



Page 2

1           A P P E A R A N C E S:

2

3           QUINN EMANUEL URQUHART & SULLIVAN, LLP

4           By: MR. ANDREW HOLMES

5                 MR. BRUCE LEE

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14                     appeared on behalf of the

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16

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18           By: MS. KATHERINE REARDON

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23

24                     appeared on behalf of the

25                     Respondent.

                  OFFICE OF UNFAIR IMPORT INVESTIGATION

                  INTERNATIONAL TRADE COMMISSION

                  By: MR. R. WHITNEY WINSTON

                  500 E Street, SW

                  Washington, D.C. 20436

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                  appeared on behalf of the ITC.

Also Present:

Mr. Gus Phillips, Videographer

\*\*\*\*\*

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1                     VIDEOGRAPHER: We are now on the record for

2                     the video deposition of Dr. Igor Efimov. The time

3                     is 9:00 a.m., January 31st, 2022, In the Matter of

4                     Certain Wearable Electronic Devices With ECG

5                     Functionality and Components Thereof, Investigation

6                     Number 337-TA-1266 being held in the United States

7                     International Trade Commission, Washington, D.C.

8                     The court reporter is Sandra Rocca. The

9                     videographer is Gus Phillips and both are

10                    representatives of GregoryEdwards Court Reporting.

11                    Will counsel please state their appearances

12                    for the record beginning with the claimant.

13                    MR. HOLMES: Yes, this is Andrew Holmes on

14                    behalf of the claimant AliveCor. I'm with the law

15                    firm Quinn Emanuel and with me on the line are my

16                    colleagues Bruce Lee and Kevin Gu who will be

17                    listening in.

18                    MS. REARDON: And Katherine Reardon from the

19                    law firm Fish & Richardson on behalf of the

20                    respondent Apple.

21                    MR. WINSTON: Whitney Winston on behalf of

22                    Commission investigative staff.

23                    IGOR EFIMOV, Ph.D.,

24                    having been first duly sworn, was examined and

25                    testified as follows:

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1                                   I N D E X

2           WITNESS                                   PAGE

3           IGOR R. EFIMOV, Ph.D.

4           EXAMINED BY

5                 Ms. Reardon                                   5

6

7                                   \*\*\*\*\*

8

9                                   E X H I B I T S

10           NUMBER                                   MARKED FOR ID

11           Efimov

12           Exhibit 1    I. Efimov CV                                   35

13           Exhibit 2    I. Efimov Expert Report                   115

14           Exhibit 3    Order No. 12, re claim                                   124

15                                   construction

16           Exhibit 4    U.S. Patent No. 9,572,499                           161

17           Exhibit 5    U.S. Patent No. 10,595,731                           161

18           Exhibit 6    U.S. Patent No. 10,638,941                           161

19           Exhibit 7    APL-ALIVE\_00082371 to 82383                           197

20           Exhibit 8    APL-ALIVE\_00083186 to 83271                           225

21           Exhibit 9    PEGA\_00603816 to 83271, Tran                           252

22                    U.S. Patent Application

23                    Publication 2008/0004904 A1

24           Exhibit 10    AlivelTC\_00000054 to 68                           253

25                    License Agreement

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1                                   EXAMINATION

2           BY MS. REARDON:

3                 Q Good morning, Dr. Efimov.

4                 A Good morning.

5                 Q Can you please state your full name for the

6                 record?

7                 A My name is Igor Efimov.

8                 Q And Dr. Efimov, where do you reside?

9                 A Currently at home in Arlington, Virginia,

10                but I work at George Washington University across

11                the river in Washington, D.C.

12                Q I'm sorry. And can you provide your full

13                address for your residence in Arlington, Virginia?

14                A Sure. It's 1510 16th Court North,

15                Arlington, Virginia 22209.

16                Q And Dr. Efimov, I see that beautiful

17                background, but I assume that's not actually GW's

18                campus, is that right?

19                A Well, yes, but I'm dreaming of the blossom

20                that's coming.

21                Q Are you testifying from your office at GW

22                today?

