.

8 Q. Okay. In looking over your CV, which
9 is Exhibit 1004, how many times have you served
10 as an expert witness before?

11 A. I have served as an expert witness
12 twice before in my recollection. I think that I
13 wrote that in my CV on Page --

14 Q. 15?

15 A. -- 15. So once in 2012 and once in
16 2024.

17 Q. Is the 2024 instance the current
18 engagement you have?

19 A. No. The 2024 was a separate
20 inter partes review.

21 Q. Who were the parties of that?

22 A. ResMed and NYU.

23 Q. And who did you represent or provide
24 opinions for?

25 A. I provided opinions for ResMed.

1 Q. And in the 2012 instance, what were
2 the parties involved in that?

3 A. That was Fisher and Paykel and ResMed.

4 Q. And who did you provide opinions for
5 in that case?

6 A. I provided opinions for ResMed.

7 Q. And sticking in your CV, if you look
8 at -- just at the top of Page 15, it says you
9 were a consultant/investigator for ResMed
10 between 2007 and 2016; is that correct?

11 A. This is correct. So those -- those
12 times and those dates are not continuous, but
13 during those -- during that period of time, I
14 had engaged with ResMed for various activities
15 as described in that section.

16 Q. And in that section at the bottom, it
17 says, "The evaluation of competitors' products
18 or assessment of products for due diligence."

19 Do you see that?

20 A. I do see that.

21 Q. What products -- what competitors'
22 products did you provide evaluations for?

23 A. I actually -- off the top of my head,
24 I couldn't tell you exactly what products.

25 However, I can tell you in the time

1 frame of around 2007, I looked at a device which
2 was a humidification device, and that
3 humidification device was from a company
4 called -- they're a company that did
5 humidification. I'm just trying to think of the
6 name off the top of my head.

7 And essentially looking at whether the
8 performance of the humidification device would
9 be suitable, for example, for integration in one
10 of their own -- their own products that they
11 might be looking to develop.

12 Q. And prior to your engagement in the
13 case here, were you aware of Cleveland Medical
14 Devices?

15 A. No.

16 Q. Have you ever evaluated a product
17 called SleepScout?

18 A. No.

19 Q. Did you help develop any ResMed
20 products in your time consulting with them?

21 A. So as part of my -- as it says in
22 there, consulting and investigating roles, I
23 evaluated some of their products and performed
24 some clinical trials.

25 For example, one of their products, of

1 which I was an investigator in, was a cannula,
2 so a nasal cannula that is used for providing
3 high-flow or high-flow therapy to individuals
4 with sleep apnea, COPD.

5 And I looked at the performance of
6 that cannula in comparison to other cannulas
7 used in a similar method for different devices
8 that were -- sorry, for different devices that
9 were either on the market for that usage or they
10 might have been on the -- in development for
11 similar usage.

12 Q. Do you remember the name of the
13 cannula product?

14 A. The -- of our ResMed cannula product?

15 Q. Correct.

16 A. The -- so not off the top of my head.
17 I do not remember the name of the product.

18 But I can tell you it's -- I believe
19 it's currently on the market. And whether it's
20 on the market in the form that I evaluated it
21 would -- I couldn't tell you because I don't --
22 I don't know about the process after I did the
23 usability study for that cannula. I don't know
24 whether they changed it or used it exactly the
25 same as I was provided it.

1 However, the cannula, let's call it
2 the cannula product, is currently used for
3 one -- a similar product is used in high-flow
4 therapy or some people call it high-flow
5 therapy. Some people call it nasal high flow.

6 It's also referred to other things
7 in -- in, for example, critical care, the use in
8 respiratory failure, use in treating COPD
9 patients, people with acute respiratory distress
10 syndrome, largely in hospitals or in -- maybe in
11 acute care facilities.

12 And then some of the applications have
13 been used in homes.

14 So it's that product that I evaluated
15 the nasal cannula for.

16 Q. So you evaluated the product for the
17 Airsense 10 from ResMed?

18 A. Well, actually, I don't know if it
19 goes with -- if the nasal cannula goes with the
20 Airsense 10. I couldn't tell you if that's
21 the -- that's the same cannula that goes with
22 the Airsense 10.

23 Q. Are you aware of what the Airsense 10
24 is?

25 A. Not specifically. I've never used the

1 Airsense 10.

2 Q. What do you understand about the
3 Airsense 10?

4 A. Well, I assume that it's a --
5 presumably either a CPAP, or if it goes with
6 the -- if it goes with the product that I had
7 evaluated for ResMed, it might be used for
8 delivering high flow.

9 So if the Airsense 10 connects up with
10 the cannula that is -- is used for delivering
11 nasal high flow, then I'm making an assumption
12 there.

13 However, as I've said, I've never
14 evaluated that product, so I couldn't -- I
15 couldn't really tell you about that.

16 Q. Did you ever evaluate the ApneaLink
17 Air?

18 A. No. I've used the ApneaLink Air
19 and -- but I've never evaluated it.

20 Q. And how would you use the ApneaLink
21 Air?

22 A. So in -- as a collaborator in -- in
23 studies related to sleep disordered breathing.
24 This is, you know, an informal collaborator, not
25 listed on my CV as a formal collaborator.

1 But looking at the data traces and the
2 data that comes out from an ApneaLink Air, being
3 able to look at the sleep -- evaluate sleep
4 studies, evaluate whether the traces represent
5 various patents or waveforms that might be
6 associated with Cheyne-Stokes respiration or
7 central sleep apnea, to be able to look at the
8 air flow associated with that, the
9 respiratory-related inductance that goes with
10 that nasal cannula oximetry.

11 And a lot of those studies, the
12 principal investigator was Dr. Punjabi who was a
13 previous faculty at -- previous faculty at Johns
14 Hopkins, now the chief of pulmonary at the
15 University of Miami which, in my CV, I've
16 declared that I'm also adjunct faculty at the
17 University of Miami.

18 Q. In your time consulting with ResMed,
19 any other products aside from the nasal cannula
20 product?

21 A. So products, not that I can recall.
22 So I just can't recall if there was any specific
23 products that I've evaluated.

24 Q. If you can turn to Page 7 of your CV.

25 A. Uh-huh.

1 Q. And at the bottom of Page 7, you have
2 a section listed, "Contracts."

3 Do you see that?

4 A. Sorry. There's one staple in this.
5 Yes.

6 Q. In that section, you have several
7 listings where you played the role of principal
8 investigator --

9 A. Yes.

10 Q. -- or what looks like ResMed products
11 and investigations?

12 A. So that's -- and over the page?

13 Q. Uh-huh.

14 A. Correct.

15 Q. Starting in 2013 to 2016, the first
16 entry there, the high nasal air flow for
17 treatment of COPD --

18 A. Yes.

19 Q. -- what was your role and what did you
20 evaluate?

21 A. So this involved the use of high-flow
22 therapy which, as described previously, is a --
23 is a process of delivering air flow to the nose
24 at a given air flow rate.

25 And the -- I could talk about the

1 physiology of why you would do that. Probably
2 not important.

3 Q. I wouldn't say so here. Just --

4 A. And it's also the -- this was
5 specifically in a group of people who had COPD.
6 That's the other piece that's important.

7 Q. What was the goal of your
8 investigation?

9 A. So the goal of that investigation --
10 and there would be -- this would be very
11 similar.

12 The goal of the investigation is to
13 look to see if providing air flow to the nose of
14 an individual with COPD provides some clinically
15 meaningful benefits in being able to alter their
16 either respiration or respiration-related
17 parameters.

18 So, for example, people with COPD are
19 known to have altered breathing mechanics such
20 that they can trap air in their lungs, and that
21 air potentially can be, let's say -- you could
22 remove the obstruction during expiration by
23 providing some air into the nose of those
24 individuals.

25 So the goal was to determine to see

1 whether putting air into their nose at various
2 flow rates is able to provide a physiologically
3 meaningful change that could improve the lives,
4 quality of life, the breathing mechanics, and
5 perhaps the activities of daily living in people
6 who have COPD.

7 And they're largely affected because
8 they have poor quality of life, lower activities
9 of daily living, and difficulties breathing.

10 Q. And I see in 2014, as well as 2008 and
11 2010 to 2012 --

12 A. Correct.

13 Q. -- it looks as though you fulfilled
14 the same role, investigating the same treatment
15 options?

16 A. Yes.

17 Q. Were each of these investigations
18 different engagements between you and ResMed?

19 A. So each of these represent -- so there
20 are different aspects to some of these
21 engagements. The exact -- the exact differences
22 between those, I haven't listed the exact
23 differences between those. This list is very
24 high level.

25 Some of those differences may have

1 been related to the level of flow that was able
2 to be delivered to the nose, so how much air you
3 could provide, how much support.

4 Some of that -- some of these are
5 also -- I just recalled this right now. It's
6 not written down.

7 But some of these were not in humans,
8 for example. They might have been on benchtop
9 models. Benchtop models, including ventilator,
10 you know, constructed airways configured to look
11 at the downstream and upstream properties of air
12 flow.

13 And then the other things I recall in
14 looking at this, creation of 3-D anatomically
15 correct models, models of the nasal airways to
16 model, for example, the change in pressure --
17 the change in pressures when the actual airways
18 are in place.

19 So because a -- you might appreciate
20 that a cylindrical tube does not always -- it
21 would not always represent the same
22 configuration for pressure and flow transmission
23 through the airways as might the airways of a
24 human anatomy configured to have the features of
25 nasal airways like nasal inductance, septum,

1 posterior pharynx, et cetera.

2 So I think that there's very --
3 there's various layers of progression of a -- I
4 would say a theme around nasal high flow that
5 involved essentially understanding how you can
6 provide air to the nose via nasal cannula.

7 I would, you know -- even though I've
8 described some of the work there with -- even
9 though I've described some of the work there
10 with ResMed, I'd also say that this was an area
11 of specific expertise.

12 And there are other people in the --
13 and other corporations, companies, product
14 developers, collaborators that I was also
15 involved with in the nasal -- you know,
16 delivering nasal air flow.

17 For example, Fisher and Paykel -- and
18 I even was employed by Fisher and Paykel for
19 three years. There's a German company by the
20 name of T&I Medical, and I consulted with
21 T&I Medical on their transnasal inflation
22 device.

23 This was a very early configuration of
24 delivering long -- humidifier air flow to the
25 nasal passages in order to assess the benefit

1 for folks with chronic respiratory diseases,
2 which include pediatrics with sleep apnea and
3 snoring of which we published at Johns Hopkins
4 in collaboration with the pulmonary department
5 and the pediatrics department.

6 So there were a number of other -- I
7 do recall the name of the humidifier company.
8 It was called Vapotherm.

9 So, anyway, this was an area of
10 academic interests and investigation, and
11 particularly in association with the measurement
12 quantification of airway properties, air flow
13 properties in the airway, and the various uses
14 of those respiratory-related physiological
15 parameters for characterizing those sleep
16 disorders.

17 Q. Thank you.

18 And if you look at the 2009 to 2010,
19 it says you were the principal investigator for
20 high nasal air flow for treatment of obstructive
21 sleep apnea at ResMed?

22 A. Correct.

23 Q. What was your purpose during that
24 investigation?

25 A. That's on Page 8, correct, is it?

1 Q. Page 8, correct.

2 A. So this was work performed at the
3 University of Western Australia in -- and also
4 the Western Australia Sleep Disorders Research
5 Institute, Sir Charles Gairdner Hospital in
6 Western Australia, as part of a collaborative
7 study to examine whether the -- as I've
8 mentioned for in detail about the nasal high
9 flow, whether nasal high flow was able to
10 change.

11 So this is -- when I say nasal high
12 flow, what I mean is delivering air flow to the
13 nose at a certain flow rate and to determine
14 whether there are any changes in upper airway
15 properties.

16 And those upper airway properties
17 include collapsability, and collapsability of
18 the upper airway means evaluating whether you've
19 reduced the propensity of the upper airway to
20 collapse during sleep.

21 And so the role of -- so the role of
22 this in one way, the nasal cannula is a less
23 obtrusive modality of applying to an individual
24 for sleep.

25 So it's -- in other words, it's easier

1 to wear a cannula during sleep than it might be
2 to wear a full -- either full face mask or a
3 nasal mask or some other configuration.

4 And there's -- another difference is
5 that a cannula is essentially an open system.
6 It doesn't require a sealed system. So there
7 are potentially some advantages if you're able
8 to demonstrate that a cannula could sufficiently
9 be used to treat sleep apnea.

10 Now, as I mentioned to you before, in
11 children, we had evidence to suggest that that
12 might be the case, and so we're looking to
13 determine -- and, you know, this is not an
14 isolated study. There's various other studies
15 that I was participating in globally, some in
16 Germany, some in the U.S.

17 And we were looking to see, are there
18 specific types of people with sleep apnea or
19 various degrees of upper airway obstruction that
20 may have a benefit from just using a cannula.

21 Think about it like, okay, more people
22 snore than have sleep apnea or snoring may be
23 considered more prevalent in the population than
24 is sleep apnea.

25 So could we -- could we help people

1 who had mild upper airway obstruction by
2 providing them some assistance via a cannula,
3 and it would be more acceptable for them to use
4 than if you require that they use a fully sealed
5 mask.

