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UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

In the Matter of Investigation No.
337-TA-1266

CERTAIN WEARABLE ELECTRONIC
DEVICES WITH ECG FUNCTIONALITY
AND COMPONENTS THEREOF

ZOOM DEPOSITION OF COLLIN STULTZ, M.D., Ph.D.,
(Reported Remotely via Video & Web Videoconference)
Boston, Massachusetts (Deponent's location)
Thursday, February 3, 2022
Volume I

STENOGRAPHICALLY REPORTED BY:
REBECCA L. ROMANO, RPR, CSR, CCR
California CSR No. 12546
Nevada CCR No. 827
Oregon CSR No. 20-0466
Washington CCR No. 3491
JOB NO. 5038471
PAGES 1 - 312

<p>1 UNITED STATES INTERNATIONAL TRADE COMMISSION 2 Washington, D.C. 3 4 In the Matter of Investigation No. 337-TA-1266 5 CERTAIN WEARABLE ELECTRONIC DEVICES WITH ECG FUNCTIONALITY 6 AND COMPONENTS THEREOF 7 _____ 8 9 10 11 12 13 14 DEPOSITION OF COLLIN STULTZ, M.D., Ph.D., 15 taken on behalf of the Claimant - AliveCor, with 16 the deponent located in Boston, Massachusetts, 17 commencing at 9:10 a.m., Thursday, 18 February 3, 2022, remotely reported via Video 19 & Web videoconference before REBECCA L. ROMANO, 20 a Certified Shorthand Reporter, Certified 21 Court Reporter, Registered Professional Reporter 22 23 24 25</p> <p style="text-align: right;">Page 2</p>	<p>1 APPEARANCES(cont'd) 2 (All parties appearing via Web videoconference) 3 4 UNITED STATES INTERNATIONAL TRADE COMMISSION 5 BY: R. WHITNEY WINSTON 6 Attorney at law 7 500 E Street, SW 8 Washington, D.C. 20436 9 (202) 205-2000 10 whitney.winston@usitc.gov 11 12 13 14 15 ALSO PRESENT: 16 Ramon Peraza, Videographer 17 18 19 20 21 22 23 24 25 ////</p> <p style="text-align: right;">Page 4</p>
<p>1 APPEARANCES OF COUNSEL 2 (All parties appearing via Web videoconference) 3 4 For the Claimant - AliveCor, Inc.: 5 QUINN EMANUEL URQUHART & SULLIVAN LLP 6 BY: SEAN S. PAK 7 BY: KEVIN GU 8 Attorneys at Law 9 50 California Street 10 22nd Floor 11 San Francisco, California 94111 12 (415) 875-6600 13 seanpak@quinnemanuel.com 14 kevingu@quinnemanuel.com 15 16 For the Respondents - Apple Inc.: 17 FISH & RICHARDSON, P.C. 18 BY: KATHERINE REARDON 19 Attorneys at Law 20 7 Times Square 21 20th Floor 22 New York, New York 10036 23 (212) 765-5070 24 kreardon@fr.com 25 ////</p> <p style="text-align: right;">Page 3</p>	<p>1 I N D E X 2 DEPONENT EXAMINATION 3 COLLIN STULTZ, M.D., PH.D. PAGE VOLUME I 4 5 BY MR. PAK 12 6 BY MS. REARDON 295 7 BY MR. PAK 306 8 9 10 E X H I B I T S 11 NUMBER DESCRIPTION PAGE 12 13 Exhibit 1 Rebuttal Report of Collin 38 14 Stultz, M.D., Ph.D.; 15 16 Exhibit 2 Article: Identifying 69 17 Clinical and Medical 18 Solutions at the MEDRC 19 Workshop for Medical 20 Electronic Devices and 21 Systems - IEEE Life ...; 22 23 24 25 ////</p> <p style="text-align: right;">Page 5</p>

