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# Transcript of Martin C. Peckerar, Ph.D. (Volume 3)

**Date:** September 10, 2021

**Case:** PEAG LLC, et al -v- VARTA Microbattery GMBH. (PTAB)

**Planet Depos**

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UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE PATENT TRIAL AND APPEAL BOARD

PEAG LLC (d/b/a JLab Audio), AUDIO PARTNERSHIP LLC  
and AUDIO PARTNERSHIP PLC (d/b/a Cambridge Audio),

Petitioner,

v.

VARTA MICROBATTERY GMBH,

Patent Owner.

Case IPR2020-01211  
USP 9,496,581

Case IPR2020-01212  
USP 9,153,835

Case IPR2020-01213  
USP 9,799,858

Case IPR2020-01214  
USP 9,799,913

VIDEOTAPED DEPOSITION OF MARTIN C. PECKERAR, PH.D.

VOLUME 3

Conducted Virtually

Friday, September 10, 2021

8:56 a.m. EDT

Job No.: 395274

Pages: 351 - 445

Reported by: Monique Vouthouris, CCR, RPR, CRR

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REMOTE VIDEOTAPED deposition of MARTIN C.  
PECKERAR, PH.D., pursuant to notice, before Monique  
Vouthouris, CCR, RPR, CRR, Notary Public in and for  
the States of New Jersey and New York.

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2

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ALSO PRESENT:

JEAN-LOUIS ZIESCH, Planet Depos Videographer

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C O N T E N T S

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By Mr. Mueller	439

E X H I B I T S

(Attached to transcript.)

DEPOSITION EXHIBIT	PAGE
Exhibit 1005 U.S. Patent Application	376
Pub. No. US 2005/0233212, Kaun.	
Exhibit 1039 Publication of Unexamined	386
Patent Application (A), Kannou.	
Exhibit 1040 U.S. Patent Application,	399
Pub. No. US 2007/0218356, Kawamura.	
Exhibit 2050 Supplemental Declaration of	360
Martin C. Peckerar, Ph.D.	

1 P R O C E E D I N G S

2 08:55:45

3 THE VIDEOGRAPHER: This is the beginning of 08:55:45

4 Media Number 1, Volume Number 3 of the continuation of 08:55:48

5 the videotaped deposition of Dr. Martin Peckerar, in 08:55:52

6 the matter of PEAG LLC, et al., versus VARTA 08:55:56

7 Microbattery, et al., in the U.S. Patent and Trademark 08:56:03

8 Office, Case Number IPR 2020-01211, -12, -13, and -14. 08:56:08

9 Today's date is Friday, September the 10th, 08:56:18

10 2021. The time on the video monitor is 8:56 a.m. 08:56:23

11 Eastern Standard Time. The certified videographer 08:56:30

12 today is Jean-Louis Ziesch representing Planet Depos. 08:56:33

13 This video deposition is taking place remotely. 08:56:37

14 Would counsel please identify yourself and 08:56:40

15 state whom you represent. 08:56:42

16 MR. PALMIERI: On behalf of the petitioners 08:56:45

17 PEAG LLC, Audio Partnership LLC and Audio Partnership 08:56:50

18 PLC, my name is Nick Palmieri, with Baker Botts. Here 08:56:55

19 with me is Paul Ragusa, also with Baker Botts. 08:56:59

20 MR. MUELLER: This is Wes Mueller from 08:57:03

21 Leydig Voit & Mayer in Chicago, on behalf of the 08:57:09

22 patent owner VARTA Microbattery GmbH. 08:57:11

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1 THE VIDEOGRAPHER: The court reporter today 08:57:16  
2 is Monique Vouthouris representing Planet Depos. 08:57:17  
3 Would the court reporter please swear in the witness. 08:57:20  
4 MARTIN C. PECKERAR, PH.D., 08:57:41  
5 being first duly sworn or affirmed by the Notary, 08:57:41  
6 testifies as follows: 08:57:41  
7 EXAMINATION 08:57:41  
8 BY MR. PALMIERI: 08:58:00  
9 Q Good morning, Dr. Peckerar. How are you 08:58:00  
10 doing today? 08:58:03  
11 A Doing well. Hopefully you are, too. 08:58:04  
12 Q So before we get started, I just wanted to 08:58:06  
13 ask is there anyone else in the room with you right 08:58:10  
14 now? 08:58:12  
15 A Yes. Mr. Mueller and Mr. Wittmann. 08:58:13  
16 Q So as a preliminary matter, you've prepared 08:58:21  
17 two declarations in this case so far. Is that 08:58:25  
18 correct? 08:58:28  
19 A Yes, there are two transcripts here. 08:58:28  
20 Q Well, so the transcripts I believe are 08:58:35  
21 referring to previous depositions. But for the IPRs 08:58:42  
22 at issue, you prepared two expert declarations? 08:58:45

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1	A	Yes.	08:58:49
2	Q	Just for ease of reference, I'll refer to	08:58:49
3		your most recent declaration as either your	08:58:54
4		supplemental declaration or your declaration since	08:58:57
5		that's the primary topic of this -- this deposition.	08:59:00
6	A	Yes.	08:59:03
7	Q	If I refer to the first declaration at all,	08:59:03
8		I'll refer to it as your original declaration.	08:59:06
9	A	Yes.	08:59:10
10	Q	And you prepared this supplemental	08:59:10
11		declaration on behalf of the patent owner VARTA. Is	08:59:15
12		that correct?	08:59:18
13	A	That's correct.	08:59:18
14	Q	And you -- did you prepare the entire	08:59:19
15		supplemental declaration?	08:59:20
16	A	Yes.	08:59:23
17	Q	Did you have any assistance in preparing	08:59:24
18		this declaration?	08:59:27
19	A	Well, I didn't type it up or put it in	08:59:28
20		format. I supplied all the technical content,	08:59:31
21		outlined the figures and even modified the figures	08:59:37
22		with color, yeah.	08:59:40

1 Q And so -- who provided this assistance to 08:59:42  
2 you? 08:59:46

3 A Well, that was done by Leydig. They have a 08:59:46  
4 drafting office. 08:59:49

5 Q But you prepared the substantive content of 08:59:52  
6 each section. That's correct? 08:59:56

7 A Yes. 08:59:58

8 Q And in preparing this declaration, did you 08:59:59  
9 review any particular materials? 09:00:05

10 A Yes, of course, and those are listed in one 09:00:09  
11 of the sections of my -- of my supplemental report. 09:00:12

12 Q And if -- if we could bring onto the screen, 09:00:17  
13 I circulated a copy of the supplemental declaration. 09:00:22  
14 And on pages 1 and 2 of that declaration, you list the 09:00:27  
15 materials that you considered? 09:00:34

16 A Yes, Section III. 09:00:37

17 Q Section III, that's right. And did you 09:00:38  
18 review any other materials not listed in that section? 09:00:41

19 A Those are the materials that I spent most 09:00:45  
20 time on and they're -- 09:00:48

21 THE TECHNICIAN: Mr. Palmieri, would you 09:00:52  
22 like this marked as an exhibit? 09:00:54

1 MR. PALMIERI: Yes. Could you mark it as 09:01:01  
2 Exhibit 2050. It should already be physically marked 09:01:05  
3 in the copy, but... 09:01:09  
4 (Exhibit 2050, Supplemental Declaration of 09:01:09  
5 Martin C. Peckerar, Ph.D., marked for identification.) 09:01:18  
6 Q Okay. And so if you used any reference or 09:01:18  
7 reviewed any -- any materials for this declaration 09:01:22  
8 for -- in any substantive manner, they will be listed 09:01:26  
9 in that Section III. Is that correct? 09:01:30  
10 A Yes. Yes. 09:01:32  
11 Q And before we go on, are there any errors or 09:01:34  
12 corrections that you're aware of in your supplemental 09:01:38  
13 declaration that you would like to resolve? 09:01:42  
14 A I have none. I don't -- it is possible that 09:01:45  
15 I missed a typo or two. I would apologize for that. 09:01:50  
16 Q So you were previously deposed on June 2nd 09:01:55  
17 and 3rd. Is that correct? 09:01:59  
18 A I believe that was the case. 09:02:02  
19 Q Did you review those deposition transcripts? 09:02:04  
20 A Yes. 09:02:09  
21 Q Did you review them in anticipation for 09:02:09  
22 today's deposition or did you just generally review 09:02:12

1 them? 09:02:16

2 A Just generally reviewed them. 09:02:16

3 Q All right. Did you discuss your deposition 09:02:19

4 testimony with anyone? 09:02:22

5 A After the deposition was given, yes, I did. 09:02:25

6 Q And that was -- with whom did you discuss? 09:02:31

7 A With Leydig counsel, to some extent. 09:02:34

8 Q Did you discuss with anyone else? 09:02:38

9 A No. 09:02:41

10 Q You did not discuss with anyone at VARTA 09:02:41

11 directly. Is that correct? 09:02:45

12 A No. Well, I met with -- with VARTA 09:02:47

13 personnel. Not in conjunction with these -- with 09:02:52

14 these records and proceedings. 09:02:56

15 Q So you didn't -- you did not -- just to 09:02:59

16 clarify, you did not discuss your deposition 09:03:02

17 transcript with any VARTA personnel? 09:03:04

18 A No. 09:03:09

19 Q And did you discuss whether any of your 09:03:09

20 previous testimony in those depositions was contrary 09:03:12

21 to any of VARTA's positions? 09:03:15

22 A No. 09:03:17

1 Q Since your previous deposition, have you 09:03:18  
2 been deposed in any other matters? 09:03:23  
3 A No. 09:03:27  
4 Q And have you done anything to prepare for 09:03:34  
5 today's deposition specifically? 09:03:36  
6 A Well, I read over my supplemental report a 09:03:37  
7 number of times, and I -- I looked -- looked at the 09:03:42  
8 materials that were referenced therein. That would be 09:03:51  
9 the extent of my preparation. 09:03:57  
10 Q So in addition to the supplemental 09:04:00  
11 declaration, you reviewed other -- other relevant 09:04:03  
12 materials that might have been cited therein? 09:04:07  
13 A Well, the supplemental included a number 09:04:11  
14 of -- of references that were not in the original 09:04:17  
15 deposition. But I believe those were all pretty 09:04:22  
16 well-documented and listed in the supplemental. 09:04:26  
17 Q But you didn't -- you didn't refer, in 09:04:29  
18 preparation for today, to any materials that are 09:04:32  
19 outside of your supplemental declaration? 09:04:34  
20 A No. 09:04:37  
21 Q Okay. And did you prepare with anyone? 09:04:39  
22 A Most of the work that I did, of course, 09:04:44