23                A No, I'm testifying from my home office in

24                Arlington, Virginia.

25                Q And is anybody in the room with you?

Page 6	Page 8
<p>1 A No.</p> <p>2 Q And do you have any notes or documents with</p> <p>3 you?</p> <p>4 A Well, I have my computer and my iPad next to</p> <p>5 me.</p> <p>6 Q Got it. But no physical printouts of any</p> <p>7 documents?</p> <p>8 A No, I don't.</p> <p>9 Q Now, you have been deposed before, is that</p> <p>10 right?</p> <p>11 A Yes, I have.</p> <p>12 Q So I assume then you probably generally know</p> <p>13 the procedure here for today, but I'll go over it</p> <p>14 again here if you don't mind.</p> <p>15 A Yes, I do. But I have to admit that the</p> <p>16 Zoom procedure is the first time for me.</p> <p>17 Q That's very good to know. I think we've all</p> <p>18 taken it as normal, but we will certainly go over</p> <p>19 the Zoom procedure.</p> <p>20 So I will ask the questions, and you are</p> <p>21 required to answer them unless your lawyer tells you</p> <p>22 not to. Do you understand that?</p> <p>23 A Yes.</p> <p>24 Q And you understand that your counsel may</p> <p>25 assert objections from time to time, but unless he</p>	<p>1 record in the same way that in the room the</p> <p>2 videographer would tell us to go off the record.</p> <p>3 Okay?</p> <p>4 A Okay.</p> <p>5 Q And then today we will look at some</p> <p>6 documents, and I will drop those into the chat</p> <p>7 function. And you've probably seen the chat</p> <p>8 function pop up already, have you?</p> <p>9 A Yeah, we just tested actually one test</p> <p>10 document.</p> <p>11 Q Excellent. So what I will do is I will type</p> <p>12 the exhibit number -- so I will type Exhibit 1 and</p> <p>13 then I will drop an exhibit and I will state that</p> <p>14 it's marked as Exhibit 1, for example. Do you</p> <p>15 understand that?</p> <p>16 A Yes.</p> <p>17 Q And then we can open and look at that</p> <p>18 document. Okay?</p> <p>19 A Yes.</p> <p>20 Q Now, you understand you just took an oath to</p> <p>21 tell the truth, right?</p> <p>22 A Yes.</p> <p>23 Q And you'll do that today?</p> <p>24 A Of course.</p> <p>25 Q And you understand that your sworn testimony</p>
Page 7	Page 9
<p>1 instructs you not to answer, you must answer my</p> <p>2 question. Right?</p> <p>3 A Yes, I do understand that.</p> <p>4 Q And you will do that?</p> <p>5 A Yes, I will.</p> <p>6 Q And you understand that you need to focus on</p> <p>7 my questions and answer only my questions, right?</p> <p>8 A Yes.</p> <p>9 Q And if you feel the need to talk about</p> <p>10 something else that's not in response to my</p> <p>11 question, then you can ask me or your attorney.</p> <p>12 Okay?</p> <p>13 A Yes.</p> <p>14 Q And if you don't understand a question I</p> <p>15 ask, you'll let me know. Okay?</p> <p>16 A Yes, of course.</p> <p>17 Q So if you answer my question, then I'm going</p> <p>18 to interpret that you understood my question. Fair?</p> <p>19 A Well, yes, as far as I could, yes.</p> <p>20 Q And so you're aware, if we have technical</p> <p>21 difficulties or you need to take a break at any</p> <p>22 time, you can just let me know and we can do that.</p> <p>23 Okay?</p> <p>24 A Yeah, I will do so.</p> <p>25 Q And in this setting, we will go off the</p>	<p>1 today is the same as if you were giving it before</p> <p>2 the International Trade Commission, correct?</p> <p>3 A Yes, I do.</p> <p>4 Q So same as if we were in the courtroom.</p> <p>5 Fair?</p> <p>6 A Yes.</p> <p>7 Q Is there any reason, medical or otherwise,</p> <p>8 that you cannot give your best and most accurate and</p> <p>9 most complete testimony today?</p> <p>10 A No, there is no reason.</p> <p>11 Q And then, Dr. Efimov, I have two questions</p> <p>12 and I don't mean to offend, but I have to ask them.</p> <p>13 You've never been charged with a felony, right?</p> <p>14 A No.</p> <p>15 Q And you've never been accused of any</p> <p>16 professional misconduct, right?</p> <p>17 A No.</p> <p>18 Q Never been accused of perjury?</p> <p>19 A No.</p> <p>20 Q And never had any publication in the</p> <p>21 professional field rescinded?</p> <p>22 A No.</p> <p>23 Q You understand that AliveCor has sued Apple</p> <p>24 in this case, correct?</p> <p>25 A Yes, I do.</p>