<p>1 EXHIBITS(cont'd)</p> <p>2 NUMBER PAGE</p> <p>3 DESCRIPTION</p> <p>4 Exhibit 3 Expert Report of Collin 82</p> <p>5 Stultz, M.D., Ph.D.,</p> <p>6 Regarding Invalidation of U.S.</p> <p>7 Patent Nos. 9,572,499,</p> <p>8 10,595,731 and 10,638,941;</p> <p>9</p> <p>10 Exhibit 4 Ordering No. 12: Construing 88</p> <p>11 the Terms of the Asserted</p> <p>12 Claims of the Patents at</p> <p>13 Issue dated November 4, 2021;</p> <p>14</p> <p>15 Exhibit 5 U.S. Patent 10,595,731; 97</p> <p>16</p> <p>17 Exhibit 6 Using Apple Watch for 104</p> <p>18 Arrhythmia Detection December</p> <p>19 2020;</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25 /////</p> <p style="text-align: right;">Page 6</p>	<p>1 EXHIBITS</p> <p>2 NUMBER PAGE</p> <p>3 DESCRIPTION</p> <p>4 Exhibit 12 United States Patent 246</p> <p>5 7,460,899 B2;</p> <p>6</p> <p>7 Exhibit 13 International Publication 254</p> <p>8 Number WO 2004/012033 A2;</p> <p>9</p> <p>10 Exhibit 14 Pub. No.: US 2008/0004904 263</p> <p>11 A1;</p> <p>12</p> <p>13 Exhibit 15 Pub. No.: US 2013/0030259 276</p> <p>14 A1;</p> <p>15</p> <p>16 Exhibit 16 Pub No.: US 2009/0234410 A1. 282</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25 /////</p> <p style="text-align: right;">Page 8</p>
<p>1 EXHIBITS(cont'd)</p> <p>2 NUMBER PAGE</p> <p>3 DESCRIPTION</p> <p>4 Exhibit 7 Article: A comparison of 146</p> <p>5 manual electrocardiographic</p> <p>6 interval and waveform</p> <p>7 analysis in lead 1 of 12-lead</p> <p>8 ECG and Apple Watch ECG: A</p> <p>9 validation study;</p> <p>10</p> <p>11 Exhibit 8 U.S. Paten 10,638,941; 187</p> <p>12</p> <p>13 Exhibit 9 U.S. Patent 9,572,499; 198</p> <p>14</p> <p>15 Exhibit 10 Article - AMON: A Wearable 204</p> <p>16 Multiparameter Medical</p> <p>17 Monitoring and Alert System,</p> <p>18 APL-ALIVE_00082371 -</p> <p>19 APL-ALIVE_00082383;</p> <p>20</p> <p>21 Exhibit 11 Article: The Advent of 212</p> <p>22 Clinically Useful Deep</p> <p>23 Learning;</p> <p>24</p> <p>25 /////</p> <p style="text-align: right;">Page 7</p>	<p>1 Boston, Massachusetts; Thursday, February 3, 2022</p> <p>2 9:10 a.m.</p> <p>3 ---00o---</p> <p>4</p> <p>5 THE VIDEOGRAPHER: Good morning. We are 09:10:52</p> <p>6 on the record at 9:10 a.m. on February 3rd, 2022.</p> <p>7 This is the video-recorded deposition of</p> <p>8 Dr. Collin Stultz in Re Certain Wearable Electronic</p> <p>9 Devices with ECG Functionality and Components</p> <p>10 Thereof. This case was filed in the United States 09:11:04</p> <p>11 International Trade Commission in Washington, DC,</p> <p>12 Case No. 337-TA-1266.</p> <p>13 This deposition is being recorded</p> <p>14 remotely by Veritext. My name is Ramon Peraza,</p> <p>15 here with our court reporter, Rebecca Romano. We 09:11:25</p> <p>16 are here from Veritext Legal Solutions at the</p> <p>17 request of counsel for the complainant.</p> <p>18 Please note that audio and video</p> <p>19 recording will take place unless all parties have</p> <p>20 agreed to go off the record. 09:11:38</p> <p>21 At this time, Counsel, please identify</p> <p>22 yourselves for the record and state whom you</p> <p>23 represent.</p> <p>24 MR. PAK: Good morning. This is Sean Pak</p> <p>25 of Quinn Emanuel representing AliveCor, and with me 09:11:47</p> <p style="text-align: right;">Page 9</p>