1 was -- was my own reading and review of all the -- of 09:04:48  
2 the supplemental and the cited materials in the 09:04:54  
3 supplemental. I did have some conversation with -- 09:04:57  
4 with Leydig. 09:05:03  
5 Q And do you know when you met with VARTA's 09:05:05  
6 counsel? 09:05:10  
7 A I would have to go back to my hours log. I 09:05:10  
8 don't have that with me. 09:05:14  
9 Q Do you have an approximate period of time 09:05:15  
10 that you met with them? 09:05:19  
11 A Well, yeah, I would -- well, certainly 09:05:20  
12 between -- between the deposition in June and today 09:05:25  
13 there have been a couple of conversations, yeah. 09:05:28  
14 Q But in preparation specifically for this 09:05:31  
15 deposition have you met with them? 09:05:34  
16 A Well, I certainly met with them before this 09:05:36  
17 deposition and we discussed issues relating to it. 09:05:40  
18 Q Okay. And do you know about how -- at least 09:05:43  
19 how many times you've met with them, just a rough 09:05:46  
20 idea? 09:05:49  
21 A I would say maybe three or four times. As I 09:05:49  
22 said, I'd have to look at my hours log. I'm not sure. 09:06:03

1 I don't believe that this was part of the -- of the 09:06:08  
2 materials considered section. 09:06:10

3 Q So in terms of your supplemental 09:06:15  
4 declaration -- yeah, supplemental declaration itself, 09:06:20  
5 I'd like to turn to what is marked as page 7 of 09:06:23  
6 Exhibit 2050, and that begins Section 5.A.1. In this 09:06:31  
7 section you discuss -- you discuss dendrite growth. 09:06:41  
8 Is that correct? 09:06:49

9 A Yes. 09:06:49

10 Q Do you recall that? 09:06:49

11 A Yes. Yes. 09:06:50

12 Q So can you describe in your words how 09:06:52  
13 dendrites form? 09:06:55

14 A Yes, okay. Dendrites are little trees, 09:06:57  
15 okay. They shoot up from -- from the negative 09:07:01  
16 terminal plates of a battery. Just about any battery, 09:07:05  
17 by the way. And in the case of a lithium battery, the 09:07:11  
18 problem is that lithium intercalates into the cathode; 09:07:17  
19 in other words, it inserts itself into little passages 09:07:22  
20 in the -- in the storage material that constitute the 09:07:27  
21 cathode. And sometimes that -- that insertion process 09:07:32  
22 lags the arrival rate of the -- of various ions, like 09:07:40

1 a lithium ion. And as a result, a tree grows up 09:07:46  
2 because the material beneath it can't absorb it. It's 09:07:50  
3 a lot like macular degeneration, but we won't get into 09:07:55  
4 that. 09:08:00

5 The -- and so there are two requisites for 09:08:03  
6 the -- for the tree-forming site. The region in which 09:08:07  
7 the tree grows has to be particularly attractive to 09:08:13  
8 the ion in solution, and that ion has to be 09:08:19  
9 incident -- what we call a -- it's called a nucleating 09:08:26  
10 site, and the tree will grow up from the nucleating 09:08:30  
11 site, which is triggered by a reduction in free energy 09:08:37  
12 of the ion itself. And so you get these tree-like 09:08:40  
13 structures shooting up. 09:08:45

14 Would you like some more? Let me also say, 09:08:46  
15 I mean, in secondary cells, dendrite formation is a 09:08:50  
16 major problem in just about every cell that you can 09:08:58  
17 imagine. I did a lot of work in trying to develop 09:09:01  
18 rechargeable zinc batteries. We had a hell of a time 09:09:05  
19 with dendrites in rechargeable zinc. 09:09:10

20 Q So following up on that, can you describe -- 09:09:15  
21 and maybe I just missed this a little -- where the 09:09:19  
22 dendrite formation begins at. So we have -- and, 09:09:24



1 actually, let me clarify that a little more. So let's 09:09:28  
2 say we have an electrode layer and a separator layer 09:09:32  
3 and a second electrode layer. Can you describe where 09:09:36  
4 in that configuration the dendrite formation would 09:09:42  
5 begin? 09:09:45

6 MR. MUELLER: Objection to form. 09:09:45

7 A Well, let's see here. Okay. It will form 09:09:53  
8 in what we call nucleating sites, areas where the ion 09:10:05  
9 motion is impeded and is more likely to plate, and 09:10:11  
10 that -- and there could be secondary considerations as 09:10:22  
11 well. I mean, let's suppose that -- of course, all of 09:10:25  
12 the separated materials that we discuss are either 09:10:30  
13 woven, meaning that they have fibers across one 09:10:36  
14 another which leave pores, the nucleation might occur 09:10:40  
15 within a pore, and it might be assisted by a kind of 09:10:45  
16 scaffolding that a separator represents. And that 09:10:50  
17 will be true in other ionic separators, like Nafion or 09:10:53  
18 other materials as well. 09:10:59

19 So, so does that answer your question, if 09:11:01  
20 you'd like? 09:11:09

21 Q That helps. I have some follow-ups on it. 09:11:10

22 A Okay. 09:11:12

1 Q So can -- can these nucleating sites be 09:11:13  
2 found on the electrode layers as opposed to the 09:11:18  
3 separator materials? 09:11:21

4 A Yeah, they can pretty well form anywhere, 09:11:22  
5 yes. 09:11:25

6 Q And so is the separator material usually 09:11:27  
7 chosen to reduce dendrite formation? 09:11:32

8 MR. MUELLER: Objection to form. 09:11:36

9 A Well, you do what you can to get rid of the 09:11:40  
10 dendrites, okay. You use surface treatments, you 09:11:45  
11 choose the separator materials. In the barer areas, I 09:11:49  
12 mean, that was relatively easy to address because in 09:11:57  
13 the barer areas you generally see -- see structures 09:12:01  
14 forming which we call mounds. Maybe I'm getting ahead 09:12:05  
15 of my report, but you have to remember I taught this 09:12:11  
16 stuff for a long time so you'll excuse me for waxing 09:12:14  
17 poetic. 09:12:19

18 We use brightener additives to plating mast 09:12:20  
19 to avoid mounding, and the -- and so there were a 09:12:26  
20 number of approaches that you would use to eliminate 09:12:32  
21 dendrite formation. 09:12:37

22 Q So I want to look at a specific example and 09:12:39

1 so this will be the Kaun reference, which you discuss 09:12:42  
2 throughout your report. It's Exhibit 1041 in these 09:12:49  
3 IPRs. We can stay on the same Exhibit 2050 as well, 09:12:54  
4 that's all right. 09:13:00

5 So, Dr. Peckerar, in Kaun we have a specific 09:13:02  
6 example of a spiral wound electrode assembly, with a 09:13:09  
7 separator located in between the electrode layers. Is 09:13:13  
8 that correct? 09:13:18

9 A Yes. 09:13:18

10 MR. MUELLER: Objection to form. 09:13:19

11 Q And one of the topics of discussion for that 09:13:22  
12 reference is the formation of gaps between the 09:13:26  
13 separator materials. Do you recall that? 09:13:30

14 MR. MUELLER: Objection to form. 09:13:33

15 A Yes, I recall that discussion. 09:13:35

16 Q And so bringing -- bringing the dendrites 09:13:39  
17 back in, would dendrites form in the electrode 09:13:46  
18 assembly of Kaun? 09:13:50

19 MR. MUELLER: Objection to form. 09:13:52

20 A As I just testified, dendrites can form 09:13:53  
21 wherever. Nucleating sites develop and nucleating 09:13:59  
22 sites can develop pretty much anywhere. 09:14:04

1 Q So the nucleating sites could form on the 09:14:07  
2 electrode layers of Kaun? 09:14:10

3 MR. MUELLER: Objection to form. 09:14:12

4 A And in the separators as well. Anywhere. 09:14:14

5 Q So could they form in the gap between the 09:14:20  
6 separator layers? 09:14:23

7 MR. MUELLER: Objection to form. 09:14:24

8 A As I said, I do have a section on this in my 09:14:32  
9 supplemental report, but let me say yes, they could 09:14:36  
10 form in those regions. 09:14:40

11 Q And if they form in the gap regions, would 09:14:45  
12 there be anything to inhibit their growth? 09:14:48

13 MR. MUELLER: Objection to form. 09:14:51

14 A What would inhibit their growth would be the 09:14:52  
15 rate of arrival of the -- of the ion that constitutes 09:14:58  
16 the dendrite, and -- and what that arrival rate is 09:15:03  
17 depends on a number of things. And I wouldn't say 09:15:11  
18 that there's any reason to believe that that arrival 09:15:15  
19 rate or the density of nucleating sites would be 09:15:19  
20 different in either the gap or in the region over 09:15:24  
21 the -- beneath the separator. 09:15:28

22 In fact, as I mentioned earlier, there's 09:15:31

1 reason to believe that the separator might serve as a 09:15:33  
2 scaffolding that support the growth of the tree. 09:15:36

