# UNITED STATES INTERNATIONAL TRADE COMMISSION

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In the Matter of Investigation No.

CERTAIN WEARABLE ELECTRONIC 337-TA-1266

DEVICES WITH ECG FUNCTIONALITY AND

COMPONENTS THEREOF

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### OPEN/CLOSED SESSIONS

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- 1 analysis this morning.
- JUDGE ELLIOT: That's right. Thank you. Now I
- 3 remember. Very good. All right.
- 4 We're on the public record. And I'm waiting for
- 5 Dr. Stultz.
- 6 Good morning Dr. Stultz. Let me remind you
- 7 you're still under oath.
- 8 COLLIN STULTZ,
- 9 having been previously duly sworn and/or
- 10 affirmed on his oath, was thereafter examined and testified
- 11 further as follows:
- 12 DIRECT EXAMINATION (resumed)
- 13 BY MR. AMON:
- Q. Good morning, Dr. Stultz. I'd like to now start
- 15 with your obviousness analysis.
- 16 If we could bring up RDX-3.39.
- 17 What framework did you use in analyzing your --
- 18 whether the Asserted Patents are invalid for obviousness?
- 19 A. So the framework I use is as illustrated on this
- 20 slide. There were four steps in the process.
- 21 First, to determine the scope and content of the
- 22 prior art, and to understand differences between that art
- 23 and the patent claim, and all of this is done within the
- 24 context of the person of ordinary skill in the art at the
- 25 time, and then, lastly, there were specific secondary



- 1 considerations presented, is my understanding, by AliveCor,
- 2 and the question there is whether those considerations
- 3 affected my view.
- 4 Q. Dr. Stultz, what is Apple's burden in proving
- 5 that the Asserted Patents are invalid?
- 6 A. It is my understanding that it must be shown by
- 7 clear and convincing evidence.
- 8 Q. And just to backtrack for one second, is it your
- 9 understanding that Apple's burden is clear and convincing
- 10 for the patent-ineligible subject matter as well?
- 11 A. That is my understanding.
- 12 Q. If we go to RDX-3.40. What is this timeline,
- 13 Dr. Stultz?
- 14 A. So this timeline includes the relevant dates for
- 15 the patents in question, and it also outlines, briefly,
- 16 papers that represent the state of the art at the time.
- 17 So just -- I'm sorry to interrupt, but just to
- 18 expand upon that a little bit.
- 19 When I began this process, what I did was sit in
- 20 front of my computer and do a literature search setting the
- 21 time frame to 2013, which is the earliest date for the '499
- 22 and '731 patents, and then gathered the papers, and I think
- 23 there were maybe 50 to a hundred papers that were -- and
- 24 then reviewed those data.
- 25 And I think what was known at the time and the



- 1 work going on at the time is well encapsulated by these four
- 2 references in green.
- 3 MR. AMON: For the record, Your Honor, the
- 4 references that Dr. Stultz is referring to are RX-560,
- 5 RX-562, RX-554, and RX-563.
- Q. Dr. Stultz, if we go to RDX-3.41, what is on this
- 7 slide here?
- 8 A. So this are the three primary references that I
- 9 rely on for my obviousness argument. There is AMON 2004 and
- 10 then there are two additional references, Kotzin, which was
- 11 published in 2004, and Almen published in 2008.
- 12 Q. Let me pause there for a second.
- 13 MR. AMON: Your Honor, I think there was a little
- 14 feedback. I don't know if you heard that.
- 15 (Clarification by reporter.)
- 16 JUDGE ELLIOT: I'm sorry. I was muted. I was
- 17 actually trying to say something and I was muted. I don't
- 18 know who that was, but, if you're not on video, please mute
- 19 yourself.
- 20 MR. AMON: For the record, Your Honor, the AMON
- 21 reference is RX-419, the Almen reference is RX-400, and the
- 22 Kotzin reference is 401.
- 23 What is the date of the AMON reference?
- A. The AMON reference is December 2004.
- Q. What is the date of the Almen reference?



- 1 A. That's also in December of 2008.
- 2 O. And, finally, what is the date of the Kotzin
- 3 reference?
- 4 A. That was February 2004.
- 5 Q. If we go to RDX-3.42. What does the AMON
- 6 reference disclose?
- 7 A. So Amon describes a wearable medical monitoring
- 8 alert system, particularly targeting high-risk cardiac
- 9 respiratory patients.
- 10 The interesting thing here is that this is a
- 11 wrist-worn device that encompasses multiple sensors, sensors
- 12 including SpO2, blood pressure, and ECG.
- 13 O. Just so that the record is clear, does an SpO2
- 14 sensor include a PPG?
- 15 A. That's right. So SpO2 technology is based on PPG
- 16 technology. Indeed, PPG gives you changes in the blood
- 17 volume in a particular vascular bed, so it sort of gives you
- 18 an estimate of the pulse rate. And the SpO2 builds on that
- 19 technology by incorporating different light sensors that
- 20 allow you to estimate the oxygenation in the corresponding
- 21 blood.
- 22 Q. If we go to RDX-3.43, was the AMON reference
- 23 cited by others in the field before May of 2015?
- A. So in my literature search, I found one paper
- 25 that was listed on the left that specifically references



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