<p>1 is Kevin Gu. 09:11:50 2 MS. REARDON: And Katherine Reardon from 3 Fish & Richardson on behalf of respondent, Apple. 4 MR. WINSTON: Good morning. This is 5 Whitney Winston on behalf of the Commission 09:12:04 6 investigative staff. 7 THE VIDEOGRAPHER: The court reporter may 8 now swear in the witness. 9 THE COURT REPORTER: At this time, I will 10 ask counsel to agree on the record that there is no 09:12:10 11 objection to this deposition officer administering 12 a binding oath to the deponent via remote 13 videoconference, starting with the noticing 14 attorney, please. 15 MR. PAK: No objection. 09:12:26 16 MS. REARDON: No objection. 17 MR. WINSTON: No objection. 18 THE COURT REPORTER: If you could raise 19 your right hand for me, please. 20 THE DEPONENT: (Complies.) 09:12:29 21 THE COURT REPORTER: You do solemnly 22 state, under penalty of perjury, that the testimony 23 you are about to give in this deposition shall be 24 the truth, the whole truth and nothing but the 25 truth? 09:12:29</p> <p style="text-align: right;">Page 10</p>	<p>1 COLLIN STULTZ, M.D., Ph.D., 2 having been administered an oath, was examined and 3 testified as follows: 4 5 EXAMINATION 6 BY MR. PAK: 7 Q. Good morning, Doctor. 8 A. Good morning. 9 Q. Can you please -- 10 MS. REARDON: Mr. Pak, let me make one 09:12:55 11 quick statement. 12 I just wanted to alert you that 13 Dr. Stultz has his pager with him because he is a 14 practicing doctor. So if for some reason that goes 15 off or if he receives some sort of phone call, we 09:13:07 16 would just ask that we can break so he can attend 17 to that and then we can come back to the session. 18 MR. PAK: Yeah, that's not a problem. 19 MS. REARDON: Thank you. 20 Q. (By Mr. Pak) Good morning, Doctor. 09:13:18 21 Can you please state your name for the 22 record. 23 A. My name is Collin, C-O-L-L-I-N, Stultz, 24 S-T-U-L-T-Z. 25 Q. And who is your current employer? 09:13:26</p> <p style="text-align: right;">Page 12</p>
<p>1 THE DEPONENT: I do. 09:12:30 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 ////</p> <p style="text-align: right;">Page 11</p>	<p>1 A. I am currently employed by the 09:13:29 2 Massachusetts Institute of Technology and the 3 Massachusetts General Hospital. 4 Q. And what roles do you currently serve for 5 MIT? 09:13:40 6 A. At MIT, I'm a professor of electrical 7 engineering and computer science. Professor in 8 medical engineering and sciences, the faculty 9 member in health sciences and technology. It's 10 actually at Harvard and MIT division. 09:13:54 11 Q. And what role do you play or serve for 12 the Massachusetts General Hospital? 13 A. I am a cardiologist. 14 Q. And how long have you been a practicing 15 cardiologist? 09:14:09 16 A. So I began my fellowship, I think it was 17 in -- dating me now. My fellowship was finished 18 about -- about 2000 is when I began. And it was 19 finished about 2003. I became board certified in 20 about 2004. That's my recollection. 09:14:29 21 Q. Doctor, have you ever consulted and 22 worked for -- worked for a technology company, 23 besides MIT and the Mass General Hospital? 24 A. I -- I've served on the scientific 25 advisory board for a few companies. I think 09:14:47</p> <p style="text-align: right;">Page 13</p>