3 Q So does the separator then form to -- 09:15:42  
4 apologies, let me rephrase that. 09:15:48

5 Does the separator then act to inhibit the 09:15:50  
6 growth of dendrites so that they cannot form a 09:15:53  
7 connection between the electrode layers? 09:15:58

8 MR. MUELLER: Objection to form. 09:16:00

9 A There's no reason to believe that. 09:16:02

10 Q So it's your testimony that the separator 09:16:06  
11 does not inhibit -- 09:16:08

12 A It could actually -- it could actually speed 09:16:11  
13 it up, but you'd have to -- there's a tremendous 09:16:13  
14 amount of literature on this. I believe we've 09:16:19  
15 included some of that in our -- I've included that in 09:16:23  
16 my report and -- but as I said, you can get little 09:16:27  
17 trees forming anywhere. 09:16:34

18 Q And so you have another section here, and 09:16:37  
19 it's on pages 8 to 9 of Exhibit 2050, that describes 09:16:40  
20 the use of a polyvinylidene fluoride, also known as 09:16:48  
21 Kynar, that's described in the Kaun reference. 09:16:56

22 A Right. 09:16:59

1 Q Can you -- can you describe what this Kynar 09:16:59  
2 is doing? And apologies if I'm saying that wrong. 09:17:03  
3 I'm happy to take a corrected pronunciation if you 09:17:07  
4 have it. 09:17:11  
5 A Yeah, no, it is Kynar. I believe he 09:17:12  
6 pronounces his name Kaun. 09:17:15  
7 If -- if the butt joint is too large, of 09:17:21  
8 course there's a danger that you could -- there are 09:17:29  
9 certain deleterious effects that could occur, but -- 09:17:33  
10 and so if you're worried about that, according to 09:17:37  
11 Kaun, you can put Kynar, which is a resin, an 09:17:42  
12 insulating resin, and solve the problem. 09:17:47  
13 Q And this Kynar would prevent dendrite 09:17:53  
14 formation? 09:17:58  
15 A I think that that -- I don't -- that 09:18:01  
16 certainly wouldn't eliminate the dendrite problem, no. 09:18:07  
17 But it -- it would prevent the formation of other 09:18:11  
18 types of deleterious effects, and I believe that was 09:18:19  
19 the main issue. 09:18:26  
20 Q So you've noted a couple times the -- the 09:18:28  
21 effects that can be caused from a gap forming. Could 09:18:33  
22 you describe some of those deleterious effects? 09:18:38

1           A       Obviously you've got a separator, right, and       09:18:42  
2       on top of and on bottom under the active electrodes.       09:18:49  
3       And if you've got this huge gap, when you squeeze       09:18:54  
4       things together, you short the electrodes out.       09:19:00

5                       Also, we make a big deal -- okay. We make a       09:19:02  
6       big deal about particle sizes, okay. We choose the       09:19:12  
7       particle sizes to be large enough in the active       09:19:17  
8       material so that -- just large enough so that they       09:19:23  
9       won't penetrate the separator material themselves and       09:19:26  
10       also they wouldn't fall into any -- to create shorts       09:19:29  
11       in themselves.       09:19:37

12                      So we -- so we -- as a matter of fact, in       09:19:39  
13       one of my companies we had a very expensive particle       09:19:46  
14       size sorter and we would choose specific particle       09:19:51  
15       sizes that wouldn't crash through the separator and at       09:19:54  
16       the same token wouldn't fill up the pores of the       09:20:00  
17       materials that we were using. They would be -- they       09:20:03  
18       wouldn't be too small, they wouldn't be too big;       09:20:06  
19       they'd be just right. But these are all the       09:20:11  
20       considerations that go into battery manufacturing.       09:20:14

21                      So those are some of the issues; there will       09:20:16  
22       be shorting out of the layer and what all, which I       09:20:19

1 think would be rare, even in Kaun's case. Or the 09:20:21  
2 particles which would pierce the layer for -- well, 09:20:26  
3 those are the main issues, so that would outline. 09:20:35  
4 Q And so -- so going back to this Kynar 09:20:39  
5 material, if we assume that it's being used as an 09:20:44  
6 adhesive to fill that gap, what differentiates it from 09:20:49  
7 the separator material? 09:20:55  
8 MR. MUELLER: Objection to form. 09:20:56  
9 A Well, Kynar is non-conductive resin. Now, 09:20:57  
10 the separator materials -- as I've testified 09:21:19  
11 previously, the separator materials are highly 09:21:24  
12 engineered structures and they're aimed at passing 09:21:27  
13 ions of a certain type. Now, clearly the Kynar isn't 09:21:31  
14 an engineered material that was designed to do that. 09:21:38  
15 So it might lead to some effective area reduction of 09:21:42  
16 the battery plate. Not a lot. 09:21:50  
17 Q So the -- 09:21:50  
18 A Small amount. 09:22:01  
19 (Court Reporter clarification.) 09:22:01  
20 A Not a lot, small amount. 09:22:04  
21 Q So the Kynar doesn't facilitate ionic 09:22:04  
22 conduction the way that the separator material does? 09:22:10





1 discusses the central fastener of Kaun. Is that 09:23:35  
2 correct? 09:23:41  
3 A Yes. 09:23:41  
4 Q And you reproduce on the next page, page 13, 09:23:46  
5 you reproduce a number of figures from Kaun. Do you 09:23:52  
6 see those? 09:23:56  
7 A Yes. 09:23:57  
8 Q If we're looking only at Figure 7A, is the 09:24:00  
9 central fastener shown in that figure? 09:24:07  
10 A No. 09:24:10  
11 Q And then moving on to Figure 7C, do those 09:24:14  
12 figures show -- does Figure 7C show a central 09:24:20  
13 fastener? 09:24:24  
14 A Yes and yes. 09:24:25  
15 Q And if we could move into Kaun itself, and 09:24:27  
16 that's Exhibit -- apologies, I don't remember the 09:24:33  
17 exact exhibit number for Kaun. Sorry, just one 09:24:41  
18 second. 09:24:56  
19 So Kaun is Exhibit 1005 of these IPR 09:25:35  
20 proceedings. 09:25:41  
21 A Yes. 09:25:42  
22 MR. PALMIERI: And, Sarah, could we bring 09:25:48