6 So this -- that's the -- in 2009, that
7 was the -- I guess the hypotheses of the work
8 and the background of why we're interested.

9 Q. And who did you report your findings
10 to at ResMed?

11 A. We -- most probably -- not that I
12 remember exactly, but the team, the medical
13 affairs team, were involved -- two people I know
14 that were involved at the time were Glen
15 Richards and Adam Benjafield.

16 Q. Did you ever meet with or discuss with
17 any of your findings or time at ResMed with an
18 individual named Mark Buckley?

19 A. Not that I can remember, no.

20 Q. Did you ever discuss with a ResMed
21 employee named Jeff Armitstead?

22 A. I do know Jeff Armitstead.

23 Q. How do you know Jeff Armitstead?

24 A. I've met Jeff Armitstead at various
25 meetings, various -- you know, various -- I

1 would say -- he's a ResMed employee that I've
2 just -- he was -- you know, he attends
3 international meetings, so I see him at the
4 American Thoracic Society.

5 Where else do I see Jeff?

6 Perhaps at -- there's specialty sleep
7 conferences. I haven't been to many of the
8 specialty sleep conferences in the last few
9 years.

10 But prior to -- prior to that, I would
11 see Jeff Armitstead at those meetings.

12 Q. When was the last time you met with
13 Jeff Armitstead?

14 A. It would have been -- hard for me to
15 say. It could have been a few years.

16 Q. Since 2023?

17 A. Once again, I couldn't -- I couldn't
18 tell you. I don't know the last time that I saw
19 him.

20 Q. Have you ever met with a ResMed
21 employee named David Mulkay?

22 A. No.

23 Q. During your time consulting with
24 ResMed, how much did ResMed pay you?

25 A. I wouldn't be -- I wouldn't be sure.

1 I couldn't tell you how much.

2 Q. More than \$100,000?

3 A. Like I said, I couldn't tell you. I
4 would have to -- you know, that would -- I'd
5 have to look back at that to see that
6 Information.

7 Q. Looking at the contracts you have
8 listed here on Page 7 and 8 including the ones
9 not with ResMed --

10 A. Uh-huh.

11 Q. -- what would you say the average
12 price you received for each of those would be
13 averaged?

14 A. Yeah. I don't think I could even
15 create an average. I have -- I just don't know.
16 I haven't looked at that. I haven't -- haven't
17 even thought about that.

18 Q. When was the last time you engaged
19 with a company in that role as an investigator?

20 A. As an investigator? So in my previous
21 employment at a company by the name of
22 4DMedical, I was an investigator for a number of
23 studies that we did, clinical studies looking at
24 the -- the role of functional lung imaging. So
25 this is -- this is basically X-rays in short.

1 I'm just summarizing for you.

2 Q. No. That's fine.

3 I mean, really what I'm trying to get
4 at is just what's the average cost an
5 investigator, someone taking on this role, what
6 would a company pay for that.

7 A. So there's various factors that go
8 into determining how much somebody might charge
9 as an investigator.

10 And, also, some of that is related to
11 scientific inquiry as well. So if there's
12 purely commercial -- you know, commercial
13 activity -- which I'm primarily a scientist. I
14 have a strong track record in scientific
15 discovery publications and so forth.

16 So a lot of this -- the work that I've
17 done in pulmonary medicine over the, I would
18 say, nearly 30 years is driven by the desire to
19 advance the scientific aspects, whether that be
20 from the translation of the work, and
21 ultimately, you know...

22 And I currently do this. I currently
23 sit on the planning committee at the American
24 Thoracic Society on the respiratory innovation
25 summit committee, and this is about the

1 engagement of academia, industry and society, in
2 order to translate innovation. Innovation
3 having two parts, both invention and the -- and
4 the commercialization.

5 And this has long been an area of
6 which I'm very, very interested because -- and I
7 also sit and chair the American Thoracic Society
8 drug device discovery and development committee.

9 Those -- those two committees are
10 looking at how do we help the members of the
11 American Thoracic Society, being respiratory
12 physicians, provide a mechanism to translate
13 their own or help translate the companies that
14 are used -- to provide products that provide
15 benefit for patients and provide therapies and
16 options for people's treatments.

17 So in describing what goes into
18 industry contracts, there are many more aspects
19 than just the exchange of money. There's the
20 exchange of ideas. There is the drive to -- to
21 invent. There's the drive to publish.

22 If you're in academia, as you may well
23 know, there's also the competition to compete
24 for national funding. There's the desire to
25 publish, and not only publish but present and be

1 recognized in a certain area.

2 So some of these -- some of these
3 things are not compensated in a financial way.

4 Q. But you're not sure how much financial
5 compensation you did receive from ResMed for
6 this work; is that correct?

7 A. So as I said, that's something that
8 I'd have to look up.

9 Q. Did you receive any grants as a result
10 of your work with ResMed?

11 A. Yes. So -- and some of this -- some
12 of these contracts, indeed, were grants to an
13 institution.

14 So whilst I was the principal
15 investigator, the -- any of the financial -- the
16 moneys that was received from these contracts
17 were actually contracts where I was the
18 principal investigator.

19 But the institution, Johns Hopkins
20 School of Medicine, or as I mentioned before,
21 Western Australia or the Sir Charles Gairdner
22 Hospital, they were actually the contracting
23 institutions.

24 Q. And when you were working for those
25 institutions, the one in Western Australia or

1 Johns Hopkins --

2 A. Yes.

3 Q. -- was part of your role and
4 responsibilities to secure grants for your
5 projects?

6 A. In some ways, yes. So in some ways,
7 part of my roles and responsibilities were to
8 perform research at the institute; and in some
9 ways, it was also to apply for grants, and I did
10 that.

11 And, as you can see, some of those
12 grant applications were successful as listed in
13 these -- in my CV.

14 Q. How many grants have you secured
15 because of your work with ResMed?

16 A. I wouldn't like to just guess. But if
17 I -- if I include, for example, those ones which
18 I've listed in the contracts, it would be --
19 I've listed five here.

20 Q. Just those five that are listed in the
21 contract section?

22 A. Yes. And if there's anything else, I
23 don't recall, but...

24 Q. And in your work as an expert witness,
25 what's your hourly rate?

1 A. \$700 per hour.

2 Q. And has that been a steady rate in
3 your representation of ResMed in 2012 and 2024?

4 A. I do not know what the previous rate
5 was in 2012, but I do know that it has not
6 changed between the last -- the previous
7 representation.

8 Q. And other than your current listing as
9 adjunct professor, do you hold any other current
10 employment?

11 A. So I am currently an advisor, clinical
12 advisor for SMSbiotech, Incorporated. So that
13 is -- and I'm compensated through options.

14 Q. Do you hold any ResMed stock?

15 A. No.

16 Q. Have you ever held any ResMed stock?

17 A. No.

18 Q. Have you ever received any ResMed
19 stock as part of your work with them?

20 A. No.

21 Q. Turning back to your declaration,
22 please, if you can go to Page 13. I believe
23 it's Paragraph No. 3.

24 A. Can you repeat that again? Sorry.

25 Q. In your declaration --

1 A. Yep.

2 Q. -- Page 13, Paragraph 3.

3 A. Yes.

4 Q. Are you there?

5 A. Yes, I'm there.

6 Q. In Paragraph 3, you list out eight
7 separate grounds that you opine on.

8 Do you see that?

9 A. Yes.

10 Q. And in each of those grounds, the
11 primary reference is Ciulla. Is that accurate?

12 A. Correct.

13 Q. And in addition to Ciulla, a secondary
14 reference that appears in each of those grounds
15 is Orbach; is that correct?

16 A. That's correct.

17 Q. I just uploaded in the chat
18 Exhibits 1007 for reference, Ciulla; and
19 Exhibit 1008, Orbach. The Ciulla reference for
20 purposes of this deposition will be Exhibit 3;
21 the Orbach will be Exhibit 4.

22 (Exhibit 3 and Exhibit 4
23 marked for identification.)

24 BY MR. LAYDEN:

25 Q. Dr. Kirkness, can you describe for me

1 Ciulla? And if it helps, if you turn to your
2 declaration, Section 9 beginning on Page 42 is
3 where you have your overview of the art.

4 A. Yes. So overview of the art, you can
5 see Ciulla discloses a patient-wearable device
6 for sleep disordered breathing. The system is
7 used to treat sleep disordered breathing.

8 The device includes a main module,
9 which is on the back of the patient, that
10 receives signals from various sensors, including
11 oximeter, chest sensor, snoring sensors,
12 breathing sensors, and EMG sensors.

13 This can be hard wired to the main
14 module, which is on the back, communicate
15 wirelessly with the module.

16 Sensors may be designed to be
17 incorporated within the main module as part
18 thereof and, as such, would be connected to the
19 back module for a hard-wired connection.

20 There's an attitude sensor which, is
21 part of the CPU in the main module, and
22 determines the patient's sleeping position.
23 This is whether they're on their back or their
24 side.

25 Receiving signals from the various

1 sensors, the microprocessors within Ciulla's
2 wearable device, it processes those inputted --
3 inputted inputs I should say; and, therefore,
4 once they're received, generates the commands to
5 transmit those commands to a variety of wireless
6 devices.

7 And there's a microprocessor which
8 analyzes its multisensor inputs to detect faulty
9 or obstructed breathing. The device also has a
10 clinical trial version designed to transmit
11 multiple sensors' output wirelessly, and --
12 which includes RF, bluetooth, WAN, LAN, IT
13 Internet modem, or other.

14 And it incorporated a wireless
15 receiver allowing the researchers to observe the
16 patient's responses through a display for
17 multiple different output signals called a
18 montage.

19 And, overall, the device's
20 microprocessor can directly transmit, analyze
21 the report to a therapist and/or a company for
22 further analysis research for reporting, such as
23 documentation.

24 Q. In looking at Ground 1, back in
25 Paragraph 3, Ground 1 focuses just on Ciulla and

1 Orbach.

2 Do you agree with that?

3 A. Correct.

4 Q. Okay. Can you describe for me the
5 Orbach?

6 A. Certainly. So in brief, Orbach
7 discloses wearable sensor modules that sense
8 physiological parameter data of a user or a
9 patient, and a mobile monitor that can receive
10 such data from the sensor modules for subsequent
11 transmission to a remote server.

12 Among other features, the mobile
13 monitor is a cell phone -- cellular phone or a
14 PDA, personal digital assistant, which is shown
15 or described in Figure 1.

16 Orbach's cell phone is equipped with a
17 means to communicate both the sensor module and
18 the remote server wirelessly.

19 When the remote server receives the
20 sensor data from the user or patient sensing
21 module, an expert can review the data to help
22 identify or possibly even correct sleep
23 disorders as described in Paragraphs 98 and 99
24 of my declaration.

25 Q. And it's your opinion that a person of

1 ordinary skill in the art in 2006 would have
2 combined the references of Ciulla and Orbach to
3 achieve the invention claimed in the
4 '512 patent. Is that accurate?

5 A. That's accurate. So it's my opinion
6 that a person of ordinary skill in the art
7 would've found it obvious to modify the sleep
8 diagnostic data acquisition in Ciulla, to send
9 its sensor data through a mobile phone or a PDA
10 to a remote computer for diagnosing sleep
11 disorders, as described in Orbach.

12 So this combination would've produced
13 a sleep diagnostics data acquisition system
14 described in Ciulla, incorporating the aspects
15 as taught by Orbach.

16 Q. And I believe you pulled that from
17 Paragraph 104 of your declaration?

18 A. Correct, 104.

19 I go further to expand the reasons why
20 people would've been interested in that. I
21 described that in Paragraphs 105 and in detail
22 all the way through to Paragraph 117.

23 So that's -- I gave you the overview,
24 but there are details -- further details that,
25 if you'd like, I'd happily pull those out.

1 Q. Okay. Starting with Paragraph 105 --

2 A. Yes.

3 Q. -- that first sentence there, you say,
4 "This ground integrates Ciulla's wearable sleep
5 data acquisition system with Orbach's teachings
6 on utilizing a patient's cell phone to
7 wirelessly gather sleep censored data and
8 transmit it to a remote computer for
9 processing." And then below that, you have an
10 annotated image.

11 Do you see that?

12 A. Yes, I do.

13 Q. And you annotated that image yourself?

14 A. So this -- this figure of -- I have
15 attested to the annotation of this image.

16 The actual figure is contained -- you
17 can see that it's the figure from -- the first
18 one is figure -- from Ciulla on the right-hand
19 side.

20 It is -- so I'm looking at
21 Exhibit 1007. And I have taken from Figure 1B
22 on the right-hand side and then on Orbach, which
23 is Exhibit 1008. So the figure on the left-hand
24 side of the -- is Figure 1 from Orbach on the
25 left-hand side.

1 So the color illustration adds some
2 dimension to that in order to highlight the
3 various aspects that I referred to in the
4 claims.

5 Q. Okay. In looking at that figure, the
6 yellow -- the highlighted yellow boxes on the
7 right-hand image from Ciulla and the person in
8 Orbach, is that the wearable device?