<p>1 several of those are listed in my curriculum vitae. 09:14:50</p> <p>2 Q. Setting aside your role on scientific</p> <p>3 advisory boards, have you actually been employed by</p> <p>4 a technology company?</p> <p>5 A. Employed by -- no. No, I -- I can't say 09:15:04</p> <p>6 that I have. No, I have not.</p> <p>7 MR. PAK: Okay.</p> <p>8 MS. REARDON: And -- and Mr. Pak, can --</p> <p>9 can we take one minute because -- and go off the</p> <p>10 record? 09:15:13</p> <p>11 MR. PAK: Sure. I apologize.</p> <p>12 THE VIDEOGRAPHER: We are off the record</p> <p>13 at 9:15 a.m.</p> <p>14 (Recess taken.)</p> <p>15 THE VIDEOGRAPHER: We are back on the 09:24:02</p> <p>16 record at 9:24 a.m.</p> <p>17 Q. (By Mr. Pak) Welcome back, Doctor.</p> <p>18 Have you been deposed before?</p> <p>19 A. I have never been deposed before.</p> <p>20 Q. Have you ever testified in a court of 09:24:14</p> <p>21 law?</p> <p>22 A. I have never testified in a court of law,</p> <p>23 no.</p> <p>24 Q. Okay. Just to remind you today, it's</p> <p>25 very important, Dr. Stultz, that you allow me to 09:24:23</p> <p style="text-align: right;">Page 14</p>	<p>1 with respect to these issues. 09:25:21</p> <p>2 Q. And did you have a full opportunity to</p> <p>3 consider all of the evidence in forming those</p> <p>4 opinions?</p> <p>5 A. Yes, I did. 09:25:30</p> <p>6 Q. And did you include all the opinions that</p> <p>7 you have formed in this investigation in the two</p> <p>8 reports that you submitted?</p> <p>9 A. Given the data I had up and to the</p> <p>10 submission of these reports, I looked at all of 09:25:42</p> <p>11 those data, and they informed my opinions</p> <p>12 that are -- that are present in these reports.</p> <p>13 Q. And sitting here today, are you -- have</p> <p>14 you formed any opinions with respect to this</p> <p>15 investigation that you have not included in the 09:25:53</p> <p>16 expert reports that you have submitted?</p> <p>17 A. I have not.</p> <p>18 Q. Okay. Doctor, have you reviewed the</p> <p>19 expert reports of any other experts from Apple in</p> <p>20 this investigation? 09:26:09</p> <p>21 A. From Apple, no, I have not.</p> <p>22 Q. Have you spoken to any of the Apple</p> <p>23 experts in connection with this investigation?</p> <p>24 A. Myself and Dr. Picard, and I -- I think</p> <p>25 it was counsel from Fish several weeks ago -- spoke 09:26:25</p> <p style="text-align: right;">Page 16</p>
<p>1 finish my questions, and I will do the same with 09:24:26</p> <p>2 respect to your answers.</p> <p>3 Is that understood?</p> <p>4 A. Absolutely.</p> <p>5 Q. And we have a videographer here who -- 09:24:32</p> <p>6 court reporter who's transcribing all the words</p> <p>7 that are spoken during today's deposition, so it's</p> <p>8 very important that you provide audible responses</p> <p>9 to my questions.</p> <p>10 Is that understood? 09:24:47</p> <p>11 A. Yes, it is.</p> <p>12 Q. And is there any reason why you cannot</p> <p>13 testify truthfully and accurately to my questions</p> <p>14 today?</p> <p>15 A. None whatsoever. 09:24:55</p> <p>16 Q. And you understand, sir, that you</p> <p>17 provided expert reports in this investigation?</p> <p>18 A. Yes.</p> <p>19 Q. You understand that those expert reports</p> <p>20 were to contain a complete and accurate record of 09:25:07</p> <p>21 all the expert opinions that you have formulated in</p> <p>22 this investigation.</p> <p>23 Do you understand that?</p> <p>24 A. That -- that's -- that is correct. They</p> <p>25 are the accurate reflection of my -- of my opinions 09:25:18</p> <p style="text-align: right;">Page 15</p>	<p>1 on the phone for maybe about 30 or 40 minutes, 09:26:30</p> <p>2 because Dr. Picard had some questions that were of</p> <p>3 a medical nature. And so my purpose there were to</p> <p>4 answer her inquiries.</p> <p>5 Q. What did Dr. Picard ask you? 09:26:40</p> <p>6 A. She asked me about some of the things</p> <p>7 that later appeared in my rebuttal report. I can't</p> <p>8 recall if my rebuttal report had been submitted at</p> <p>9 the time. But they were about arrhythmias, the</p> <p>10 causes of the arrhythmias, the definition of 09:26:53</p> <p>11 arrhythmias.</p> <p>12 Q. What did you tell Dr. Picard in response</p> <p>13 to her questions during that conversation?</p> <p>14 A. My recollection is she asked me about</p> <p>15 tachycardia, what tachycardia is, and what 09:27:08</p> <p>16 circumstances one can have tachycardia and how</p> <p>17 tachycardia is diagnosed.</p> <p>18 Q. Anything --</p> <p>19 A. Oh, I'm -- I'm sorry to interrupt. I</p> <p>20 was -- and arrhythmia is like tachycardia, just to 09:27:21</p> <p>21 be precise.</p> <p>22 Q. And what did you tell her in response to</p> <p>23 those questions?</p> <p>24 A. I -- I defined tachycardia. I gave her</p> <p>25 my definition, which I believe is the standard 09:27:36</p> <p style="text-align: right;">Page 17</p>

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