1 that up as well on the screen. 09:25:51

2 THE TECHNICIAN: Is that the document ending 09:26:02

3 in U.S. 2005/0233212? 09:26:04

4 MR. PALMIERI: That's correct, yeah. Yes, 09:26:10

5 starts with K-a-u-n. Great. Thank you. 09:26:11

6 (Exhibit 1005, U.S. Patent Application Pub. 09:26:11

7 No. US 2005/0233212, Kaun, marked for identification.) 09:26:11

8 BY MR. PALMIERI: 09:26:20

9 Q So I want to look at paragraph 69 of 0069, 09:26:20

10 which corresponds with those figures that we were just 09:26:29

11 looking at, 7A through 7D. 09:26:33

12 A You just passed it. 09:26:38

13 Q It should be on page 4 -- page 15 of this 09:26:40

14 PDF, overall? 09:26:44

15 A Is that the one you're referring to? 09:26:47

16 Q Yeah. So those are the figures, and then if 09:26:49

17 we can go to paragraph 0069 on this specific language. 09:26:52

18 THE TECHNICIAN: I'm sorry, I'm not entirely 09:27:04

19 sure where to go. 09:27:06

20 MR. PALMIERI: Sorry. So within Kaun, if 09:27:07

21 you could go to page -- page 15 of the PDF, and on 09:27:11

22 that page is paragraph 69, on the left there, yeah. 09:27:18

1 Perfect. Thanks. 09:27:29

2 Q Okay. So in paragraph 69 we can see there's 09:27:31

3 a description of Figure 7C that says it "depicts the 09:27:38

4 outer pan of the housing for the electrochemical 09:27:43

5 device, including the central [sic] fastener, 09:27:46

6 polymeric tube." Do you see that portion, 09:27:50

7 Dr. Peckerar? 09:27:55

8 A Yes, I do. 09:27:56

9 Q And so does this imply to you that there's 09:27:57

10 an embodiment that doesn't have a central fastener as 09:28:00

11 well -- 09:28:04

12 MR. MUELLER: Objection to form. 09:28:05

13 Q -- and actually specifies -- 09:28:06

14 A Well, as I've testified before, the center 09:28:08

15 fastener is an essential part of this construct, and 09:28:13

16 what you said doesn't contradict that. 09:28:16

17 Q So can you describe the purpose of the 09:28:20

18 center fastener in Kaun? 09:28:23

19 A Sure. Okay. Most of the cells that have 09:28:26

20 been discussed in the past all had beaded -- what 09:28:36

21 we've been terming beaded over seals, beaded over 09:28:44

22 closure, and these present a mechanical impediment to 09:28:48

1 the motion the can separating from the top. 09:28:51

2 These cells, for various reasons, don't 09:28:54

3 and -- but this is -- by the way, I mean, if you look 09:28:57

4 at the patents cited, that's a rare case now. What -- 09:29:02

5 what the -- what the issue is is you need as much 09:29:11

6 force that would prevent motion along the axis of the 09:29:17

7 top and can. Usually a single approach isn't enough, 09:29:25

8 and that's what's cited here. 09:29:30

9 In this particular case, there is a 09:29:35

10 requirement for that center fastener, in this case the 09:29:38

11 polymeric tube, which can be affixed in a number of 09:29:42

12 ways to the can, in this case the can top, and then 09:29:47

13 there would be a mating member on the bottom. And 09:29:55

14 these would supply the necessary force-fit separate, 09:30:01

15 hold the cell together. And if this is a polymeric 09:30:08

16 tube, there are a number of ways to affix that tube to 09:30:13

17 the can top, and that would explain why it doesn't -- 09:30:16

18 it isn't shown in Figure A as penetrating. 09:30:19

19 Q And so is this central fastener used to 09:30:25

20 provide pressure-loading to the cell? 09:30:31

21 MR. MUELLER: Objection to form. 09:30:33

22 A Pressure loading? No, not pressure-loading. 09:30:36

1 Q Is it used in the pressure-release mechanism 09:30:42  
2 of Kaun? 09:30:47  
3 MR. MUELLER: Objection to form. 09:30:47  
4 A No. 09:30:48  
5 Q I'd like to look now at Figure 12B of Kaun, 09:30:49  
6 and this is up on page 8 of -- of the PDF. 09:31:00  
7 A The Kaun patent? 09:31:06  
8 Q Yes, page 8 of the Kaun patent. 09:31:08  
9 A Yup. 09:31:12  
10 Q And can you describe what this figure is 09:31:14  
11 showing? 09:31:16  
12 A Yeah. It's spring-load. It's an additional 09:31:17  
13 method of ensuring closure of the can, of the housing. 09:31:23  
14 You've got little springs, 38, that screw down and 09:31:30  
15 hold the cells together. Kaun was greatly afraid of 09:31:37  
16 the cells blowing apart, and so he used a number of 09:31:42  
17 approaches to ensure that that didn't happen. 09:31:45  
18 Q And is there a central fastener in this 09:31:48  
19 figure? 09:31:52  
20 MR. MUELLER: Objection to form. 09:31:53  
21 A Honestly, of course, that would appear in 09:31:54  
22 the -- in those central regions full of rectangles. 09:32:00

1 While I don't see it, it doesn't mean it's not there. 09:32:08

2 Q But you can't identify a central fastener 09:32:11

3 that's shown in this figure. Is that correct? 09:32:15

4 A Yes. But in the body of the patent he 09:32:18

5 refers to the need for the center fastener over and 09:32:20

6 over, as well as the claim. 09:32:23

7 Q And I'd like to go now down to paragraph 09:32:28

8 120, which is on page 20 of this PDF -- 09:32:32

9 A Okay. 09:32:38

10 Q -- down near the bottom, bottom right of the 09:32:38

11 page. So let's looking -- looking at the last 09:32:41

12 sentence there, it recites, "The gasket 32, usually a 09:32:49

13 polyethylene, can also be an adhesive polymer such as 09:32:54

14 DuPont Surlyn, to seal the cell without 09:32:59

15 pressure-loading where a pressure-release seal is not 09:33:03

16 required." Do you see that? 09:33:09

17 A Yes. 09:33:10

18 Q And so does this embodiment necessarily 09:33:10

19 require a central fastener? 09:33:14

20 MR. MUELLER: Objection to form. 09:33:16

21 A He doesn't teach against it in this 09:33:17

22 paragraph. What he's saying amplifies what we've been 09:33:28

1 talking about earlier, that -- that that outer seal, 09:33:33  
2 the gasket seal, really only provides partial closure 09:33:41  
3 of the cell. The way that works is as the gas build 09:33:45  
4 up, pressure build up in the cell, the housing will -- 09:33:52  
5 will move apart and the -- and a little section at the 09:33:59  
6 bottom of the gasket will open up and that will admit 09:34:09  
7 gas to create a vent. 09:34:17

8 But, you see, the reason I say that that 09:34:19  
9 amplifies what we said earlier is that by itself the 09:34:22  
10 gasket doesn't create a true -- while it -- true 09:34:27  
11 closure of the cell. I mean, and this isn't a truly 09:34:31  
12 closed cell any way you look at it; it's only 09:34:36  
13 intermittently closed because it admits venting. 09:34:40

14 But the idea is that the -- well, if you 09:34:43  
15 look at the -- the housing insert, the top housing 09:34:45  
16 insert, it's elevated, it allows gas egress through -- 09:34:50  
17 through the gasket region. So that indicates that the 09:34:56  
18 gasket by itself isn't a sufficient seal, okay. 09:34:59

19 And so, now, he, again -- he, again, 09:35:04  
20 speculates, throwing this over the wall that, well, if 09:35:12  
21 you want these cells to be truly closed, maybe you 09:35:15  
22 could use DuPont Surlyn. He doesn't cite any data, he 09:35:19



1 doesn't cite he's done this, but he says, well, maybe 09:35:22  
2 you could use a better adhesive. But that is 09:35:26  
3 speculation. 09:35:30

4 Q So -- so in one embodiment of Kaun then, 09:35:32  
5 there's a pressure-release mechanism where the seal 09:35:37  
6 will allow gas to be vented. Is that correct? 09:35:41

7 A Right. The gasket will allow gas venting, 09:35:44  
8 right. 09:35:47

9 Q And -- but in paragraph 120 here, we see an 09:35:47  
10 embodiment where pressure-release seal is not required 09:35:52  
11 in the cell. Is that correct? 09:35:56

12 MR. MUELLER: Objection to form. 09:35:58

13 A No -- first of all, you know, on so many 09:35:59  
14 counts, okay, every cell requires some form of 09:36:08  
15 pressure relief. Just because you're not providing 09:36:12  
16 that venting through the gasket doesn't mean he 09:36:14  
17 doesn't have pressure relief elsewhere in the cell. 09:36:17  
18 These things could be bombs. 09:36:20

19 What he's also citing is something that -- 09:36:27  
20 that isn't followed up on either of the rest of the 09:36:30  
21 patent or in the claims. He's saying, well, you know, 09:36:33  
22 if you really want to stick these things together, 09:36:36

1 maybe you could use a better -- a better adhesive. 09:36:39  
2 But he doesn't cite the degree to which that -- that 09:36:44  
3 adhesive by itself would seal the cell. That doesn't 09:36:50  
4 preclude the center seal -- the center fastener which 09:36:54  
5 he -- which he refers to over and over again in the 09:36:59  
6 patent. 09:37:02  
7 Q Okay. But in -- in this embodiment in 09:37:04  
8 paragraph 120, this embodiment is directed to a cell 09:37:09  
9 that doesn't have the same pressure-release gasket 09:37:17  
10 seal as, you know, the other embodiments that we were 09:37:24  
11 discussing? 09:37:28  
12 MR. MUELLER: Objection to form. 09:37:29  
13 Q Regardless of the central fastener or not, 09:37:29  
14 this, this embodiment doesn't include a 09:37:33  
15 pressure-release seal? 09:37:36  
16 MR. MUELLER: Objection to form. 09:37:38  
17 A But he is not -- he's not discounting the 09:37:42  
18 need for the center fastener here. All he's saying is 09:37:50  
19 that if you have some other -- I mean, this is 09:37:55  
20 again -- I apologize myself for speculating. But 09:37:57  
21 what -- what he is definitely saying here is that -- 09:38:02  
22 that you can do -- you can get better sealing using an 09:38:05

1 adhesive polymer and then the additional venting 09:38:10  
2 mechanism and -- but that does -- that does not -- it 09:38:14  
3 doesn't allow you to leave this center fastener off 09:38:24  
4 altogether. 09:38:29

5 Q And the vent in this embodiment then would 09:38:32  
6 not be at the point -- at the gasket? 09:38:38

7 MR. MUELLER: Objection to form. 09:38:40

8 Q I can rephrase that if you need a better -- 09:38:42

9 A Well, it's my -- well, maybe I shouldn't 09:38:46  
10 render an opinion on this, but let me just state that, 09:38:54  
11 that -- okay. The meaning of this paragraph is 09:38:59  
12 that -- as I've said both in my preliminary report and 09:39:03  
13 the supplementary report is DuPont Surlyn could be 09:39:10  
14 used to provide a one additional mechanism for 09:39:14  
15 sealing. It doesn't discount the need that's 09:39:23  
16 expressed over and over again in the other -- 09:39:27  
17 throughout the patent and claims that there should be 09:39:30  
18 a center seal. 09:39:32

19 Q And so one last question on this. Would the 09:39:36  
20 seal provided by this DuPont Surlyn be airtight? 09:39:39

21 MR. MUELLER: Objection to form. 09:39:43

22 A If Kaun made that statement, it would be 09:39:45

1 speculation. I don't think we have any evidence that 09:39:53  
2 that would be the case. He's citing it's a potential. 09:39:57  
3 Q Okay. So now I'd like to move on to 09:40:05  
4 another -- another piece of prior art, and this is 09:40:08  
5 Exhibit 1039. I will refer to it as Kannou, and this 09:40:11  
6 is a Japanese -- 09:40:21  
7 A Yes. 09:40:21  
8 Q -- patent application, which we provided a 09:40:24  
9 translation for. 09:40:27  
10 MR. PALMIERI: And, Sarah, so that should be 09:40:32  
11 marked as Exhibit 1039 and it's -- 09:40:34  
12 THE TECHNICIAN: Is the exhibit entitled 09:40:39  
13 K-w-o-n? 09:40:44  
14 MR. PALMIERI: No. 09:40:45  
15 THE WITNESS: No. Kannou. 09:40:45  
16 MR. PALMIERI: This is JP2003-031266. 09:40:46  
17 THE TECHNICIAN: I'm sorry, sir, I don't 09:40:52  
18 have that exhibit. 09:40:54  
19 THE WITNESS: Excuse me, may I take a brief 09:40:57  
20 break? 09:41:01  
21 MR. PALMIERI: Yeah, of course. Do you want 09:41:01  
22 to take -- 09:41:01