9 A. So the yellow box -- so on the
10 right-hand side, as I had mentioned on Figure 1B
11 of Exhibit 1007, on page -- sorry. I was
12 reading the number incorrectly. Sorry.

13 In Exhibit 1007 on Page -- in
14 Paragraph 100 -- so it's actually on 0100
15 through to 0107. The illustration with the
16 yellow box in my declaration, which is the
17 annotated Figure 1, shows that the yellow box
18 from Figure 1B in Exhibit 1007 is called the
19 main module, and the main -- the main module of
20 the device.

21 I could describe that main module in
22 greater detail if you care.

23 Q. So the yellow box on both is the main
24 module. Is that what I understand you're
25 saying?

1 A. So in Orbach, which is the left-hand
2 part of the figure -- so as I mentioned before,
3 Figure 1 in Exhibit 1008 is the sensor module,
4 which is attached to the user.

5 Q. And the green annotated image on
6 Page 48, that's the cell phone from Orbach. Is
7 that accurate?

8 A. So the -- the figure from -- showing
9 the green -- so on Page 108 of the -- sorry,
10 Exhibit 1008, Page 22 describes the -- in
11 Paragraph -- I'm sorry.

12 Line 3 through to Page 23, Line 4,
13 describes the embodiment of the invention where
14 the sensor module 110 is connected by
15 communication link 112 to a mobile monitor 120.
16 In a preferred embodiment, the mobile monitor
17 120 is a cell phone or a PDA equipped with a
18 processor to perform data analysis, memory,
19 display, audio output, input means such as
20 keyboard, microphone, sketchpad, and means to
21 communicate with both sensor module and remote
22 server.

23 And it's described at greater length,
24 particularly communication -- in Line 20, the
25 communication range of the sensor module is

1 limited because of its small size and low
2 battery capacity of the sensor module. So it
3 communicates with -- via bluetooth.

4 In contrast, the mobile module is
5 equipped with means to connect to a remote
6 server wirelessly over a cell network,
7 preferably the Internet.

8 For example, cellular phones may be
9 connected by using one of the cellular data
10 exchange protocols as described there with GPRS.

11 Another standard or proprietary
12 protocols may be used such as a wired connection
13 to a phone line or a modem or ADSL, LAN, or
14 wireless network.

15 Q. Okay. Going back to your declaration,
16 the four red boxes you have annotated there,
17 what do they represent?

18 A. So this is described in Exhibit 1008,
19 Lines 21 -- on Page 13, Lines 21 through to
20 Page 14, Line 2.

21 And the individual pieces, so 128,
22 which is the dotted line that goes to the first
23 red square, is a communication link which is
24 used to connect the mobile monitor, which is
25 120, as we described before, to a remote server,

1 which is 140 where in-depth analysis of data
2 obtained by the sensor unit, the yellow -- first
3 yellow box in Orbach that we described, may be
4 done. And, optionally, data can be transferred
5 to an expert or another user.

6 In the exemplary embodiment in
7 Figure 1, the mobile monitor 130 is a cellular
8 phone, communication link is a bluetooth link,
9 and communication link is cellular RF link to a
10 cellular base station which is linked to a
11 remote server by a data link.

12 Optionally, an additional data link,
13 such as LAN or Internet networking or RF
14 cellular link connects the remote server to a
15 viewing station 150, which is the last in the
16 chain of red box there, where a human expert may
17 provide interpretation of the data and transmit
18 recommendations back to the user.

19 Q. Now, why did you annotate those four
20 boxes in red?

21 A. So the reason is that those boxes
22 represent various stages or steps in
23 communication, in a communication chain.

24 So -- and whilst this -- those boxes
25 reflect various aspects of that communication

1 between the sensor and a -- and an expert at the
2 end of the chain, it represents that there are
3 various aspects to the communication.

4 Q. Going back to your statement in that
5 Paragraph 105 where you state, "Ciulla's
6 wearable sleep data acquisition system with
7 Orbach's teachings on utilizing a patient's cell
8 phone to wirelessly gather sleep sensor data and
9 transmit it to a remote computer for
10 processing."

11 What do you mean by "processing"?

12 A. So processing, so -- is there -- other
13 than processing, there's various aspects to
14 processing.

15 I would say that, in this case,
16 processing is a method where a piece of hardware
17 in a computer is -- runs basically electrical
18 signals in a certain format that are used in
19 order to take signals that -- or input signals.

20 And depending on the configuration of
21 the electrical circuitry -- in the configuration
22 of the electrical circuitry or the -- it's
23 called chips or the way in which they're
24 configured would then be -- used to alter an
25 output, output signal.

1 So that's the general -- I would say
2 the general description of what processing is.

3 Q. And is that the definition you apply
4 throughout your analysis?

5 A. Well, depends -- it would depend on
6 the specific -- the specific circumstance in
7 which the word "processing" is used.

8 So I'd have to see the -- you know, I
9 don't want to -- I don't want to say that I
10 would -- so in terms of remote computer for
11 processing, it's very general and vague
12 terminology. In some other instances, it may be
13 used in a very specific manner.

14 Q. Okay. I just dropped Exhibit 1001
15 into the chat.

16 And for purposes of this deposition,
17 that will be marked as Exhibit 5, and that is
18 the copy of the '512 patent.

19 (Exhibit 5
20 marked for identification.)

21 BY MR. LAYDEN:

22 Q. Dr. Kirkness, if you can turn to
23 Claim 1 at the end of the '512 patent for me,
24 please. If you can let me know once you're
25 there.

1 A. Yes. I'm here. Claim 1.

2 Q. If you can go down to -- it's one of
3 the subelements under the second element, so I
4 believe in petitioner's marking, they marked it
5 as 1.b.iii.D.

6 And the element states, "The signal
7 processing unit configured for receiving and
8 processing the sleep data from one or more input
9 channels."

10 Let me know when you see that.

11 A. The signal -- the one or more
12 electrical components including a signal
13 processing unit. Is that the one? Sorry.

14 Q. So below that.

15 A. Which line is it? Sorry.

16 Q. It would be Line 30.

17 A. 30.

18 Q. Beginning at 31.

19 A. "One or more electrical components,"
20 yes.

21 Q. And if you go down to the end of that,
22 that little paragraph, you see, "The wearable
23 patient interface box," and then you have, "The
24 signal processing unit configured for receiving
25 and processing the sleep data from one or more

1 input channels."

2 A. I do see that.

3 Q. What do you understand "processing" to
4 mean in the context of the claims in the
5 '512 patent?

6 A. So I would like you to be -- to refer
7 to my declaration in this.

8 Q. Okay.

9 A. So on Page -- Exhibit 1003, Page 94.
10 And Page 94, you can see that I've split that
11 out into the various subclauses --

12 Q. Correct.

13 A. -- for ease of reference.

14 And in referring to that section or
15 that limitation, I described that through
16 Pages 95 through --

17 Q. Just for ease of purposes, I think
18 Page 104, Paragraph 155 is where you begin your
19 analysis of the element in question; is that
20 correct?

21 A. I'm sorry. I was looking at the
22 reference. Can you repeat --

23 Q. Page 104, Paragraph 155.

24 A. 155, correct. So there are various --
25 there's extensive discussions. So from

1 Page 90 -- in that limitation as broken down,
2 there are various aspects that describe, for
3 example -- and I'm annotating for your benefit
4 here.

5 One or more electrical components,
6 which includes signal processing unit for
7 receiving the electrical signals from the
8 sensors, as I described that previously, that
9 would be considered the input.

10 So the microprocessor, which includes
11 the signal processing -- signal processing unit
12 which receives those electronic signals.

13 And then if I go to -- if I skip to
14 the declaration in the area of interest which
15 you specifically asked me about on Page 104 in
16 Paragraph 155, that specific subclause, Ciulla
17 discloses the signal processing unit configured
18 for receiving and processing the sleep data for
19 one or more input channels. The main module
20 processor, signal processing unit, receives the
21 sensor data from the various sensors of Ciulla's
22 sleep device.

23 The microprocessor is contained within
24 the shoulder unit, which is the -- like I said,
25 the bit that does some processing algorithm,

1 et cetera, filtering, of the device, that is
2 provided for receiving a wide variety of inputs
3 from various sensors.

4 A process of receiving sensor inputs,
5 processing the received sensor inputs, and
6 generating commands.

7 The device includes a plurality of
8 sensors that transmit information into the main
9 module that relates to the various conditions of
10 the patient.

11 So it takes input, processes it, and
12 then generates an output in some -- this is a
13 demand.

14 Q. And my question was, in regards to how
15 it's used within the '512 patent, what would a
16 person of ordinary skill of the art in 2006
17 understand "processing" to mean?

18 A. Yeah. And, as I said, a processor
19 would take input signals, process those, and
20 like -- if we're talking about specific
21 sleep-related sensor input data, it would take
22 sensor data from a sleep or breathing-related
23 signal.

24 It would take that to the processor,
25 apply a relevant processing procedure, and then

1 create a logical output that could be either
2 further relayed or, in some cases, further
3 processed.

4 So that's -- that's the broad
5 understanding of this. If there's another
6 specific area that you'd like me to look at or
7 read from, I'd happily do so.

8 Q. Within the context of the '512 patent,
9 does processing data, as we just discussed, mean
10 analyzing data?

11 A. Let me just see if I have written
12 anything on that -- written anything
13 specifically on that.

14 Q. And just for clarity purposes --

15 A. Yeah.

16 Q. -- in the '512 patent, Claim 1,
17 Element G is where the discussion of analyze
18 sleep data comes in.

19 A. Okay. Great. Thank you.

20 Q. I'm sorry. F and G.

21 A. Exhibit 1003, refer to Page 125 in
22 Paragraph 186 for those two.

23 And as I've written here, so Ciulla,
24 in view of Orbach, discloses this as Orbach's
25 remote server with a processor, computer or a

1 second processor, executes the second software
2 to receive and process sleep data.

3 Q. Not to cut you off, but my question
4 was regarding the context of the '512 patent.

5 A. Yes.

6 Q. In purposes of how the terms are used
7 within those claims, does "processing" mean
8 "analyze"?

9 A. So indeed -- so I know you didn't mean
10 to cut me off, and sorry for bringing it up.

11 However, the very next statement says,
12 "Such processing includes analyzing it."

13 So, therefore, what I was describing
14 to you is spelled out specifically there in that
15 statement saying that processing -- processing
16 includes analyzing.

17 Q. So it's your opinion that the terms
18 "processing" and "analysis", "analyze," as used
19 in the claims of the '512 patent, mean the same
20 thing?

21 A. So I didn't -- I didn't say that those
22 two words were the same.

23 Q. But you did say processing is
24 analyzing.

25 A. I said processing can include

1 analyzing.

2 Q. And within the context of the
3 '512 patent, can processing include analyzing?

4 A. That's a pretty -- so you're just
5 talking about those claims.

6 So what I've -- what I stated in those
7 claims was that if -- and my opinion on this is
8 written out.

9 So Ciulla, in view of Orbach,
10 discloses the second software in -- so this is
11 in the '512 patent. Claim 1, Subsection F, the
12 second software, when executed by the computer
13 or the second processor configured to analyze,
14 output and/or format the sleep data at the one
15 or more sites remote from the first location
16 where the sleep data was collected.

17 So what I've said about that claim is
18 that Ciulla and Orbach disclose this because
19 prior to -- in my declaration, Orbach's remote
20 server has a processor or computer or a second
21 processor, and executes second set of software
22 to receive and process sleep data from the
23 sensors. Such processing includes analyzing.

24 And there's an excerpt from
25 Exhibit 1008, and if -- 1008 is the Orbach

1 reference, in that, moreover, I'm now at
2 section -- on Page 122 in that same
3 Paragraph 183, moreover, Orbach also outputs
4 sleep data to a viewing station or format for it
5 to review at the one or more sites remote from
6 the first location where the sleep data was
7 collected.

8 So you can see even in that
9 description of the claim, the claim says that
10 the second processor is configured to analyze,
11 output, and/or format sleep data.

12 Q. I see that.

13 But what I'm asking you is not so much
14 the results of your opinions, but in the process
15 of forming your opinions, did you construe
16 "processing" to mean the same as "analyze"?

17 A. So in forming my opinions, I've used
18 the context of the -- so process, processor,
19 processing, these are very general terms.
20 They're very general terms, and they require a
21 context in order to assess those.

22 So each -- so, for example, in this
23 case, the processing that is done by the
24 processor is configured to analyze output and/or
25 format.

1 So in this context, there would be no
2 way to construe the term "analyzing" as
3 synonymous with "processing" because the
4 processor is described to -- and configured to
5 do more than just analyze.

6 Q. And so a person of ordinary skill in
7 the art in 2006 would understand that when a
8 reference uses both the phrases "processing" and
9 "analyzing," they mean two separate acts; is
10 that correct?

11 A. So what I would -- I believe that I've
12 already answered this question.

13 However, what I'm saying is that
14 because those two terms are rather broad terms,
15 that you -- you would not be able to -- be able
16 to frame it the way that you just said for the
17 reason that I previously gave is that some of
18 these terms are specific to the context in which
19 they're being provided.

20 And, in this context, as of this
21 claim, the second processor is configured to
22 analyze output and/or format. That's the
23 '512 patent, which is Exhibit 1001. And then
24 I've gone on to explain that in my declaration.