Page 10	Page 12
<p>1 Q And so if I refer to AliveCor for short 2 today, you will understand that that's short for 3 AliveCor Inc., right? 4 A Yes. 5 Q And if I refer to Apple today, you will 6 understand that that is short for Apple Inc., right? 7 A Yes, I do. 8 Q And I mentioned this before, but you're 9 aware that this case is before the International 10 Trade Commission, correct? 11 A Yes. 12 Q Have you ever testified at the International 13 Trade Commission before? 14 A No. 15 Q You've never been a part of a case that's 16 been before the International Trade Commission, is 17 that right? 18 A As far as I remember, no. 19 Q Are you aware that there is a hearing in 20 this investigation coming up in March? 21 A I think so, uh-huh. 22 Q And you intend to testify about your 23 opinions in the report you submitted in this case at 24 that hearing, right? 25 A Yes.</p>	<p>1 A It's the largest company in the world, I 2 guess. 3 Q Do you believe Apple's an innovative 4 company? 5 MR. HOLMES: Objection to form. 6 A It's hard to say. It creates interesting 7 products, yes. 8 Q Do you believe Apple's an innovative company 9 and has created interesting products in the health 10 space? 11 MR. HOLMES: Objection to form. 12 A Well, as far as I know, Apple wants to be 13 healthcare company, yes. 14 Q Do you view Apple as a healthcare company? 15 A I tend to view healthcare companies which 16 have direct impact on hospital, medical field. 17 Apple probably is not there yet. 18 Q So to make sure I understand, you don't 19 think Apple's products have any direct impact on the 20 hospital or medical field, is that right? 21 MR. HOLMES: Objection to form. 22 A Well, Apple products are currently used 23 either at clinical trials of Apple products, so in 24 this respect they do have impact. 25 Q And what clinical trials are you referring</p>
Page 11	Page 13
<p>1 Q Now, have you ever had any professional 2 interactions with Apple? 3 A I knew some people from Apple years ago I 4 emailed maybe several times, but it was just a 5 social interaction. 6 Q Who were the people that you knew at Apple? 7 Can you recall? 8 A I forgot the name. She was a biomedical 9 engineer and student at Duke University but then 10 worked for Apple. She is a biomedical engineer. 11 And I apologize, I don't remember the name. Anna, 12 and I forgot the last name. 13 Q Do you know what she was working on at 14 Apple? 15 A No, not really. 16 Q And you mentioned that you had maybe sent 17 several emails to Apple. Were those all to the same 18 -- I think you said Anna that worked there? 19 A Uh-huh. 20 Q Is there anyone else that you interacted 21 with at Apple? 22 A Not what I would recall, no. 23 Q Do you have an opinion of Apple as a 24 company? 25 MR. HOLMES: Objection to form.</p>	<p>1 to? 2 A Well, there are several clinical trials 3 related to Apple Watch and the detection of atrial 4 fibrillation. 5 Q And have you looked at those clinical 6 trials? 7 A I read some papers, yes, a while ago. 8 Q And why did you read those papers? 9 MR. HOLMES: I just -- hold on a second. I 10 just want to caution you to the extent that you were 11 directed by the attorneys to do that, not to 12 disclose the communications that you had with them. 13 But if you did it on your own, you can answer. 14 A Yeah, I did it on my own as an editor of a 15 journal, some papers came across as a reviewer. 16 Q And what did you understand those clinical 17 trials to be studying? 18 A It was an attempt to basically detect atrial 19 fibrillation in consumers. 20 Q Is it your opinion that if a company does 21 clinical trials, it is creating a medical device? 22 A Not necessarily. It could be a drug. It 23 could be imaging modalities; not necessarily a 24 medical device. 25 Q Can you do -- I'm sorry. I should say as</p>