1 THE WITNESS: 60 seconds. 09:41:02

2 MR. PALMIERI: Yeah, can we go off the 09:41:03

3 record, please. 09:41:04

4 THE VIDEOGRAPHER: It is 9:41 a.m. We go 09:41:05

5 off the record. 09:41:10

6 (Recess 9:41 a.m. - 9:44 a.m.) 09:41:11

7 THE VIDEOGRAPHER: It is 9:44 a.m. We are 09:44:45

8 back on the record. 09:44:49

9 (Exhibit 1039, Publication of Unexamined 09:44:49

10 Patent Application (A), Kannou, marked for 09:44:49

11 identification.) 09:44:51

12 BY MR. PALMIERI: 09:44:51

13 Q All right. So, Dr. Peckerar, I want to move 09:44:59

14 on to Exhibit 1039, and that's Kannou, which is a 09:45:02

15 Japanese application. Let's -- first, when did you 09:45:07

16 first see this -- this piece of art? 09:45:16

17 A This is relatively recent. I mean, the 09:45:19

18 name -- the first wave of patents that I analyzed was 09:45:31

19 Kobayashi and Kaun and others, of course. But I 09:45:39

20 believe that Kannou came in with these -- with these 09:45:46

21 additional -- with the most recent set of patents that 09:45:58

22 we've been discussing here in the supplemental claims. 09:46:07

1 Q So you did not see Kannou prior to your 09:46:15  
2 previous deposition? 09:46:18

3 A I'm -- I can't say with certainty. I 09:46:20  
4 reviewed in detail a large number of patents here. I 09:46:28  
5 don't know the dates in which I analyzed or became 09:46:32  
6 exposed to any one. I know Kannou is relatively 09:46:39  
7 recent in the patent stream. There's no end of 09:46:43  
8 reading here. 09:46:46

9 Q So you don't recall the specific time frame 09:46:47  
10 when you -- when you were first introduced to the 09:46:49  
11 patent? 09:46:52

12 A As I said, it was later -- later than Kaun 09:46:52  
13 and Kobayashi. 09:46:55

14 Q And was this patent application provided to 09:46:57  
15 you by -- by VARTA's counsel? 09:47:02

16 A I believe so. But as I said, honestly, I 09:47:09  
17 have done a lot of reading, this has taken a lot of 09:47:15  
18 time, and I don't remember the sources or the exact 09:47:18  
19 dates on which I received the various documents. 09:47:22

20 Q So just to clarify, you didn't do any 09:47:26  
21 independent searching to find Kannou, to your 09:47:29  
22 recollection? 09:47:32

1           A     No.  But let me also say, I mean, I read the           09:47:34  
2     patent literature.  I still have a semi-functioning           09:47:41  
3     company in this business, so I -- so that -- those           09:47:46  
4     documents I do come across -- I do come across in the           09:47:54  
5     course of my work, so...           09:47:58

6           Q     So I'd like to look starting with Figure 1           09:48:07  
7     of Kannou and that will be on page 7 of the PDF.           09:48:10

8           A     Okay.           09:48:18

9           Q     It might be in multiple spots because since           09:48:18  
10    the translation is mixed with the original here, but           09:48:22  
11    page 7 should be a good location for it.  And then --           09:48:26  
12    near the bottom of the page if you want -- there it           09:48:35  
13    is.           09:48:40

14                    So can you describe this, what's shown in           09:48:44  
15    Figure 1, Dr. Peckerar?           09:48:48

16           MR. MUELLER:  Objection to form.           09:48:51

17           A     Yeah.  Figure 1 is the Kannou battery.  It           09:48:55  
18    is a spirally wound cell with a bead seal.           09:49:03

19           Q     And so those -- so we see several electrode           09:49:09  
20    layers that protrude from the spiral winding.  Is that           09:49:14  
21    correct?           09:49:19

22           A     Yes.  And you can refer to my -- my           09:49:19

1 supplementary report in and around paragraph 15 in 09:49:21  
2 which I discuss this. 09:49:25

3 Q All right. So I believe figure -- element 09:49:27  
4 number 6 and 7 point to the electrode layers, and 09:49:31  
5 those electrode layers make contact with the cell 09:49:35  
6 housing. Is that correct? 09:49:38

7 A Yeah, they kind of spring-load, yes. 09:49:40

8 Q And that's similar to the orientation in one 09:49:44  
9 of the embodiments of Kaun. Is that correct? 09:49:48

10 A No, it's physically different. 09:49:52

11 Q Can you describe those physical differences? 09:49:57

12 A Yeah. As I recall, the Kaun projections, 09:50:00  
13 which do make contact with the top and bottom -- the 09:50:07  
14 top can of the cell, point normal to the cell wall. 09:50:11  
15 Here we see a slight angle allowing for the spring 09:50:17  
16 motion. 09:50:23

17 Q But there's no additional adhesive or any 09:50:23  
18 additional bond or connection between those layers and 09:50:30  
19 the housing in Kannou? 09:50:33

20 MR. MUELLER: Objection to form. 09:50:36

21 A Well, no, in these drawings you don't, and 09:50:37  
22 also, I don't refer to any -- any adhesives of what 09:51:03



1 all holding things together here. This is a beaded 09:51:13  
2 seal. 09:51:17

3 Q And then just to clarify, the electrode 09:51:19  
4 layers are arranged in a spiral wound assembly? 09:51:26

5 A Yes, this is a spiral wound assembly. 09:51:30

6 Q And there's a separator material interposed 09:51:36  
7 between those electrode layers? 09:51:39

8 A Yes. 09:51:42

9 Q And in your opinion, is Kannou closed by 09:51:42  
10 being beaded over? 09:51:49

11 A Yes. 09:51:51

12 Q Do -- do the cut edges of the cell cup 09:51:52  
13 extend over the cell top? 09:52:01

14 A Yes, they do. 09:52:07

15 Q Can you indicate where on this figure you 09:52:09  
16 see that? 09:52:14

17 A Yeah. Look to the left and to the right of 09:52:14  
18 the cell itself and you see this bulge in which the 09:52:17  
19 can top sits within the gasket, and then bent over 09:52:22  
20 that, bent over that little U portion of the curl, 09:52:30  
21 U-shaped portion of the can -- of the can top, okay, 09:52:35  
22 that makes -- that's a beaded over cell. 09:52:40

1 Q Is there any force-fit connection in Kannou? 09:52:46

2 A Kannou's primary seal is this bead. 09:52:54

3 Q So it uses a beaded over closure, in your 09:53:10

4 opinion, but is there any force-fit connection in this 09:53:18

5 cell? 09:53:21

6 MR. MUELLER: Objection to form. 09:53:22

7 A Can you be a bit more clear? I mean, I'm 09:53:23

8 not sure what you mean by force-fit connection, the 09:53:29

9 latter. 09:53:38

10 Q So do you remember providing a definition 09:53:41

11 for a force-fit connection in your supplemental 09:53:44

12 declaration? 09:53:48

13 A I describe all of the -- all of the sealing 09:53:49

14 mechanisms and certainly in those relating to these 09:54:02

15 patents in the supplemental and I'm just looking for 09:54:08

16 the place in which I do. And, you know, if you look 09:54:11

17 at 47, for example, paragraph 47, we see 09:54:16

18 force-fitting -- an example, force-fitting connection 09:54:21

19 in which the can casings, the sides of the can overlap 09:54:26

20 and -- and form a friction fit to the -- between the 09:54:36

21 can top and the can cup. Yeah, I think I address 09:54:46

22 that. 09:54:52

1 Q So how would a -- apologies, please 09:54:54  
2 continue. 09:54:57  
3 A Yeah. I was just wondering, you know, how 09:54:58  
4 you were referring to this. 09:54:59  
5 Q Well, so -- so how would a person of 09:55:01  
6 ordinary skill understand the term "force-fit 09:55:05  
7 connection"? 09:55:10  
8 A Well, of course, I -- I didn't consider in 09:55:10  
9 my original discussion, you know, how a person of 09:55:18  
10 ordinary -- or a layperson, for example, would view 09:55:21  
11 force-fit connection. But what I would say is, you 09:55:27  
12 know, it would be obvious -- what's obvious is that 09:55:32  
13 you force the can top into the can -- into the can cup 09:55:36  
14 and there would be some friction, which would oppose 09:55:40  
15 axial separation. 09:55:46  
16 Q Okay. 09:55:46  
17 A But that's not -- but that's not -- let me 09:55:50  
18 just point out. That's not what's happening here. I 09:55:52  
19 mean, you do see the mechanical impediment, which is 09:55:56  
20 the curled over can, cup on the left and the right of 09:55:58  
21 the drawing. 09:56:03  
22 Q And is -- so is that mechanical impediment 09:56:05

1 in addition to an initial force-fit connection? 09:56:11

2 MR. MUELLER: Objection to form. 09:56:13

3 A That would be speculation. I mean, what's 09:56:16

4 clear is this is a button -- this is a beaded cell, 09:56:19

5 and there is a -- as with most of the cells produced 09:56:23

6 at the time, and the bead represents a mechanical 09:56:30

7 impediment. 09:56:35

8 MR. PALMIERI: So if we can, can we scroll 09:56:38

9 up to paragraph 42 of Kannou, and that's on page 5 of 09:56:42

10 this, of the PDF. 09:56:53

11 Q So this paragraph recites, "In addition, the 09:57:01

12 edge protruding from the roll surface is bent without 09:57:03

13 a notch" -- 09:57:07

14 A Which paragraph are you referring to? 09:57:08

15 Q Apologies. It's paragraph 42. And so I can 09:57:11

16 recite it as well. And this is paragraph 42 of 09:57:26

17 Kannou -- 09:57:33

18 A Yes. 09:57:33

19 Q -- just for reference. So it states, "In 09:57:34

20 addition, the edge protruding from the roll surface is 09:57:37

21 bent without a notch, so a repulsive force that 09:57:41

22 attempts to return the bent part to the original shape 09:57:44

1 can easily act, and thus the contact area between the 09:57:47  
2 protruding edge of the inner surface of the container 09:57:47  
3 can be improved. As a result, the internal resistance 09:57:47  
4 of the battery can be reduced and the discharge 09:57:54  
5 capacity can be enhanced." 09:57:56