25 I'd happily expand upon that for the

1 second part of that limitation if you'd like.

2 Q. Can you describe for me the difference
3 between signal processing and data analysis for
4 sleep data?

5 A. Uh-huh. So very, very broadly -- and
6 if you'd like to -- because you're talking about
7 signal processing, and there are several
8 instances of signal processing that are specific
9 in the documentation that we're reviewing, I'd
10 happily do that.

11 If you'd like me to just generically
12 talk about it, unrelated to any of this -- the
13 declaration or the patents, I'd happily do that
14 as well.

15 Q. Let's do this: In the context of the
16 '512 patent, what does "analyze" mean?

17 A. Okay. So if we're talking about the
18 claims, and the claims -- so the claim
19 analyze -- and I'll just again -- so, for
20 example, on -- and this is just one example that
21 I've found instantly.

22 So in the background, summary of the
23 invention on Exhibit 1001, Column 2 in Page --
24 sorry, Lines 43 through 46, it says here, the
25 nature of EEG signals and their relatively weak

1 physiological signal makes EEG acquisition much
2 more difficult than other biopotential signals,
3 such as ECG to pick up and analyze.

4 So in this context, in that instance,
5 the word "pick up" is a -- is roughly used to
6 use the term to -- I would say detect and
7 analyze would be used in order to put some
8 interpretation onto that signal which would
9 include beyond detecting.

10 Q. Dr. Kirkness, are you familiar with
11 the application of claim construction in a
12 patent?

13 MS. ALEXANDER: Sorry, counsel.
14 We've been going for more than --

15 MR. LAYDEN: Yeah. A couple
16 minutes and then we'll --

17 MS. ALEXANDER: Yeah. Can we
18 take a break? Thank you.

19 THE WITNESS: Can you --

20 BY MR. LAYDEN:

21 Q. I'll repeat.

22 Are you familiar with the application
23 of claim construction?

24 MS. ALEXANDER: Objection: Calls
25 for a legal conclusion.

1 THE WITNESS: Yeah. I -- if
2 you're talking about a legal principle, I'm not
3 a legal expert. But if you're -- if there's
4 another thing that you're talking about --

5 BY MR. LAYDEN:

6 Q. Well, you understand how one
7 conducting an obvious analysis, interpretation,
8 and construction of claims should be applied.
9 Do you understand how that goes?

10 A. Yes. And I believe that I've
11 discussed that in my declaration.

12 Just to clarify, are you referring to
13 in my declaration, the Section No. 10, "Claim
14 Construction"? Or -- sorry.

15 Can you repeat the question? I think
16 I might have -- actually, I think I
17 misinterpreted your question. Could you please
18 repeat it?

19 Q. Restate.

20 When conducting your obvious analysis
21 for the '512 patent, did you interpret and
22 construe "processing" and "analyze" to mean the
23 same thing?

24 A. So in that section, so in the -- on
25 Page 17 of Exhibit 1003, the section on

1 obviousness and in my declaration, I have not --
2 if I have construed that somewhere, I can't find
3 it in the declaration, but I don't think I have
4 construed that.

5 Q. And does the use of both "analyze" and
6 "processing" in separate elements of Claim 1 of
7 the '512 patent inform you that those two terms
8 have different meaning?

9 MS. ALEXANDER: Objection: Calls
10 for a legal conclusion.

11 THE WITNESS: And I don't -- in
12 my declaration, I haven't construed those terms,
13 so I'm unclear of the -- of what you're asking.

14 MS. ALEXANDER: Let's take a
15 break.

16 MR. LAYDEN: Okay. Thank you.
17 Five minutes?

18 MS. ALEXANDER: Yep.

19 MR. LAYDEN: Perfect.

20 (2:13 p.m. PST - Recess.)
21
22
23
24
25

1 (At 2:21 p.m. PST, with parties present
2 as before, the following proceedings were had,
3 to-wit:)

4 BY MR. LAYDEN:

5 Q. Dr. Kirkness, can you turn to Page 117
6 of your declaration? Begins with Paragraph 176.

7 A. Yes, I'm there.

8 Q. And this is for the element including,
9 "An at least second software stored on
10 nontransitory computer readable medium and
11 executable by a computer or a second processor
12 at one or more sites remote to the first
13 location."

14 Do you see that?

15 A. I do.

16 Q. And what I'm trying to pin down is
17 what it is you're claiming to be the computer or
18 second processor, and what exactly -- where is
19 the location of a second software located?

20 So if you look at Paragraph 176, in
21 the second sentence, in the fourth line, "The
22 remote server with a viewer station (either
23 being the computer)."

24 Is it your testimony there that the
25 remote server in Orbach with the viewing station

1 is the computer or second processor?

2 A. What I've written here in that
3 Section 176 so that Ciulla and Orbach discloses
4 this limitation. Orbach's cell phone forwards
5 sensor data to a remote server, as we looked at
6 the illustration previously, that's connected to
7 a viewing station.

8 The remote server with a viewing
9 station, which is either being the computer, has
10 a second processor that provides additional
11 processing of received sensor data.

12 So is that...

13 Q. So in this combination, the remote
14 server with the viewing station, either of those
15 can be the computer or combined they're the
16 computer?

17 A. My opinion is that a server -- a
18 server does not have to have a viewing station.
19 So in this case, Orbach has described the remote
20 server with a viewing station, but a remote
21 server does not have to have a viewing station.

22 Q. In Paragraph 177, you state that the
23 second software would be stored on Orbach's
24 remote server. Is that accurate?

25 A. 177, Orbach's server, which includes

1 second software stored on a nontransitory
2 computer readable medium and executable by the
3 remote server, viewing station, or corresponding
4 processor.

5 So in this case, the remote server,
6 the viewing station, or corresponding processor,
7 these components are programmed to process that
8 sensor data and output that data.

9 And this is previously described in
10 the background section -- sorry, in previous
11 claim limitations as well.

12 Q. In the Ciulla/Orbach combination, what
13 component would have the second software stored
14 in its nontransitory computer readable medium?

15 A. Which -- so in that configuration, so
16 there's -- let me turn to -- see if I have
17 described that in my declaration.

18 In Exhibit 1003, Page 63,
19 Paragraph 117, I've briefly described it there
20 and it says given the teachings of Orbach's
21 remote server cell phone, Orbach remote server
22 and cell phone would include the executable
23 software stored on a nontransitory computer
24 readable medium. So to answer --

25 Q. Where did you read that from?

1 A. So it's 1003, Page 63, Paragraph 117.

2 And it's -- so the remote server,
3 then, is the location of the second software.

4 So in my declaration here, I've said
5 that given those teachings from Orbach's remote
6 server and cell phone, it would have been
7 obvious for Orbach's remote server and cell
8 phone to include conventional executable
9 software stored on a nontransitory computer
10 readable medium and, correspondingly, cell phone
11 graphical interfaces as discussed in that
12 reference by Orbach.

13 I can go into that in more detail if
14 you'd like, but I believe that that provides an
15 answer.

16 Q. Okay. Would you turn to Page 119 of
17 your declaration and Paragraph 180.

18 A. Yes.

19 Q. The second sentence after the block
20 quote, you state, "Regarding the wirelessly
21 retransmitting aspect, Orbach's software also
22 causes the cell phone to transmit the same
23 sensor data (retransmit) to the remote server,
24 viewing station, or processor (the computer or
25 the second processor)."

1 Do you see that?

2 A. Yes.

3 Q. Which one of those components in your
4 theory does the combination of Ciulla and Orbach
5 use the cell phone to transmit data to? Is it
6 the remote server, the viewing station, or the
7 processor, or is it all three?

8 A. One second while I...

9 So that claim limitation on Page 118,
10 1.e, and it says the first software when
11 executed by the first processor of the cell
12 phone or PDA, configured to wirelessly receive
13 and retransmit sleep data, or optionally send
14 sleep data further processed with the first
15 processor of the cell phone or PDA, with at
16 least one first wireless transceiver over cell
17 towers to the computer or the second processor
18 for analysis.

19 So it's my opinion that Ciulla, in
20 view of Orbach, discloses this limitation. As I
21 previously explained, in view of Orbach to
22 modify Ciulla, to transmit sensor data via a
23 cell phone to a practitioner or a remote
24 computer for the purposes of sleep diagnosis.
25 See those backgrounds.

1 So as I explained, Orbach's
2 application and program, the first software is
3 executed by a cell phone processor, the first
4 processor of the cell phone. This program
5 includes those necessary for interfacing with
6 the sensor module. See the block text there and
7 the associated reference from Exhibit 1008.

8 This means that the first software is
9 configured to wirelessly receive the sleep data
10 from the sensors. Regarding the wirelessly
11 transmitting aspect, Orbach's software, which
12 causes the cell phone to transmit the same
13 sensor data, retransmit, to the remote server,
14 viewing station, or processor the computer or
15 the second processor.

16 So as it goes on there, the
17 communication link is used to connect the mobile
18 monitor to a remote server where in-depth
19 analysis of data obtained by the sensor unit may
20 be done and, optionally, data can be transmitted
21 to an expert or another user.

22 So remote servers may provide
23 additional processing of the sensor data.
24 Orbach discloses that, optionally, the cell
25 phone processor sends the sleep data further

1 processed by stating that the sensed data -- or
2 sensory received data may be analyzed,
3 compressed, used to calculate vitals or
4 processed as an alert sent to its server. Data
5 compression, large memory capacity in the mobile
6 monitor.

7 In this case, the cell phone processor
8 performs the further processing on the sleep
9 data before sending it to the computer or second
10 processor.

11 I believe that that answers the
12 question in detail.

13 Q. Well, the question was, which of the
14 remote server, viewing station, or processor in
15 this current configuration is your computer or
16 second processor?

17 A. So this describes -- this describes an
18 end -- I should say the description that I gave
19 you describes the -- describes that or discloses
20 that limitation as described where the cell
21 phone is configured to wirelessly receive or
22 retransmit sleep data or, optionally, send sleep
23 data further processed by the cell phone with --
24 to the second processor.

25 So it describes exactly that.

1 Q. And what component of Orbach are you
2 opining as the second processor: The remote
3 server, the viewing station, or the processor as
4 you have it stated in Paragraph 180?

5 A. So in my declaration on
6 transmitting -- wirelessly transmitting the
7 software as described by Orbach that retransmits
8 to the remote server, viewing station, or
9 processor, which is the computer or the second
10 processor, is described in Exhibit 1008 on
11 Page 13, Lines 21 to 27 where it basically says
12 the -- there is a communication link used to
13 connect the mobile monitor to a remote server
14 where in-depth analysis of data obtained from
15 the sensor unit 110 may be done and, optionally,
16 data can be transmitted to an expert or other
17 user.

18 In the exemplary embodiment in
19 Figure 1, the mobile monitor is a cell phone,
20 communication link is, for example, bluetooth,
21 and the communication link is a cell phone
22 linked to -- with an RF or a cell linked to a
23 cellular base station, which is linked to a
24 remote server by a data link.

25 So there are other configurations that

1 are described there in this case. So the -- as
2 it states there, the computer could be a remote
3 server, a viewing station, or a processor.

4 Q. So the viewing station also has second
5 software installed on it?

6 A. So in this case, the viewing station
7 has -- the viewing station is the computer or
8 has the second processor in it.

9 Q. So then the remote server has the
10 second software, and the viewing station has the
11 second processor. Do I understand that
12 correctly?

13 A. So the configurations are varying. So
14 you -- as we've described, the second software
15 is either part of the -- the second software can
16 be -- let me just see where else I've got it so
17 it may explain.

18 Okay. So over on Page -- over the
19 page, so it says it here on Page 120 of
20 Exhibit 1003. Remote servers may provide
21 additional processing of the sensor data.

22 Orbach also discloses optionally that
23 the cell phone processor may send the sleep data
24 further processed by stating that that data is
25 analyzed, compressed, and used to calculate

1 vitals and processed.

2 So in this case, the cell phone
3 processor performs further processing on the
4 sleep data before sending it to the computer or
5 the second processor.

6 So when you're talking about the --
7 that configuration, the second -- the second
8 processor can be a terminal or it can be a --
9 for example, a server.

10 So Orbach further discloses in
11 Paragraph 181 that the sleep data is
12 retransmitted over the wireless -- first
13 wireless transceiver over cell towers to the
14 computer or the second processor for analysis.

15 For instance, Orbach's phone uses its
16 communication to communicate with the remote
17 server. in Orbach, this communication occurs
18 over a cellular RF link to a cellular base
19 station in a corresponding -- and a
20 corresponding cellular network.

21 So this would have been understood to
22 include communication over cell towers,
23 et cetera, to the remote viewing station, the
24 remote server, whatever viewing station, and the
25 processor.

1 So I continue on in that paragraph.
2 So -- and then -- sorry. I continue on to the
3 end of that paragraph describing a little bit
4 more about the communications process.

5 But, finally, regarding the analysis
6 aspect of the claim, Orbach's remote server,
7 viewing station, processor, computer or second
8 processor, can receive the sleep data for
9 analysis by an expert or the processor. So
10 analysis can be further done or the processor
11 can do further analyses.