Page 14	Page 16
<p>1 well any time -- I don't mean to interrupt you. 2 Please finish your answer. 3 <b>A</b> Or it could be, you know, algorithm which is 4 also not necessarily medical device. 5 <b>Q</b> So you can do clinical trials for a consumer 6 device, is that right? 7 <b>A</b> Yes. 8 <b>Q</b> Do you own an Apple Watch? 9 <b>A</b> Yes, I do. 10 <b>Q</b> Did you buy it for the ECG functionality? 11 <b>MR. HOLMES:</b> Objection to form. 12 <b>A</b> I bought three or four models of Apple 13 Watch. I just keep updating. I like new gadgets. 14 <b>Q</b> So why do you wear an Apple Watch? 15 <b>A</b> It's convenient. It keeps my calendar. 16 <b>Q</b> Have you ever used the -- well, let me ask 17 you this: Have you ever heard of the high heart 18 rate notification on the Apple Watch? 19 <b>A</b> Not in my personal experience. 20 <b>Q</b> What about the irregular rhythm 21 notification, have you ever heard of that? 22 <b>A</b> As a consumer, no, I haven't had that, 23 fortunately. 24 <b>Q</b> Have you heard about the irregular rhythm 25 notification in the context of this case?</p>	<p>1 use, for example, AD instruments, EKG recorder which 2 students have to use and conduct laboratory 3 recording their own EKG. I brought various other 4 sensors which can be used for recording EKG. And on 5 those sensors it was also Apple Watch. 6 <b>Q</b> So it sounds like you've looked at a lot of 7 different types of ECG sensors in your 8 electrophysiology class, is that right? 9 <b>A</b> Yes, yes. 10 <b>Q</b> And Apple Watch is just one of those 11 sensors? 12 <b>A</b> Yes. 13 <b>Q</b> Have you -- let me ask you this: It sounds 14 like your use of the Apple Watch is varied, is that 15 fair? 16 <b>MR. HOLMES:</b> Objection to form. 17 <b>A</b> I'm not sure what it means. Can you define 18 varied? 19 <b>Q</b> Let me ask you this: What types of uses do 20 you use your Apple Watch for? 21 <b>A</b> As a consumer or as a teacher in classroom? 22 <b>Q</b> As a consumer. 23 <b>A</b> As a consumer, well, primarily of course for 24 keeping the time and calendar, some apps. When I 25 walk, I track my exercise. That's primarily the</p>
<p>1 <b>MR. HOLMES:</b> Objection to form. 2 <b>A</b> I think it might have come forth in some 3 documents. 4 <b>Q</b> But fair to say you weren't aware of the 5 irregular rhythm notification as a user of the Apple 6 Watch prior to this case, correct? 7 <b>A</b> Rather if you take electrocardiogram it says 8 something about atrial fibrillation, not sure if 9 rhythm notification as such if it's being referred. 10 <b>Q</b> Let me ask you that question since the ECG 11 functionality is separate. You've taken an ECG on 12 your Apple Watch, correct? 13 <b>MR. HOLMES:</b> Objection to form. 14 <b>A</b> Yeah, I have, with KardiaBand and with Apple 15 Watch. 16 <b>Q</b> And why did you do that? 17 <b>MR. HOLMES:</b> Hold on a second. I just want 18 to caution you to the extent that you were directed 19 by any attorneys to do that, you don't disclose the 20 communications you had with them. But if you've 21 done it on your own, you can feel free to answer. 22 <b>A</b> Well, initially I teach electrophysiology, 23 cardiovascular engineering in classroom for over 20 24 years and this includes teaching 25 electrocardiography. And I bring various gadgets we</p>	<p>1 use. 2 <b>Q</b> Have you ever in your professional setting 3 done studies on the Apple Watch? 4 <b>A</b> No. 5 <b>Q</b> Have you ever tried to uncover or study the 6 software of the Apple Watch? 7 <b>A</b> No. 8 <b>Q</b> You've never looked at how the Apple 9 algorithm -- algorithms work respect to its ECG 10 functionality, for example, correct? 11 <b>A</b> No, I haven't. 12 <b>Q</b> And same for the hardware in the Apple 13 Watch, you've never looked at the specific hardware 14 that Apple uses for its sensors? 15 <b>A</b> No. 16 <b>Q</b> Now, you are aware that Apple's expert on 17 invalidity in this case is -- let me say it this 18 way. 19 You're aware that Apple's expert on 20 invalidity of the asserted patents in this case is 21 Dr. Collin Stultz, correct? 22 <b>A</b> Yes, I am. 23 <b>Q</b> Have you ever heard of Dr. Stultz before? 24 <b>A</b> No. 25 <b>Q</b> So you never read any of his publications?</p>

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