6 Can you -- in your opinion, what is this 09:58:02  
7 paragraph referring to? 09:58:06

8 MR. MUELLER: Objection, outside the scope. 09:58:06

9 A Well, okay, let me state two things that 09:58:19  
10 appear in my supplemental report. The -- there were 09:58:26  
11 two -- there were two instantiations of the spiral 09:58:38  
12 wind that were discussed in the patent. One had it at 09:58:46  
13 a single member which acted as a spring-load and 09:58:54  
14 another which had multiple members around the axis of 09:59:00  
15 the cell. And the one member, the single member 09:59:06  
16 pulled current out the end of the wind and required 09:59:14  
17 transport of charge all the way around the wind to 09:59:19  
18 exit. That -- that was the strawman which Kannou -- 09:59:22  
19 which Kannou felt was -- was -- was a poor 09:59:31  
20 representation. It gave higher internal resistance. 09:59:40

21 And as I state in my supplement report, the 09:59:44  
22 higher internal resistance, even in a micro cell, is 09:59:48

1 an important issue; you don't want to have high 09:59:52  
2 internal resistance. By placing multiple contacts 09:59:55  
3 that peel off current from -- from different lengths 09:59:58  
4 along the winding, you reduce the internal resistance. 10:00:01  
5 And you see in 42 he's discussing internal resistance, 10:00:05  
6 okay. 10:00:11  
7 Am I being clear here? 10:00:13  
8 Q Yeah, no, I'm understanding you. Thank you. 10:00:15  
9 A Okay. What he's saying is you've got one 10:00:18  
10 lousy instantiation with one peel-off, and he's 10:00:22  
11 showing -- I think it's kind of an elegant experiment; 10:00:26  
12 it's probably worth a letter at least in some 10:00:29  
13 respected journal -- that if you peel off the current 10:00:32  
14 from various points along the winding, you do two 10:00:35  
15 things; you create a radial spring action that allows 10:00:39  
16 for good contact between the plates and the top and 10:00:44  
17 bottom and the cup floor and the top ceiling, and -- 10:00:49  
18 and you -- and the current paths are smaller, so you 10:00:59  
19 get lower internal resistance. 10:01:06  
20 So Kannou is reciting here the need for 10:01:08  
21 lowering internal resistance. That's, I think, the 10:01:10  
22 main gist of 42. 10:01:13

1 Q Okay. And so on that note, I'd like to go 10:01:16  
2 back down to Figure 7, which is on page 8. It should 10:01:20  
3 be near the top on the right. Yeah, there it is. 10:01:28

4 And I believe -- and please correct me if 10:01:32  
5 I'm wrong -- that this is the alternative embodiment 10:01:34  
6 that you were just discussing? 10:01:39

7 A 6, Figure 6 clearly shows internal 10:01:40  
8 resistance, yeah. Single spring, right. 14 and 16, 10:01:44  
9 yeah. 10:01:49

10 Q Okay. And so -- so those two components, 14 10:01:51  
11 and 16, what did those represent? 10:01:54

12 A They represented contacts to the -- to 10:01:58  
13 the -- to the anode and cathode, the spiral wind, 10:02:07  
14 single points of contact as in -- as compared to 10:02:11  
15 Figure 5 in which you have multiple points. 10:02:15

16 Q So they would function as output conductors 10:02:17  
17 in this cell? 10:02:21

18 MR. MUELLER: Objection to form. 10:02:22

19 A I guess you can call them output conductors, 10:02:24  
20 yeah. 10:02:32

21 Q And as you mentioned, these -- these output 10:02:33  
22 conductors, 14 and 16, they're connected to the 10:02:39

1 electrode layers? 10:02:43

2 A Yes. 10:02:44

3 Q And do you recall by -- by what mechanism 10:02:45

4 they are connected? 10:02:50

5 A I can think of a number of mechanisms that 10:02:54

6 come to my mind. 10:03:03

7 Q Can you describe those mechanisms? 10:03:07

8 A They could be welded. 10:03:10

9 Q Does Kannou, to your recollection, describe 10:03:17

10 them being welded? 10:03:19

11 A In my -- let's see. I -- I recall the 10:03:24

12 mention of these being welded, welded to the -- to the 10:03:43

13 electrode. 10:03:50

14 Q And then do you recall any means of 10:03:52

15 connection to the cell housing from these output 10:03:56

16 conductors? 10:04:00

17 A The assumption was that this would be a 10:04:00

18 spring-load, but it was -- remember, Figure 7 -- okay, 10:04:03

19 let me just state again what my position on these 10:04:07

20 single contacts were. 10:04:12

21 This was a strawman that was set up to 10:04:13

22 demonstrate the importance -- and I'm quite certain 10:04:16



1 that that was at least stated in my supplemental 10:04:21  
2 declaration, that this was a strawman that 10:04:25  
3 demonstrated how -- how Figure 5 with multiple points 10:04:29  
4 of contact allowed for reduction in internal 10:04:34  
5 resistance. 10:04:40

6 Q So -- so, in your opinion, Figure 6 and 7 10:04:44  
7 refer to art that predates Kannou? 10:04:49

8 MR. MUELLER: Objection to form. 10:04:51

9 A No. No. The answer is no. I can't -- I'm 10:04:54  
10 not sure how that could be derived. 10:05:03

11 Q So if Kannou is directed towards 10:05:06  
12 improvements on -- on Figure 6 and 7, then those 10:05:09  
13 figures must have existed before Kannou was developed? 10:05:15

14 MR. MUELLER: Objection to form. 10:05:18

15 Q Is that fair to say? 10:05:19

16 A No. This is a document of Kannou's work. 10:05:21

17 Q Okay. And so going back to those tabs, the 10:05:27  
18 spring-loading mechanism is the only means of contact 10:05:34  
19 between those output conductors and the housing? 10:05:38

20 A I believe the spring-loading is highlighted 10:05:42  
21 here. But -- and I'd have to go through my report 10:05:49  
22 again to remember exactly what phraseology I used 10:05:57

1 relating to that. But as I said, you've got two 10:05:59  
2 approaches, one which has multiple tabs, one which has 10:06:03  
3 a single tab. The table that was listed in Kannou 10:06:08  
4 shows clearly that Figure 5 is superior. 10:06:15  
5 Q Okay. But there's -- there's no adhesive or 10:06:21  
6 other -- other bond between the output conductors and 10:06:24  
7 the housing, that you recall? 10:06:27  
8 MR. MUELLER: Objection to form. 10:06:29  
9 A I don't recall that, no. 10:06:31  
10 Q And so now I want to move on to another 10:06:40  
11 piece of art that was cited, and this is Kawamura. It 10:06:44  
12 is Exhibit 1040. 10:06:53  
13 MR. PALMIERI: And, Sarah, I just shared it 10:06:56  
14 with you as well. 10:06:59  
15 (Exhibit 1040, U.S. Patent Application, Pub. 10:06:59  
16 No. US 2007/0218356, Kawamura, marked for 10:06:59  
17 identification.) 10:07:00  
18 Q And this -- this is a U.S. patent 10:07:00  
19 application. 10:07:04  
20 And so, Dr. Peckerar, do you have it in 10:07:19  
21 front of you? 10:07:22  
22 A I see it, yes. 10:07:22

1 Q And again, like Kannou, do you recall 10:07:25  
2 approximately the first time that you saw this, this 10:07:28  
3 reference? 10:07:32

4 A It was probably around the same time I saw 10:07:32  
5 Kannou. 10:07:36

6 Q Do you recall if these were presented to you 10:07:36  
7 at the same time or was Kawamura presented at a 10:07:39  
8 separate time? 10:07:45

9 A No, I don't have that recollection. 10:07:46

10 Q Okay. No problem. And now I'd like to take 10:07:47  
11 a look at Figure 5, and this is on page 6 of the PDF. 10:07:51

12 A Yeah. 10:07:59

13 Q Can you describe what this figure is 10:08:01  
14 showing? 10:08:03

15 A Well, this is a cylinder cell. It's not 10:08:05  
16 a -- the axial length is far greater than the -- than 10:08:15  
17 the radial, than the radius or the diameter, and it -- 10:08:21  
18 but it does show a wound cell inserted into the 10:08:29  
19 cylinder can. 10:08:33

20 Q So just to clarify, the electrode layers are 10:08:36  
21 in the form of a spiral winding, correct? 10:08:40

22 A Yeah, that's my current recollection. 10:08:44

1 Q And then how are the electrode layers then 10:08:48  
2 connected to the housing? 10:08:52

3 A Honestly, I read through this, this patent, 10:08:56  
4 and it seemed to me that a miracle happened. Maybe 10:09:02  
5 I'm going beyond, but remember, I mean, this was a 10:09:08  
6 patent that addressed the issue of improving the 10:09:14  
7 chemistry of the cell itself, the active material 10:09:18  
8 composition. 10:09:23

9 And while I do talk about pulling a metal 10:09:25  
10 contact -- I believe it's 513 -- out of the spiral 10:09:30  
11 wind, which, by the way, would traverse the whole 10:09:35  
12 wind, and they did mention various means of fixing 10:09:40  
13 that, like welding, but they didn't describe in any 10:09:44  
14 way how those welds would be accomplished. All 10:09:50  
15 they've drawn is a line, okay, and you don't see how 10:09:53  
16 that line sits with respect to the other materials in 10:09:57  
17 the cell to which the contacts have to be made. 10:10:01