12 Q. So if I understood your answer
13 correctly, the second processor is a terminal or
14 a server, and the second software is either on
15 the remote server, viewing station, or the
16 processor. Do I have that correct?

17 A. As described in the -- as that comment
18 reflects in my declaration, correct.

19 Q. Going on to Element 1.f beginning at
20 Paragraph 183, in the first sentence there, you
21 describe Orbach's remote server with a processor
22 as the computer or second processor.

23 Now, I note in Paragraph 167 -- or
24 176, I'm sorry, we had a remote server with a
25 viewing station representing the computer or

1 second processor.

2 In Paragraph 180, you have the remote
3 server, the viewing station, or the processor
4 being the computer or second processor.

5 And now here in Paragraph 183, you
6 have the remote server with a processor.

7 So I'm just trying to pin down what it
8 is exactly you contend is the computer or the
9 second processor and where the memory is where
10 the second software is stored?

11 A. I refer to my declaration on Page --
12 sorry, declaration, Exhibit 1003, Page 117,
13 Paragraph 176.

14 And what I've said here is that the
15 remote -- it's my opinion that Ciulla and Orbach
16 disclosed the limitation of a second software
17 stored on a nontransitory readable medium.

18 So the second software, you ask where
19 it was stored, and it is stored on the
20 nontransitory computer readable medium.

21 And, indeed, it's my opinion that
22 Ciulla, in view of Orbach, discloses this
23 limitation.

24 As one example, Orbach's cell phone
25 forwards the data to the remote server that is

1 connected to a viewing station. So the remote
2 server with a viewing station, either being the
3 computer, has a second processor, as I mentioned
4 before, second processor, that provides
5 additional processing of received sensor data.

6 So it's my opinion that it would have
7 been obvious for Orbach's server to include
8 second software on a nontransitory computer
9 readable medium and executed by that remote
10 server, viewing station, or a corresponding
11 processor, as these components are programmed
12 into -- programmed to process sensor data and
13 output the data as also described before.

14 So these are -- these are pretty
15 fundamental which are well described in that --
16 for components that have both memory and
17 executable programs, software or procedures that
18 are well described beyond anything that I
19 could -- you know, well described for many, many
20 years.

21 Q. Would the viewing station have the
22 second software installed on it?

23 A. So, broadly, what I know from my
24 experience is that with computers, in the period
25 prior to 2006, computers could be -- for

1 example, they could -- a computer could be
2 deemed as a server if it delivers -- executes
3 software and delivers various routines to
4 terminals.

5 Terminals could sometimes be called
6 viewing stations, for example. However, viewing
7 stations, by definition, could also run their
8 own software too.

9 So the specific configuration of
10 servers, terminals, viewing stations, computers,
11 it would depend on the specific configuration.

12 And somebody with -- of ordinary skill
13 in the art at this time would very well know
14 that the configuration of servers, viewing
15 stations, computers, one, they had memory and
16 storage, two, that memory and storage could be
17 used to execute software, and then, three, the
18 specific configuration of how computers, viewing
19 stations, and servers, how they're configured
20 may be determined by multiple factors.

21 Those factors could include, for
22 example, the intranet configuration of a
23 hospital, an outpatient center that's not --
24 that's not connected to a hospital, for example,
25 but remotely connected to a hospital.

1 There could be various reasons in
2 which you would want to configure a server, a
3 viewing station, or a computer in different
4 configurations, depending on levels of access,
5 depending on routines, so jobs with -- various
6 routines need to access that data.

7 So there's -- I think that all of
8 these things that I'm describing now would have
9 been very obvious given that language there
10 described.

11 Q. And in your Ciulla/Orbach combination,
12 which configuration of remote server, viewing
13 station, and processor do you contend renders
14 the '512 patent obvious?

15 A. So I've described this. I've
16 described this in my -- in that section --
17 sorry, Paragraphs 176, 177 that describes the
18 Ciulla/Orbach combination.

19 It describes all of the configurations
20 where a second processor can exist on a remote
21 server, a viewing station, or a second
22 processor.

23 So if you are -- so I believe that
24 Claim 1 or at least that claim limitation is
25 already disclosed.

1 Q. In 176, you claim the remote server
2 with the viewing station as being the computer
3 because it has the processor; is that correct?

4 A. So I did not say that a -- that the
5 remote server or the viewing station was a --
6 just to be clear here, there are common terms
7 and there are specific terms.

8 Q. Uh-huh.

9 A. And so I don't want to fall into
10 describing commonly understood and inadvertent
11 terms where I should be describing specific
12 terms here.

13 I did not say in my deposition today
14 that the -- the remote server and the viewing
15 station were either combined nor separate. I
16 did not describe those. I said that they could
17 be individual elements, viewing station.

18 And it says here on -- on Page -- I'm
19 sorry, Page 117 in 176, the remote server with a
20 viewing station, either being the computer, has
21 a second processor.

22 So a remote server could be a viewing
23 station -- sorry. A remote server could be a
24 computer, viewing station could be the computer.

25 And I go on to say that the processor

1 could be also -- the Orbach's remote sensor,
2 viewing station, or second -- and second
3 processor are at one or more sites remote to the
4 first location.

5 Q. So would the viewing station have the
6 second software loaded onto it, then?

7 A. So the -- the viewing station, being a
8 computer, could contain a second processor if
9 that viewing station has the ability to receive
10 software.

11 So if that viewing station does not
12 have the ability to have an independent
13 processor, perhaps the second -- the second
14 processor is configured via a remote server such
15 that the viewing station is able to receive the
16 data from the server whereby the server has the
17 second processor.

18 This goes back to the discussion that
19 I just was explaining. It depends on the
20 configuration of -- so in terms of Ciulla and
21 Orbach, they describe -- they describe a number
22 of situations where a number of configurations
23 where the second software, which is on a
24 computer readable medium and executed by a
25 computer or a second processor at one or more

1 remote sites to the first location.

2 And so, indeed, a remote server that
3 has a processor that is executing that software
4 that is either viewed at a terminal that's
5 running by the -- still running from or
6 delivered to that terminal by a remote server
7 would meet that limitation.

8 Now, there's other configurations as
9 described here whereby the -- a remote -- sorry.
10 A viewing station could have also a second
11 software stored on a computer readable medium
12 and executed by a computer or -- the computer,
13 in this case would be that viewing station,
14 which has a second processor. And that viewing
15 station could also be remote.

16 I believe that that's --

17 Q. If you could, just run me through the
18 configurations that you described which make up
19 your opinions.

20 A. Okay.

21 Q. So let's start with we have a remote
22 server, a viewing station, and a processor, all
23 of which -- with the second software or there's
24 also a second software out there.

25 What configurations do you rely on for

1 the basis of your opinions?

2 A. And in terms of describing this
3 limitation --

4 Q. Not -- in terms of the second software
5 limitations.

6 So there's three, right? There's
7 Element 1.d which discusses the nontransitory
8 computer readable medium; there's 1.f, the
9 second software when executed by the computer or
10 a second process configured to analyze the
11 output or format the sleep data or one or more
12 sites remote from the first; and Element 1.g,
13 the at least second software, when executed by
14 the second processor or the computer, configured
15 to the display both, in part, the sleep data
16 and/or analyze sleep data to allow for diagnosis
17 of the sleep disorder and, if necessary, provide
18 a basis to modify a sleep treatment of the
19 subject.

20 So for those three elements, you rely
21 on Orbach. Is that accurate?

22 A. So Ciulla in view of Orbach --

23 Q. Correct.

24 A. -- discloses those limitations.

25 Q. But for those limitations, you're

1 pointing to the teachings of Orbach. Is that
2 accurate?

3 A. So for these limitations, I'm
4 referring to Ciulla in view of Orbach. So
5 that's that.

6 Q. And does Ciulla describe any backend
7 architecture to your knowledge?

8 A. Let me just have a quick look.

9 Q. Dr. Kirkness?

10 A. Yes. I'm sorry. Please, continue.

11 Q. This may speed it up.

12 For Element 1.d in Paragraphs 176 to
13 177 and 178, do you have any citations to
14 Ciulla?

15 A. No. Orbach.

16 Q. In Element 1.f, Paragraphs 183, do you
17 have any citations to Ciulla?

18 A. So the reference to Ciulla is in
19 Paragraph 179.

20 Q. That's a different element, though.
21 I'm talking specifically about Elements 1.d,
22 1.f, and 1.g.

23 So for Element 1.f, the second
24 software when executed by the processor element,
25 you have one paragraph, Paragraph 183, and

1 there's no citations to Ciulla.

2 Do you agree?

3 A. So the citations for --

4 Q. Paragraph 183.

5 A. Oh, that's -- so as -- in 183, as I
6 explained in 1.d and 1.e -- so if you go back to
7 1.d and 1.e, so in 1.e, Ciulla is referenced.

8 Q. And 1.e is not discussing the second
9 software. Is that accurate?

10 A. That's correct.

11 Q. Okay.

12 A. And then 1.d is discussing the second
13 software.

14 Q. Uh-huh.

15 And that's Paragraphs 176 and 178, and
16 there's no citation to Ciulla.

17 A. So in sections referenced in -- 177
18 references Section XI.A.3.

19 Q. Okay. And XI.A.3, that's discussing
20 your motivations to combine?

21 A. To combine Ciulla in view of Orbach.

22 Q. And I'm talking about the system
23 that's been created from the Ciulla/Orbach
24 combination.

25 And if you go back to your annotated

1 image in Paragraph 105, the only component from
2 Ciulla you had annotated was the module, the
3 wearable module?

4 A. Hold on a second. I'm just looking
5 for the reference that you asked me to.

6 The reference in Section 176 that goes
7 back to section --

8 Q. What reference are you discussing?

9 A. Sorry. I was just answering your
10 initial question, but --

11 Q. In regards to Ciulla?

12 A. In regards to Ciulla.

13 Q. Okay. And Ciulla doesn't disclose any
14 backend infrastructure; is that correct?

15 A. So the Ciulla -- depends what you mean
16 by backend. But if you mean an output, it
17 provides -- Ciulla certainly provides output.

18 Q. Would you consider an output to be
19 backend infrastructure?

20 A. So you said backend?

21 Q. Uh-huh.

22 A. Do you mean backend or backend
23 infrastructure?

24 Q. Backend infrastructure.

25 So we've been discussing a remote

1 server, a viewing terminal, a processor, right?

2 A. Yes.

3 Q. Memory?

4 A. And, at this time, it's probably
5 taking too long for me to go through those
6 elements again, so --

7 Q. What elements --

8 A. To look in Ciulla to determine whether
9 it references a -- any backend infrastructure.

10 Q. So let me ask you this: If Ciulla had
11 backend infrastructure cited into it, do you
12 think you'd have it in your report?

13 MS. ALEXANDER: Objection: Calls
14 for speculation.

15 THE WITNESS: So I don't know if
16 I would've put it in my report.

17 MR. LAYDEN: Okay. Let's take
18 five.

19 MS. ALEXANDER: Thanks.

20 (3:23 p.m. PST - Recess.)

21

22

23

24

25

1 (At 3:30 p.m. PST, with parties present
2 as before, the following proceedings were had,
3 to-wit:)

4 BY MR. LAYDEN:

5 Q. Dr. Kirkness, going back to our
6 discussion on Elements 1.d, 1.f, and 1.g with
7 the second software, in Paragraph 105, you have
8 your annotated figure, and you have the red
9 boxes labeled.

10 Is it your opinion that the second
11 software would be found on all those red boxes
12 or just one or what combination of those red
13 boxes?

14 A. In Exhibit 1008, which is Orbach, so
15 if you look at Page 52 and this is -- I'm
16 looking at Lines 14 through 26.

17 And it basically says the system
18 according to Claim 1 further comprising a remote
19 server capable of communication with said mobile
20 monitor, the remote server receiving second
21 signals from the remote -- from the mobile
22 monitor, the remote server associated with a
23 viewing station having a second processor, the
24 remote server being configured to perform at
25 least one of the following.

1 Transmitting the second signals to a
2 viewing station; accessing historical data
3 relating to the subject; transmitting the
4 historical data to the viewing station;
5 receiving from the viewing station results of
6 the analysis; transmitting the results of the
7 analysis to the mobile unit, the analysis being
8 based on the second signals and one or more of
9 the historical data, expert knowledge, and
10 computerized protocols.

11 So in that case, in that claim, you
12 can see that it -- this discloses the second
13 processor, the remote server, with a viewing
14 station, having a second processor, the remote
15 server being configured to do any of those
16 things.

17 So that is one of the configurations
18 as described by Orbach.

19 Q. And is that the configuration you
20 relied on for the basis of your opinion?

21 A. So Orbach also describes other
22 configurations. So I've taken all of those
23 configurations into consideration when forming
24 my opinion.

25 Q. And when formulating the Ciulla/Orbach

1 combination, which configuration do you contend
2 is supported by your opinion?

3 A. So in this case, we refer back to, as
4 I've mentioned before -- so from -- in my
5 declaration, so I've just mentioned to you that
6 Orbach has disclosed the configuration of --
7 those multiple configurations of the server,
8 server and the viewing station, computer, or
9 processor. That processor which is -- would be
10 in the server, would be in the viewing station,
11 could be in the -- in the computer -- in a
12 computer or a processor.

13 So with those configurations in
14 mind --

15 Q. We'll get there.

16 What are those configurations you're
17 describing?

18 A. So I'll -- I can repeat it for -- or I
19 mentioned this before. So there are a number of
20 configurations of networks, so...

21 Q. I understand there's multiple ways to
22 configure a network.

23 I'm talking about within the context
24 of your declaration, the Ciulla/Orbach
25 combination, which configuration are you

1 pointing to for the basis of your opinions?

2 A. So I have -- I've already stated this,
3 but I'll state it again.

4 In the limitation 1.d in 1003,
5 Exhibit 1003 on Page 117, the limitation 1.d
6 being an at least second software stored on a
7 nontransitory computer readable medium and
8 executable by a computer or a second processor
9 at one or more sites remote to the first
10 location.

11 So with that limitation in mind, it's
12 my opinion that Ciulla, in view of Orbach,
13 discloses this limitation.

14 As one example, Orbach's cell phone
15 forwards sensor data to a remote server that is
16 connected to a viewing station, and there's the
17 quote, and we can -- if you would like, I will
18 read from each of those sections.

19 The remote server with a viewing
20 station, either being the computer, has a second
21 processor, that's second processor that provides
22 additional processing of the received sensor
23 data. And then reference back to Orbach.

24 Q. Okay. So one configuration you
25 described previously as Claim 2 from Orbach, we

1 have the remote server, the monitor, and the
2 viewing station and that it performs at least
3 the following steps from Claim 2.

4 And then you just described to me a
5 remote server and a viewing station.

6 Is there any other configuration
7 contained within your opinions for the
8 Ciulla/Orbach combination?

9 A. Yes. So in the -- in 177, my opinion
10 is that it would be obvious for the server to
11 include the second software on a nontransitory
12 computer readable medium and executable by a
13 server, viewing station, or corresponding
14 processor as these components are programmed to
15 process sensor data and output data.

16 So, indeed, I've described, you
17 know -- I've described those parts a number of
18 times.

19 Q. Yes.

20 So the second software in all your
21 configurations is found on the remote server and
22 the remote server only, or also on other
23 components?

24 A. So what I've said is that there are
25 multiple examples, and the -- in one example,

1 the remote server with a viewing station, either
2 being the computer, has a processor, second
3 processor that provides additional processing of
4 received sensor data.

5 And then I said that it's also obvious
6 that the second software, which is on a
7 nontransitory computer readable medium and
8 executable by the remote -- sorry, the remote
9 server, viewing station, or corresponding
10 processor has these components, would be
11 programmed or are programmed to process sensor
12 data and output.

13 And this -- these are fundamental
14 standard procedures in network configurations.

15 Q. And if you could turn back to
16 Exhibit 1008, Orbach.

17 A. Yep.

18 Q. Back to where you were at on Claim 2.
19 Do you see that?

20 A. No.

21 Q. It's Page 53. It's where you read
22 from just a little while ago.

23 Are you there?

24 A. Yep, I'm here.

25 Q. Within that association you described

1 between the remote server and the viewing
2 station, where is the analysis being conducted?

3 A. So which line -- which paragraph are
4 you at in the declaration?

5 Q. I'm at Page -- I'm at Page 53 of
6 Exhibit 1008, the Orbach reference.

7 A. Okay. Sorry. I'm sorry. I was on
8 the wrong one.

9 Q. That's okay.

10 A. 1008.

11 Q. Page 53, Claim 2 that you walked
12 through just a little while ago.

13 A. So, again, this would -- this would
14 depend on the specific configuration. And in
15 this configuration whereby the -- and this is
16 not the only configuration described in Orbach.

17 However, in this configuration, a --
18 Orbach's device comprises of a -- so the claims,
19 those things in Claim 1 comprising -- are
20 further comprising a remote server capable of
21 communication with said monitor, remote server
22 receiving second signal from the mobile monitor,
23 and remote server associated with a viewing
24 station having a second processor. So the
25 remote server being configured to perform at

1 least one of the following.

2 So transmitting the second signals to
3 a viewing station for analysis; the accessing
4 historical data relating to the subject;
5 transmitting historical data; receiving the
6 viewing station results analysis; transmitting
7 the resulting -- the results of the analysis of
8 the mobile unit, the analysis being based on the
9 second signal and one or more of the historical
10 data, expert knowledge, and computerized
11 protocols.

12 So as we discussed, in the
13 configuration of various -- yeah, you're asking
14 me -- you asked me about where the analysis
15 goes.

16 Q. In this configuration that you
17 described.

18 A. In this configuration in Claim 2 of
19 Orbach.

20 Because of the configuration
21 whereby -- in this configuration, it says that
22 the remote server is attached to a viewing
23 station. The viewing -- the viewing station
24 could possibly -- it says here, viewing station
25 performs the analysis at the viewing station.

1 So -- and it says it right there on
2 Line 19, transmitting signals to a viewing
3 station for analysis, the analysis.

4 So the analysis occurs at the viewing
5 station.

6 Q. And so in that configuration you just
7 described on Claim 2 of Orbach, the remote
8 server is simply just forwarding the second
9 signals to the viewing station so they can be
10 analyzed at the viewing station?

11 A. So if you think about the -- again,
12 this goes back to very, very fundamental -- the
13 things that I described that are very, very
14 fundamental -- network configuration are
15 descriptions whereby there are different
16 configurations of remote software -- sorry,
17 remote server, software, the distribution of
18 software, the -- how software is run, you know.

19 These days, for example, there's
20 licensing or things that may determine where and
21 when a viewing station may have access to
22 software that is distributed or run from a
23 remote server.

24 There is also realtime, you know,
25 get-and-go-type software as well where the

1 remote -- the viewing station may have to
2 temporarily receive software in order to run
3 that.

4 As I said, these -- these principles
5 are well known and well described a long time
6 before any of this thing came along.

7 But in -- if you want to pin one thing
8 down in this case whereby -- if you consider a
9 viewing station does not at all or only runs the
10 software from a remote station, once again, this
11 would mean that you're viewing software that
12 would be run on the remote server.

13 But if you -- if the software is being
14 run locally, the software would reside on the
15 viewing station.

16 Q. So if the viewing station is -- I
17 believe you said -- so the viewing station is
18 accessing the data on the software on the remote
19 server?

20 A. So in this case, this does not say
21 that the -- in this claim, the viewing station,
22 it does not say that the viewing -- that the
23 viewing station is accessing. It says the
24 remote server is being configured to perform at
25 least one of the transmitting.

1 However, it would be known in
2 common -- that if, for example, common
3 configurations that a terminal could send a
4 signal to open up a line of communication to a
5 server in order to ask or give permission to
6 receive.

7 So whereby it doesn't say exactly what
8 you said, accessing, that would be -- that would
9 be well understood in terms of terminal network
10 configurations regarding remote servers,
11 terminals, and stand-alone computers.

12 Q. Okay. So going back to your other
13 configuration, the remote server with a viewing
14 station that you described, where is the
15 analysis taking place there?

16 A. So, for example, I bring up an example
17 of a -- of a server whereby the software is run
18 on the server. The server runs as a computer,
19 and the viewing station is essentially a -- like
20 a video. Not a video. A monitor that basically
21 allows some sort of interaction or graphical
22 interface.

23 Once again, know that a server -- a
24 server is complex -- in itself is complex such
25 that a server requires its own software in order

1 to serve.

2 A computer requires graphics interface
3 software in order to interact with a monitor,
4 for example, if that's the way you're viewing
5 it.

6 So, therefore, there are multiple
7 components -- the term remote -- when you say
8 remote server with a viewing station, you could
9 also describe that if you wanted to describe
10 that as one unit, that's fine, but you could
11 also describe it as two units. So it could have
12 a server, for example, could have partitioned
13 drives, could have various access to various
14 parts of its processing power dedicated to the
15 serving and various access to providing
16 software.

17 So I think that it would be very well
18 known that a server and a remote -- and a
19 viewing station could be configured in various
20 manners.

21 Q. And trying to pin down the
22 configuration you're relying on in your
23 declaration, where do you state that
24 configuration you just described where a viewing
25 station is just accessing the data on a remote

1 server and the software on a remote server?

2 A. So I'll take you back to my belief is
3 that it's -- okay. So, firstly, I described
4 these in Paragraph 177.

5 So where I've said that it'd be
6 obvious for Orbach's server to include the
7 software and the -- which is executable by
8 remotes of a viewing station or corresponding
9 processor as these components are programmed to
10 process sensor data and output data.

11 So also -- I've also -- so I've
12 referenced that in Orbach Exhibit 1008, Page 38,
13 Lines 19 to 22, and Page 41, Lines 8 to 24.

14 And then, secondarily, I've stated
15 here that a number of times that these elements
16 are -- would be very easily -- withstood
17 fundamental and their operation was well known.
18 And I stated that in Paragraph 177 on Page 118
19 of Exhibit 1003, the declaration.

20 Q. So in Paragraph 173 -- or sorry, 177,
21 the top of Page 118, you said that as these
22 components are programmed to process sensor data
23 and output data.

24 A. Yeah.

25 Q. What components are you describing

1 there?

2 A. So these components, these components
3 are those -- Orbach's server, which includes
4 server, viewing station, or corresponding
5 processor.

6 Q. Okay. Are there any other
7 configurations in which you rely upon in your
8 declaration that you haven't discussed yet?

9 A. Yes. So on Page 61 of my declaration,
10 there is a section -- Paragraphs 116 through
11 Page 65, and includes Paragraphs 117 which
12 include the Orbach's cell phone.

13 Q. Does the inclusion of the cell phone
14 alter your read of the server viewing station
15 and processor components?

16 A. Only as I've discussed -- only where
17 I've discussed that in the declaration relating
18 to both the cell phone and the -- whenever I've
19 described that in the declaration. I'd refer to
20 the declaration.

21 Q. Now, if we go back to -- sorry.
22 Strike that.

23 For your Ciulla and Orbach
24 combination, you can tell that a person in the
25 ordinary skill of the art would have been

1 motivated to combine the teachings of those two
2 references, and I believe that that's in
3 Section 11 of your declaration.

4 What -- and just kind of walking
5 through that, in Paragraph 106 and then from 106
6 to 117, you lay out three main points, three
7 main motivations.

8 And then under your first motivation,
9 you have three subpoints. Okay?

10 A. Correct.

11 Q. So walking through the first point,
12 you state that a person of ordinary skill in the
13 art would have been motivated to implement the
14 combination in part because wirelessly
15 transferring sleep data from a wearable device
16 to a cell phone via bluetooth and from the cell
17 phone to the remote site via cell towers.

18 What are the motivations you contend
19 would drive a POSITA to combine these two
20 references?

21 A. Do you mind just pointing me -- so you
22 read from somewhere. Could you --

23 Q. I read Paragraph 106.

24 A. Oh, 106. Okay. Got it.

25 Q. And heading No. 1 is what I read.

1 A. Yes.

2 Q. Okay. And if you go to Page 50, still
3 in Paragraph 107 --

4 A. Yep.

5 Q. -- the sentence under the block quote,
6 you state, Ciulla does not explicitly state that
7 the main module 44 wirelessly transmits received
8 sensor data to a cell phone and then from the
9 cell phone to a remote site.

10 A. Yes.

11 Q. Okay. And so to overcome that, you
12 introduced Orbach?

13 A. Correct.

14 Q. And in Paragraph 108, you say that
15 implementing Orbach's sensor communication
16 techniques into Ciulla's system would've
17 facilitated continuous, realtime data
18 communication providing health-care providers
19 and users with more personalized and timely
20 interventions.

21 Do you see that?

22 A. Yes, I do.

23 Q. Does Ciulla not provide realtime data
24 communication to health-care providers and
25 users?

1 A. So Ciulla indeed does provide -- let's
2 call it near realtime. I think that's the term
3 that they use in Ciulla. Let me double-check.

4 Q. Well, if we could pull up
5 Exhibit 1007.

6 A. Yeah.

7 Q. On Page 10 of Paragraph 0125, the
8 sentence just before the final sentence where
9 you see Figures 2 and 3.

10 A. Yes.

11 Q. It states the data recorder could be
12 either hard-wired to the main back module,
13 through a jack connection when data would be
14 downloaded, or an alternative could be
15 wirelessly connected to the main back module so
16 that data could be reported in realtime and
17 displayed in realtime at a location spatially
18 removed from the main back module.

19 A. Yeah. I correct myself. So yes.
20 That is correct.

21 Q. So a person of ordinary skill in the
22 art wouldn't need Orbach to modify Ciulla to
23 provide realtime data. Is that accurate?

24 A. So if -- what a person of ordinary
25 skill in the art would require Orbach to do is

1 if -- if you -- and I stated this in -- it's
2 basically to -- where it says remote sites.

3 So all -- Ciulla is only -- like I
4 said, it doesn't explicitly state that it
5 transmits data via cell phones or a cell
6 network.

7 So, therefore, the realtime data would
8 be -- from Ciulla is linked to the device that
9 transmits, like you said, hard-wired to a base
10 station.