18 Q And so would you describe this housing as 10:10:06  
19 closed by being beaded over? 10:10:09

20 A As a matter of fact, yes. 10:10:12

21 Q Okay. Is there a force-fit connection in 10:10:18  
22 Kawamura? 10:10:21

1 MR. MUELLER: Objection to form. 10:10:23

2 A There is a nice mechanical impediment 510 10:10:25

3 that represents -- 10:10:32

4 Q So there -- so there's not -- 10:10:47

5 (Court Reporter clarification.) 10:10:47

6 THE WITNESS: Say that one more time, 10:10:47

7 please. 10:10:47

8 THE COURT REPORTER: I didn't hear the end 10:10:47

9 of your answer. "There was a nice mechanical 10:10:47

10 impediment, 510, that represents..." 10:10:49

11 A That represents the -- that provides the 10:10:49

12 force that prevents the cell from flying apart. 10:10:53

13 Q And so is that a force-fit connection as you 10:10:57

14 understand it? 10:11:03

15 MR. MUELLER: Objection to form. 10:11:04

16 A I wouldn't define it that way. We have 10:11:05

17 been -- yes, I wouldn't define it that way. 10:11:10

18 Q Okay. And so now I'd like to move back into 10:11:13

19 your -- your supplemental declaration. And I would 10:11:19

20 like to beginning in Section VI, which begins on page 10:11:23

21 19 of the PDF, I'd like to discuss the substitute 10:11:31

22 claims that you've -- that we've briefly touched on 10:11:38

1 some of them, but I'd like to discuss them in some 10:11:43  
2 more detail. 10:11:46

3 So as part of -- as part of the IPRs, VARTA 10:11:49  
4 has proposed some substitute claims in the event that 10:11:54  
5 their original claims are found invalid. And as part 10:12:00  
6 of your supplemental declaration here, you've provided 10:12:04  
7 some discussion of those claims with respect to the 10:12:07  
8 prior art, as well as, you know, alleged support in 10:12:10  
9 their original patent applications. 10:12:15

10 Is that correct? Is that your understanding 10:12:18  
11 of this section? 10:12:21

12 A I'm sorry, I was just reading over the -- 10:12:23

13 Q Oh, no, no problem. 10:12:26

14 A Let me take a moment here. 10:12:30

15 Okay. Now we're focusing on VI, right? 10:12:40

16 Q We're focusing on Section VI -- 10:12:45

17 A Yeah, okay. 10:12:48

18 Q -- for now, yeah, beginning on page -- on 10:12:48  
19 page 19 of the PDF. 10:12:50

20 A Right. And as I say, the material of the -- 10:12:52  
21 of the revised substitute claims is included in the 10:12:58  
22 scope of the original claim. That's all that means. 10:13:05

1 Q And so I would like to just discuss the 10:13:11  
2 particular, you know, substitute claims and the 10:13:15  
3 language that you've used right now. 10:13:18

4 So beginning the first -- in paragraph 35, 10:13:20  
5 the first feature you recite is "'the cup casing 10:13:25  
6 partially overlaps the top casing in an overlapping 10:13:30  
7 area.'" Do you see that? 10:13:34

8 A "The cup casing partly [sic] overlaps" -- 10:13:39  
9 "Certain substitute claims submitted by VARTA recite 10:13:39  
10 the features of 'the cup casing partially overlap" -- 10:13:47  
11 "overlaps the top casing, and the housing cup and the 10:13:55  
12 housing top are held by force-fitting connections,'" 10:14:00  
13 yes. 10:14:05

14 Q So -- so just that first -- that first 10:14:07  
15 feature, "'the cup casing partially overlaps the top 10:14:10  
16 casing in an overlapping area.'" 10:14:16

17 A Yeah, you slide the cup in the can. The 10:14:18  
18 casings align against one another. 10:14:21

19 Q In that -- in that phrase, what do you take 10:14:24  
20 the term "partially" to mean? 10:14:26

21 A They're not -- the cup isn't fully inserted 10:14:28  
22 into the can. In other words, there's space -- the 10:14:32

1 cut edge terminates and yet the cup continues, the cup 10:14:36  
2 cut edge of the top. 10:14:41

3 Q Okay. So if there's -- if they overlap 10:14:43  
4 completely, then this claim term would not be met? 10:14:47

5 MR. MUELLER: Objection to form. 10:14:50

6 A I don't believe I said that in the report. 10:14:55  
7 And I don't -- I have no opinion on that right now. 10:15:01

8 Q So does this -- this overlap would occur in 10:15:06  
9 the lateral direction, along the casing of the housing 10:15:11  
10 components? 10:15:17

11 A Let's get definitions straight here. You 10:15:18  
12 have a cup and a can, they both start out looking like 10:15:23  
13 cups, or glasses. They've got what becomes a floor. 10:15:29  
14 I think I defined elsewhere that the can cup provides 10:15:36  
15 a floor, which is adjacent to the casing housing, and 10:15:42  
16 then the can top has a ceiling, and that's the anatomy 10:15:48  
17 of the cell. 10:15:58

18 Q And so both the cup casing and the top 10:16:06  
19 casing contain a lateral portion? 10:16:11

20 A Sure, they've got side walls, yeah. 10:16:17

21 Q And those -- those side walls are what 10:16:20  
22 overlap? 10:16:24





1 increased the force, frictive force between the can 10:17:58  
2 and the top. 10:18:04

3 835 as it came out had -- had a conical cup 10:18:06  
4 and it served the same purpose. And so this was an 10:18:12  
5 additional mechanism that helped in creating the seal, 10:18:19  
6 which was as I -- if you read the report over and over 10:18:24  
7 again, you know, I make the point that one mechanism 10:18:29  
8 is rarely enough. You've got to think of a number of 10:18:32  
9 mechanisms; in the case of the VARTA patents, ensure 10:18:36  
10 they achieve the first force-fit by simple insertion 10:18:44  
11 and then they jazz it up a bit by -- by changing the 10:18:48  
12 shape of the can and cup. 10:18:54

13 Q Okay. And so I think that that leads into 10:18:57  
14 the second -- well, it leads into the second and third 10:19:01  
15 elements here, but I want to focus on the second one 10:19:06  
16 now, and that's "'the housing cup and the housing top 10:19:08  
17 are held together by a force-fitting connection.'" 10:19:12

18 And so we've discussed the force-fit 10:19:14  
19 connection previously, but, you know, I just want to 10:19:18  
20 clarify a few points. In a force-fit connection, as 10:19:21  
21 you understand it, is there a radial pressure that's 10:19:24  
22 exerted on the housing to effect that seal? 10:19:28

1           A       There's a -- the forces that come about as           10:19:34  
2           you do this insertion I discuss, okay. Yeah, I mean,           10:19:42  
3           you can get friction, simple friction. Even in Kaun           10:19:46  
4           there was a little bit of friction, but that wasn't           10:19:52  
5           the dominant mechanism of closing or sealing the can.           10:19:55  
6           In the case of the VARTA patents, yeah, there will be           10:20:02  
7           some radial force simply developed by the -- by           10:20:09  
8           friction between the gasket and the top and the can,           10:20:14  
9           yeah.           10:20:22  
10                        But VARTA goes beyond this. They discuss           10:20:24  
11           flat bottom area, disposed radially inward of the           10:20:31  
12           second part that overlaps the top casing. I mean,           10:20:35  
13           these are secondary mechanisms, and these supply -- by           10:20:38  
14           the way, okay, let me clarify one other thing, okay.           10:20:45  
15           The radial force per se isn't what holds the cell           10:20:48  
16           together. It's axial force. So what you end up with           10:20:55  
17           is an improvement in friction, increase in the           10:20:59  
18           friction using these -- using these different           10:21:06  
19           techniques that are listed in -- in -- by 7B, 7A and           10:21:09  
20           7B, all of 7, okay. So I don't know what else I can           10:21:16  
21           say.           10:21:24  
22           Q       Okay. So just to continue along this vein,           10:21:26

1 that there may be a radial force involved in a 10:21:36  
2 force-fit connection? 10:21:40

3 A Let me state one more time, okay, that you 10:21:45  
4 prise the can apart with axial force, okay. Now, the 10:21:53  
5 way these -- the way these -- these force-fitting 10:21:59  
6 connections work is they -- they increase the force -- 10:22:07  
7 you can call it the critical force necessary to prise 10:22:14  
8 the can apart, by increasing friction and perhaps even 10:22:19  
9 forming a pressure weld between the can top and the 10:22:23  
10 can cup through the intermediary of the -- of the 10:22:28  
11 gasket material. 10:22:35

12 And so you -- so what drives the whole thing 10:22:36  
13 is radial -- is axial force. It's axial force that 10:22:43  
14 prises the cell apart, but you adjust that using the 10:22:49  
15 techniques that I just mentioned. You improve it. 10:22:53

16 Q And so you mentioned, you know, friction 10:22:59  
17 force being potentially a primary form of sealing and 10:23:03  
18 then in VARTA's claims they also describe a secondary 10:23:08  
19 form of sealing, and we'll get to that specific claim 10:23:13  
20 language later. But I want to discuss now other 10:23:17  
21 secondary forms of sealing that could be added to a, 10:23:21  
22 you know, battery that is sealed with a force-fit. 10:23:27

1       Could that secondary sealing be a beading over of the       10:23:33  
2       edge?       10:23:37

3               MR. MUELLER:  Objection to form.       10:23:38

4               A       I -- I have been using the term "mechanical       10:23:40  
5       impediment" throughout these depositions, the bead       10:23:50  
6       represents a mechanical impediment to motion, and       10:23:53  
7       it's -- yes.       10:24:00

8               Q       So you could have a force-fit connection in       10:24:08  
9       addition to this mechanical impediment imposed by a       10:24:15  
10       beading over?       10:24:19

11               MR. MUELLER:  Objection to form.       10:24:19

12               A       I think once you've done the bead,       10:24:21  
13       everything else is gravy, okay.       10:24:32

14               Q       Okay.  And so now, now I'll move on to that       10:24:38  
15       third feature in paragraph 35, and that's the feature       10:24:41  
16       of the "'cup casing includes a first proximal" -- "a       10:24:44  
17       first part" -- sorry -- "proximal to the flat bottom       10:24:49  
18       area and a second part disposed in the overlapping       10:24:52  
19       area" --       10:24:56