11 So the fact that -- in order to be
12 usable for additional feedback or -- additional
13 feedback or additional interaction via
14 health-care provider, the pieces that Orbach
15 provide, number one, is a -- a person would want
16 to be able to have greater access to that device
17 and be less limited to additional hardware or
18 additional pieces of -- additional pieces that
19 Ciulla requires in order to establish that --
20 establish or get the sensor data to the
21 processor in order to do analyses, whereas
22 adding Orbach, what you can -- this combination
23 now allows you to do is not be limited to those
24 very specific modes of wireless communication,
25 now transmitting that via a cellular signal or

1 via cell phones which were basically rapidly
2 growing in availability across the U.S., that
3 this would allow the individual to provide that
4 data from remote locations where the equipment
5 required in Ciulla were not accessible because
6 they could use the cell phone.

7 So that would provide one aspect of
8 why a person of ordinary skill in the art would
9 want to combine Ciulla with Orbach.

10 Now, there are other aspects
11 specifically related to clinical operations.
12 There's other specifics related to engagement.
13 There are other aspects that are related to --
14 as I described here, the avoiding -- avoiding
15 the Orbach device, removing some of the
16 hard-wired sensing and so forth.

17 So as I -- as you point out, that's
18 described in that section extensively. But if
19 you'd like to --

20 Q. Okay. We'll touch on all those
21 points, I'm sure.

22 A. Okay.

23 Q. But I want to touch on one thing.

24 You said Ciulla was limited in how it
25 could send the data. Did I hear that correctly?

1 A. So what I've said, and this is in
2 section -- Page 49 of 1003, Ciulla's
3 Section 107 -- I'm sorry, not Section 107.

4 Paragraph 107, Ciulla's main module
5 features a radiofrequency transmitter and
6 receiver for wireless communication. So this is
7 essentially a radiofrequency or, you know,
8 shortwave -- a short wave transmitter.

9 And largely, you know, it's described
10 here. It's -- the internal transmitter,
11 receiver, and antenna is for providing the main
12 module to communicate wirelessly with various
13 sensors and output devices that would be jacks,
14 receivers, and ports, collectively referred to
15 herein as ports. And they are provided on the
16 main module for enabling to be hard wired to
17 various sensor-type input devices or output
18 devices.

19 So whilst Ciulla does disclose
20 transmitting multiple sensor outputs wirelessly,
21 the device of this Ciulla invention can be
22 modified to add outputs, add additional
23 reporting capabilities to better adapt the
24 device for use by trained technicians during
25 attended sleep studies. And then this clinical

1 trial version which could be designed to
2 transmit multiple sensors wirelessly via
3 radiofrequency, bluetooth, wireless network or a
4 local area network or IT or modem or other --

5 So -- and that could include video
6 images of sleeping patient. So they describe
7 specific modes for being able to communicate the
8 data largely with very specific -- specific
9 information and -- sorry, specific network
10 configurations, or shortwave, you know.

11 The wireless configuration is
12 short-range, so bluetooth range, you know,
13 radiofrequency range, or wireless area network
14 range.

15 So that's given the fact that Ciulla,
16 back in I think 2002, 2003, does not
17 specifically call out cellular towers or
18 cellular transmission of the data, the
19 combination of Orbach with Ciulla overcomes.

20 And a person of ordinary skill in the
21 art would be motivated to add that given an
22 explosion of that technology around that time.

23 Q. If you could look at Ciulla,
24 Exhibit 1007, Paragraph 213. It's on Page 18.
25 And I believe you referenced this before in your

1 answer, and it's in your overview as well.

2 But it discusses the clinical trial
3 version being designed to transmit the multiple
4 sensors' outputs wirelessly using RF, bluetooth,
5 wide area network, local area network, IT
6 ethernet modem or other?

7 A. You say which paragraph in
8 Exhibit 1007?

9 Q. 0213.

10 A. 0213. Correct.

11 Q. And do you see that second sentence
12 where it's discussing the clinical trial version
13 that can be designed to transmit the multiple
14 sensors wirelessly and then lists RF, bluetooth,
15 WAN, LAN, IT ethernet modem, or other?

16 A. Correct.

17 Q. Bluetooth is a short-range frequency.
18 What is RF referring to there?

19 A. So in this case, unless otherwise --
20 unless it's otherwise defined, my belief -- and
21 if I'm wrong and it's defined somewhere else,
22 but I believe in this case, it refers to
23 radiofrequencies. If I'm wrong, please tell me.

24 Q. No. I would agree that RF stands for
25 radiofrequencies.

1 Cell networks operate over
2 radiofrequency channels, correct?

3 A. They certainly can.

4 Q. And so before when you said that
5 Ciulla was limited, it offers a wide variety of
6 options for transmitting its data, and yet by
7 incorporating Orbach, if you look at
8 Exhibit 1008 at Page 22 --

9 A. So --

10 Q. -- it talks about how the
11 communication with the sensor module --

12 A. Sorry.

13 Q. -- in Orbach only limits -- is only
14 limited to bluetooth.

15 A. Is this -- sorry. Are you looking at
16 Orbach?

17 Q. Orbach, yes, Exhibit 1008.

18 A. Yeah.

19 Q. Page 22, Line 20.

20 My question for you is, isn't Orbach
21 more limiting in its communication than Ciulla?

22 A. I'm sorry. Can you just repeat? So
23 we're on --

24 Q. Page 22.

25 A. Page 22.

1 Q. Line 20.

2 A. Line 20.

3 Q. It states the communication range of
4 the sensor module is limited due to its small
5 size and low battery capacity to a few meters or
6 almost up to 100 meters using bluetooth.

7 Why would a person of ordinary skill
8 in the art who's trying to get rid of components
9 in the network infrastructure choose bluetooth
10 in this instance as opposed to just RF
11 communication from Ciulla?

12 A. So once again, RF communication -- so
13 in that, this is a designed -- this is -- the
14 Ciulla device has basically described multiple
15 modes of communication with RF signals,
16 bluetooth as well.

17 The other aspect to this goes beyond
18 the communication of the -- speaks directly to
19 the sensor communicating with the transmitting
20 device. So transmitting device as in Ciulla
21 describes multiple hard-wired sensors.

22 If you go to Figure 1, Figure 1A or B,
23 you can see that there are multiple hard-wired
24 sensors that are connected. And Ciulla
25 describes also the -- some option for wireless

1 but does not explicitly say that all of the
2 options or modules could be transmitted
3 wirelessly.

4 So, therefore, Ciulla -- I'm sorry,
5 Orbach, Exhibit 1008, and what you can see in
6 their initial figure, in Figure 1, is that there
7 is a much smaller blueprint on the individual
8 with the device.

9 So the smaller -- the smaller
10 blueprint on the person with the transmission to
11 a conveniently available, almost -- if you think
12 about the production of the devices, you would
13 have to -- in Ciulla's, you have to build in and
14 manufacture the communication device to transmit
15 the data, whereas in Orbach, what you're doing
16 is you're utilizing an individual's cell phone
17 technology.

18 And this was clear very early on, that
19 utilizing the transmission technology that
20 people already own and people acquire by
21 themselves ends up saving money, saving money
22 and costs some producing devices.

23 Also saves money on, for example, if
24 you have to pay for the -- you know, if the
25 company is paying for the bandwidth to transmit

1 the data.

2 So there are multiple reasons why
3 mobile technology was integrated into these --
4 so using the person's cell phone was integrated
5 into applications like Ciulla's.

6 Q. In 2006, what was the mobile cellular
7 standard being used? Was it 2G, 3G, 4G?

8 A. You know, it's a hard question for me
9 to answer.

10 However, I know that in 2003 I had a
11 Nokia device that was able to video -- do video
12 between -- you know, so it was -- I believe it
13 was 3G, a 3G network.

14 Now, I don't know the history of --
15 you know, the entire history of all the
16 networks, but I believe that I might have even
17 written it in here in my background section.
18 And if it's in my background section, I refer to
19 the declaration.

20 Q. What percentage of the population had
21 access to a phone that was capable of running
22 software applications in 2006 do you estimate?

23 A. Honestly, I -- that's not something
24 that I've considered.

25 Q. In terms of rural areas, are you aware

1 of any issues with cellular connectivity in
2 rural areas in 2006?

3 A. You know, only from my own experience
4 driving through some parts of the country where
5 my own cell phone, you know, may or may not
6 receive cell reception at various points, or
7 from advertising on the -- on various television
8 stations where there's competition reporting of
9 various networks.

10 It seems -- it seemed to me that one
11 company versus the other would always report
12 they have a better cell phone signal for one
13 region versus another.

14 Q. Previously you just mentioned reducing
15 costs. You would want to use this technology to
16 reduce costs.

17 How much was the cell phone or
18 approximately how much were the cell phones at
19 the time in 2006 that would have been capable of
20 running this type of process?

21 A. You know, I don't -- I don't want to
22 speculate. And if it's in my declaration, I
23 would refer to that.

24 Q. You also mentioned increased patient
25 engagement, correct?

1 A. Correct.

2 Q. In Paragraph 111 of your declaration,
3 you discuss this patient engagement.

4 And the first full sentence on
5 Page 56, you state that by leveraging wireless
6 communication via cell phones, patients would
7 have realtime access to sensor data.

8 Do you see that?

9 A. Yes.

10 Q. How would a patient access their
11 sensor data in realtime if they're sleeping?

12 A. So you might -- so if, for example --
13 you want to think about a sleeping patient. For
14 example, there are multiple ways that a wireless
15 cell phone can interact with a sleeping patient.

16 For example, some of the features of a
17 cell phone include alarms. So an alarm that may
18 create a sound may, indeed, transition a
19 sleeping individual and alert them of a possible
20 health-related concern, for example.

21 Now, that's just one as I remember
22 example of how a sleeping patient may engage
23 with a device. Now --

24 Q. To that point --

25 A. Pardon?

1 Q. -- doesn't Ciulla always provide
2 alarms?

3 A. So Ciulla provides for -- and I should
4 refer to section -- in brief, Ciulla provides
5 a -- receives signals from the various sensors,
6 snoring sensor, breathing sensors, EMG, as I
7 mentioned they're hard-wired, communicate
8 wirelessly with the module. The sensors also
9 may be incorporated with the back module as a
10 part thereof.

11 And I'm reading from the overview of
12 the prior art on Pages 42 to 43 and 44.

13 So if you'd like to point me to the
14 piece where Ciulla states what you said, I'd be
15 able to expand and see whether --

16 Q. If you just turn to 0134 in
17 Exhibit 1007 at Page 11, it's that first half
18 paragraph. That last sentence states, the fail
19 safe stimulus can include loud external alarm
20 providing a strong auditory stimuli to the
21 patient, a strong shock providing pain to the
22 patient or a loud command delivered through the
23 earphone to the patient's ear.

24 A. As I said, for example, this -- this
25 is one example of where -- like you pointed out,

1 how could a person interact with a sleeping
2 individual. This clearly points that out and
3 shows that.

4 For example -- another example may be
5 where another -- a caregiver, for example, a
6 person who is a quadriplegic or a person with
7 limited mobility, elderly, may not be able to
8 easily get in and out of bed.

9 So in the case where Orbach provides a
10 sensor -- a cell phone, a person receiving that
11 information may be able to provide assistance,
12 whereas the Ciulla device, it is the unit which
13 is attached to the person. So that's one other
14 example where --

15 Q. Just to that example, that's not found
16 in your declaration, is it?

17 A. No. But there are --

18 Q. Okay.

19 A. I believe a person of ordinary skill
20 in the art would -- would've understood that
21 that example was an example that also adds to
22 the motivation to combine Orbach with Ciulla.

23 Q. That would be fair.

24 But, in that example, the caregiver or
25 whoever else you're pointing to would need

1 access to that person's phone, correct?

2 A. That is correct. And, indeed, there
3 are multiple aspects where, for example, the
4 patient's cell phone could be used to help to
5 promote their own health and/or the -- in this
6 configuration -- in other configurations where
7 that cell phone described in Orbach could be the
8 provider's cell -- the health-care provider's,
9 whether it be a loved one, whether it be, you
10 know -- such as, for example, caring for
11 somebody who's elderly, a grandmother or, you
12 know, an elderly mother.

13 And you would use -- I'm very sure
14 that if you're caring for them that they would
15 very much like you to have access to their data
16 in order to help them and provide assistance,
17 particularly if it's going to change their
18 quality of life.

19 Q. Would young children fall into that
20 category as well?

21 A. In some instances, I believe that that
22 could -- that could fall into that category.

23 Q. If you can turn to Exhibit 1007,
24 Ciulla, at Paragraph 199, Page 16.

25 A. 10 --

1 Q. Page 16, Paragraph 0199. And it
2 states, for very young children that only use an
3 apnea monitor and alarm system, the device not
4 only allows the parents to sleep more restfully
5 and assured, but also treats the child's apnea
6 by the same conditioning responses as in the
7 adult.

8 So doesn't Ciulla also provide for
9 instances where the patient is unable to attend
10 to their own needs and still alert the people
11 around them?

12 A. Could I just get the paragraph again
13 once more?

14 Q. Paragraph 199.

15 MS. ALEXANDER: Counsel, while
16 Dr. Kirkness is reading that passage, we've been
17 going for a bit over an hour. Do you have a lot
18 more on this module or...

19 MR. LAYDEN: No. Just a couple
20 more questions and then a short break and wrap
21 up any loose ends.

22 MS. ALEXANDER: Okay. Thank you.

23 THE WITNESS: In this section,
24 there is -- in Ciulla, the preceding paragraphs
25 refer to -- are referring to a string of

1 configurations such as daytime practice mode and
2 practice modes and concealed yawns.

3 So these things -- these are things
4 that are not specifically discussed in Orbach at
5 all.

6 So then -- in that section that you've
7 pointed for that says for very young children
8 where it says the modules, harness, and arm band
9 of the device can be made small enough to fit
10 younger children, preadolescents, and teenagers.
11 This would be valuable for children who refuse
12 to comply with PAP devices and interfaces,
13 causing arguments, fear, and dysphoria in the
14 family.

15 So this --

16 BY MR. LAYDEN:

17 Q. I point you to the paragraph -- excuse
18 me. Don't mean to cut you off. But I pointed
19 you to Paragraph 199 --

20 A. 199, yeah.

21 Q. -- where it discussed very young
22 children that only use an apnea monitor and
23 alarm system.

24 A. Okay. So the device --

25 Q. So the question is, does Ciulla

1 account for situations to alert people in the
2 situation when the patient is unable to care for
3 themselves?

4 A. So in the case where we were talking
5 about where a care provider uses a cell phone,
6 that is not described in Ciulla.

7 Q. It's not.

8 But you said the care provider would
9 benefit from getting an alert based on the
10 patient's condition if the patient is a
11 quadriplegic or unable to get out of bed or
12 unable to help themselves.

13 A. Yes.

14 Q. Does Ciulla not account for situations
15 where the patient is unable to account for
16 themselves and it alerts those around them?

17 A. And, in those circumstances, the
18 discussion that we had was in regards to if --
19 additionally to an alarm -- where an individual
20 has an alarm, we said there may be additional
21 data that are used beyond an alarm that could be
22 provided to a care provider.

23 So in my deposition in that
24 discussion, I mentioned that the cell phone was
25 being used for data other than an alarm.

1 Q. Data other than an alarm.

2 And how would a care provider be
3 alerted that something was off with the data of
4 their loved one in that situation --

5 A. Yeah. And the care --

6 Q. -- especially if the caregiver is not
7 medically trained?

8 A. Right. So I get the point because if
9 they're medically trained, well, the -- then
10 that opens up a whole spectrum of options for
11 data to be shared.

12 So, therefore, if they're not
13 medically trained, then you would have to, for
14 example, understand that there were ranges.

15 So ranges could be set where once it
16 goes outside of a range that you would
17 understand that that was a signal to be able to
18 change somebody -- change somebody's position.

19 So, for example, oh, I need to -- it's
20 time to roll them over because they've rolled
21 onto their back, for example. So it could be
22 position related.

23 It could be -- there could be a whole
24 string of different variables that go into that
25 that would be simple, simple enough for people

1 to understand.

2 Q. So the caregiver would be notified
3 that an action needs to take place?

4 A. So either notification or if --

5 Q. Alarm?

6 A. Sorry.

7 Q. Or an alarm?

8 A. Well, I'm not going to disagree that
9 an alarm is part of that.

10 Q. Okay.

11 A. But what I would say is it's not the
12 only -- it's not the only thing.

13 Q. Okay. And then just real quick, in
14 Paragraphs 116 and 117, we discussed at length
15 already, but just in regards to the transmission
16 from the cell phone to the remote server, how
17 large of a file would the software be that needs
18 to be downloaded onto the phone?

19 A. So, again, I probably haven't
20 discussed -- I don't see where I've discussed
21 that in my declaration, unless you can point to
22 me.

23 But, you know, what I do know as a
24 person of ordinary skill in the art, there are
25 different compressions, there's different

1 samples frequencies, there's different numbers
2 of channels and data streams.

3 And so there's -- the size of the
4 data, depending on which data you're sending,
5 can vary markedly.

6 So obviously there's ways to send
7 things continuously. There's ways to send
8 things in packets.

9 You know, these are -- whilst I don't
10 want to discuss, for example, the technology of
11 marketing up data and transmitting it, for
12 example, via cell tower, I understand that there
13 are data packages or certain extremes of data
14 that may be interrupted while they're
15 transmitted, but it may be received and then
16 reconfigured to be able to remove any of the
17 gaps in the transmission such that the data that
18 you receive reflects the realtime or the
19 continuous data transmission.

20 Q. And that covers the transmission, the
21 size of the transmission file, but do you have
22 any estimate on how large that file would be?

23 A. So it's -- that would just be
24 speculation on my part. And I don't believe
25 that I've discussed it in my declaration. But

1 if I do, I'd refer to that.

2 Q. And then back to the original
3 question, how large of a -- is the software file
4 that's downloaded on the cell phone?

5 A. So, again, that would be similar to
6 the -- you know, the transmission of data. I
7 don't know that I've discussed that in my
8 declaration. If I do, I'm happy to discuss it.
9 But, you know -- and if it's in my declaration,
10 I would refer to that.

11 But other than that, I think it would
12 be speculation on my behalf.

13 Q. And previously you discussed -- when
14 we were discussing the remote server, you said a
15 computer could be a server.

16 Do you remember that?

17 A. Yes.

18 Q. Would the computer that Ciulla
19 wirelessly transmits its data to fall into that
20 category as a server as you describe it?

21 A. My apologies, but I'm going to ask you
22 to repeat the question.

23 Q. So Ciulla wirelessly transmits -- can
24 wirelessly transmit data to a remote computer.

25 Do you agree with that?

1 A. So by radiofrequency, bluetooth.

2 Q. Any one of the wireless methods.

3 A. Anything that's described in -- yes.

4 Q. Right.

5 A. And let me just clarify.

6 So Ciulla describes -- can you point
7 to me where it describes that in the -- in
8 Ciulla so I don't have to search for it?

9 Q. Paragraph 214 on Page 18. It says in
10 the preferred embodiment of the system, the
11 microprocessor will either store its analysis
12 reports on a compact flash card or directly
13 transmit those reports to the therapist's
14 computer and/or the company's mainframe system
15 for further analysis, research, and
16 documentation.

17 A. Uh-huh.

18 Q. Do you see that?

19 A. Yep.

20 Q. So if Ciulla already wirelessly
21 transmits its data to a computer or a main
22 frame, why would a POSITA be motivated to bring
23 in Orbach's components?

24 A. Yeah. So I think this goes back to,
25 for example, the limitation ability the adding

1 in a -- I described these in that section on
2 motivation to combine in the declaration which
3 describes in detail all the reasons why you
4 would want to do that, which, as I said, include
5 the benefits of providing a cell phone, which is
6 not only just the transmission device but is
7 also part of the system where it's a patient's
8 device where they're transmitting using their
9 technology.

10 That could -- so patients -- there's
11 many reasons why patients would feel comfortable
12 when they've got control of when the data is
13 transmitted.

14 As you made mention before, it would
15 require a patient -- if a patient requires help,
16 they would need to consent in a way to giving up
17 that control of transmitting the data. If it's
18 for their benefit, I'm sure that they would. If
19 it's a way that they can have access to
20 something --

21 So in 2003, there were long waiting
22 periods for, for example, being able to have
23 sleep tests. So, you know, I know that some of
24 those were months, some of those were, you know,
25 even longer than that, depending on the severity

1 and depending on the types of maybe symptoms
2 and -- associated symptoms.

3 Occupation. For example, if you're a
4 driver -- that brings up another point. For
5 example, if you're a commercial driver and have
6 an occupation where you're moving around a lot,
7 perhaps you need the flexibility to be monitored
8 for sleep and sleep disordered breathing whilst
9 you're -- whilst you're on the move, for
10 example, from one location to another.

11 I'm not saying driving while you
12 sleep, if that was -- I'm saying that, you know,
13 from night to night.

14 And then the next thing is that
15 additionally for that, if you're a physician and
16 you want to be able to access patients in part
17 of the country where the technology -- the other
18 technology is not available or you can't send
19 that or it's too expensive, there are other
20 things with sleep disordered breathing tests in
21 home-based sleep testing that were occurring at
22 the time where you would have to send equipment
23 to an individual, and then you may or may not
24 get that equipment back. And sometimes you
25 wouldn't get that equipment back in a working

1 form.

2 And it seems to me that you would be
3 motivated to combine Ciulla with Orbach if the
4 equipment in Orbach was less expensive and less
5 technical or required less components. It would
6 be better to send a smaller, cheaper, more --
7 let's just say less risk of losing the money
8 associated with producing a -- you know, an
9 extensive purpose-built device that had all of
10 those wireless transmission components when you
11 could interact with those sensors and transmit
12 the data using a standard platform that was
13 becoming ubiquitous across the globe.

14 Q. So if Ciulla's device wirelessly
15 output its reports and analysis and sensor
16 readings using RF as disclosed in Paragraph 213,
17 a cell phone is not needed, is it?

18 A. So that is not my opinion.

19 Q. No, it's not.

20 I'm asking if Ciulla used an RF
21 cellular chip in its device just like
22 Airsense 10, Airsense 11, and many of the other
23 ResMed devices, I'm sure you're familiar with --

24 A. So actually I don't know -- honestly,
25 I've never studied the components of those

1 devices that you mentioned, so I could not
2 comment and I do not know.

3 Q. Fair enough.

4 But if Ciulla used an RF cellular chip
5 in its device to wirelessly send its data,
6 wouldn't a POSITA be motivated to go that route
7 as opposed to adding a cell phone?

8 A. Oh, I think that -- for example, if
9 indeed -- and that's -- I think that you are
10 agreeing with my position, that adding a --
11 adding a cellular transmission device -- now, in
12 the -- Ciulla did not disclose a cellular
13 device. That is the purpose of combining -- why
14 somebody would be motivated to combine Orbach to
15 specifically say that you could transmit via a
16 cell tower.

17 Now -- and I think I've made that very
18 clear in that declaration.

19 Q. If Ciulla had a cellular chip,
20 wouldn't it also access the cell tower?

21 A. Yes, and so to the point --

22 Q. Okay.

23 A. -- whereas Ciulla does not
24 specifically say that they have a -- there's a
25 cellular chip in there, that's where people

1 would vary -- looked at Orbach and said, oh,
2 this -- it's clear that we could add a cellular
3 chip into Ciulla, and that would have been
4 something that people would've readily looked to
5 do.

6 Q. But, as your opinion stands, the
7 Ciulla/Orbach combination uses Ciulla's
8 monitoring device and Orbach's cellular phone,
9 remote server, and viewing station; is that
10 correct?

11 A. So in terms of my opinion, I stated
12 particularly -- what I've said, and I've stated
13 in terms of my -- the -- on -- so you would have
14 to repeat that for me to either -- because I
15 just don't know that what you said is what I
16 have said.

17 Q. All I said was your combination of
18 Ciulla and Orbach relies on Ciulla's monitoring
19 device, Orbach's cell phone --

20 A. Okay.

21 Q. -- and Orbach's remote server and
22 viewing station?

23 A. So now I understand.

24 So no. I have -- the combination,
25 it's the combination of the Ciulla device and

1 the Orbach device in -- wherein the
2 configurations as described throughout the -- my
3 declaration describe those features which
4 disclosed those findings.

5 MR. LAYDEN: Let's take five
6 minutes.

7 MS. ALEXANDER: Okay.

8 (5:00 p.m. PST - Recess.)

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1 (At 5:07 p.m. PST, with parties present
2 as before, the following proceedings were had,
3 to-wit:)

4 VIDEOGRAPHER: Dr. Kirkness, I
5 appreciate your time and patience going through
6 this. I have no further questions.

7 THE WITNESS: Thank you.

8 MR. LAYDEN: Counsel?

9 MS. ALEXANDER: I don't have any
10 follow-up or redirect.

11 COURT REPORTER: (Requests
12 counsel confirm their purchase and transcript
13 orders for the record.)

14 MR. LAYDEN: Just a rough.

15 MS. ALEXANDER: A rough draft as
16 well.

17 (5:08 p.m. PST - Adjournment.)

18 ** ** ** **

1 C E R T I F I C A T E

2 STATE OF NEBRASKA)
3 COUNTY OF DOUGLAS) ss.

4 I, Brianne L. Starkey, RPR, CRR, General
5 Notary Public within and for the State of
6 Nebraska, do hereby certify that the foregoing
7 testimony of JASON PAUL KIRKNESS, Ph.D., was
8 taken by me in shorthand and thereafter reduced
9 to typewriting by use of Computer-Aided
10 Transcription, and the foregoing one hundred
11 twenty-two (122) pages contain a full, true and
12 correct transcription of all the testimony of
13 said witness, to the best of my ability;

14 That I am not a kin or in any way
15 associated with any of the parties to said cause
16 of action, or their counsel, and that I am not
17 interested in the event thereof.

18 IN WITNESS WHEREOF, I hereunto affix my
19 signature and seal this 12th day of September,
20 2025.

21

22

23 BRIANNE L. STARKEY, RPR, CRR

24 GENERAL NOTARY PUBLIC

25

My Commission Expires:

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