20               A       Can you bring that up?       10:24:57

21               Q       Oh, yes, I'm sorry.       10:24:58

22               MR. PALMIERI:  Sarah, could you scroll down       10:25:00

1 to the next page and it's at the very top. 10:25:02

2 Q So let me repeat. "'The cup casing includes 10:25:06

3 a first proximal" -- "first part proximal to the flat 10:25:09

4 bottom area and a second part disposed in the 10:25:12

5 overlapping area, the first part of the cup casing 10:25:15

6 being disposed radially inward with respect to the 10:25:18

7 second part.'" 10:25:22

8 And do you see that language, Dr. Peckerar? 10:25:23

9 A Yes, right, that's what I've been 10:25:25

10 describing. 10:25:29

11 Q Sure. And can you describe the advantages 10:25:29

12 that are achieved by using this additional method? 10:25:32

13 A Yeah. The fact that you're kind of 10:25:35

14 strangling -- I think in my -- I don't know if this 10:25:47

15 is -- should be part of this discussion. It was 10:25:54

16 mentioned I believe in my original declaration report, 10:25:56

17 there's something which we've been calling a swage 10:26:05

18 fitting, okay. Without a blackboard it's hard to show 10:26:10

19 these things. 10:26:17

20 But the idea is that you've got this kind of 10:26:18

21 drawn-in region at the bottom of the can and then 10:26:20

22 you've got the sloping wall on top. And what you're 10:26:25

1 doing when you force-fit the can cup and the can top 10:26:31  
2 is you're -- the stress. If you have a given amount 10:26:37  
3 of displacement, you're going to have to push apart 10:26:46  
4 the first part of the cell. I'm sorry, that's 10:26:51  
5 speculation here, okay. But having made these things, 10:26:53  
6 I think I can tell you that the idea is that -- that 10:26:58  
7 you probably will even deform the bottom of the can a 10:27:03  
8 bit, forming what we call the swage fitting, which is 10:27:08  
9 different than a simple -- than a simple friction 10:27:14  
10 fitting because you're actually just forming material. 10:27:20  
11 And so these -- this bottom portion over 10:27:23  
12 here is going to -- going to serve to increase the -- 10:27:25  
13 the frictive force, and what that does is that raises 10:27:32  
14 the threshold in which the can prises apart from the 10:27:36  
15 top. 10:27:43  
16 Q And so this -- this would provide a radial 10:27:44  
17 pressure that assists with the sealing? 10:27:47  
18 A There is going to be some radial pressure, 10:27:54  
19 right, and that radial pressure helps define the 10:27:57  
20 critical axial force. 10:28:03  
21 Q And so could this -- this radial deformation 10:28:07  
22 cause damage to the cell interior? 10:28:13

1 MR. MUELLER: Objection to form. 10:28:16

2 A I don't see that as happening. I don't see 10:28:20

3 any evidence for that. None of these patents show -- 10:28:27

4 well, I can't state that that would occur with any 10:28:31

5 degree of certainty. You'd have to show me examples 10:28:39

6 and I'd have to look them over and evaluate them. 10:28:43

7 Q But in your opinion would it be possible 10:28:46

8 that this radial force could cause damage to the 10:28:49

9 interior -- 10:28:54

10 MR. MUELLER: Objection to form. 10:28:55

11 A I don't -- I wouldn't care to speculate on 10:28:56

12 that. I would like to see specific examples. 10:29:03

13 Q Okay. And so now, now I'd like to move on 10:29:07

14 to paragraph 38. 10:29:10

15 THE VIDEOGRAPHER: Is it a good time to 10:29:14

16 change our media? 10:29:16

17 MR. PALMIERI: Yeah, do we want to take a 10:29:21

18 quick break, come off the record? 10:29:24

19 THE VIDEOGRAPHER: Yes. Thank you. It is 10:29:30

20 10:29 a.m. We go off the record. 10:29:31

21 (Recess 10:29 a.m. - 10:42 a.m.) 10:29:35

22 THE VIDEOGRAPHER: It is the beginning of 10:42:25



1 Media Number 2 of Volume Number 3 of the testimony of 10:42:29  
2 Dr. Martin Peckerar. It is 10:42 a.m. We are back on 10:42:33  
3 the record. 10:42:40

4 BY MR. PALMIERI: 10:42:40

5 Q So, Dr. Peckerar, before the break we were 10:42:41  
6 discussing this radial deformation that served as a 10:42:43  
7 secondary sealing characteristic according to VARTA's 10:42:49  
8 claims, and we were discussing whether -- whether 10:42:54  
9 there could be any damage to the internals of the 10:42:56  
10 cell. I just wanted to follow up on that a little 10:42:59  
11 bit. 10:43:03

12 So, you know, you did not feel comfortable 10:43:03  
13 without a, you know, a specific example saying whether 10:43:06  
14 damage would occur. But would a person of ordinary 10:43:10  
15 skill in the art have any reasonable expectation that 10:43:13  
16 that damage would occur? 10:43:21

17 A Well, I mean, VARTA cites force-fitting 10:43:24  
18 connections using the -- using the techniques that 10:43:35  
19 we've been talking about. Everybody who builds a 10:43:38  
20 battery is concerned with reliability and 10:43:45  
21 functionality and yield, and you can be sure you're 10:43:48  
22 not going to build a successful business on techniques 10:43:55

1 that are going to damage the cell. So, again, let me 10:43:59  
2 just leave it at that, show me an example and I'll 10:44:02  
3 talk about it. 10:44:06

4 Q And then if we look on page 21 of the 10:44:08  
5 supplemental declaration, right above paragraph 38, 10:44:16  
6 there's a figure of the VARTA cell, and you've 10:44:20  
7 indicated a portion where -- where the cell cup is 10:44:26  
8 disposed radially inward with respect to the second 10:44:31  
9 part. Do you see that? 10:44:34

10 A Yes. That's -- that's in the patent, right. 10:44:36

11 Q And so I wanted to discuss the degree of 10:44:40  
12 radially inward deformation that would have to occur 10:44:48  
13 in order for this to be -- to be effective. 10:44:53

14 MR. MUELLER: Objection to form. 10:44:57

15 Q In your opinion, to what degree would the 10:45:00  
16 cup have to be radially deformed inwards for this 10:45:05  
17 technique to be effective? 10:45:09

18 MR. MUELLER: Same objection. 10:45:11

19 A Again, if you do it too much, you're not 10:45:12  
20 going to be able to fit the can into the cup. If you 10:45:22  
21 do it too little, you get no benefit, you know. It's 10:45:26  
22 like the three bears; you've got to do it just right. 10:45:31

1 And now, in using the -- and what this patent 10:45:35  
2 indicates is that you've got to do it just right, and 10:45:45  
3 it is possible because VARTA produces this. 10:45:48

4 Q And so does this figure show a cell where 10:45:54  
5 it's been done -- where the cell cup has been radially 10:45:59  
6 deformed just the right amount? 10:46:05

7 MR. MUELLER: Objection to form. 10:46:07

8 A I'd hesitate to speculate, but I would -- I 10:46:08  
9 would say yes. 10:46:18

10 Q And is there any other guidance in the 10:46:19  
11 patent itself that describes how to determine when 10:46:22  
12 that deformation is just right, in your words? 10:46:26

13 A Well, A35 does that extensively. It talks 10:46:30  
14 about the cone angles. It talks about the amounts of 10:46:35  
15 deformation. And I'll be quite frank, I'd have to 10:46:41  
16 look through the report again to see exactly what they 10:46:50  
17 talk about. They do mention some quantification of 10:46:53  
18 it, of the area, of the -- of the areas that are 10:46:57  
19 involved in these parts 1 and part 2, as I recall. 10:47:02

20 Q And so now, now I think I'd like to move on 10:47:17  
21 to a new paragraph, paragraph 38, which bleeds over 10:47:22  
22 from page 18 -- sorry, page 21 of the PDF to page 22 10:47:28

1 of the PDF. And so this is -- this is a new -- 10:47:35  
2 another new substitute claim feature which is proposed 10:47:39  
3 for the '858 patent. 10:47:44

4 And just to read it off, the feature is 10:47:48  
5 "'two metal housing halves, each including a generally 10:47:52  
6 round end surface joined to a lateral surface region, 10:47:56  
7 the lateral surface regions of the housing halves at 10:47:59  
8 least partially overlapping each other and being 10:48:05  
9 separated from one another by an electrically 10:48:07  
10 insulating seal, the lateral surface regions providing 10:48:10  
11 a force-fit connection therebetween to form a 10:48:13  
12 leak-tight, button cell housing having a plane bottom 10:48:18  
13 region and a plane top region parallel thereto.'" 10:48:23

14 Do you see that feature? 10:48:27

15 A Yes, I do. 10:48:27

16 Q So in your opinion what does the term 10:48:28  
17 "generally round" mean? 10:48:31

18 MR. MUELLER: Objection to form. 10:48:32

19 A I think that was a discussion that appears 10:48:33  
20 in the transcript of our earlier meetings. Somehow 10:48:37  
21 they talked about an oval cell which is a kind of a 10:48:45  
22 circle, but honestly, if you go into CVS you don't buy 10:48:49

1 those. 10:49:00

2 Q Could other shapes be considered generally 10:49:03

3 round; for example, an octagonal shape be considered 10:49:06

4 generally round? 10:49:11

5 MR. MUELLER: Objection to form. 10:49:12

6 A Show me an example of an octagonal cell. If 10:49:13

7 you like, we can walk through CVS together. 10:49:19

8 Q So is there a certain point at which an oval 10:49:23

9 wouldn't be considered generally round? 10:49:27

10 MR. MUELLER: Objection to form. 10:49:29

11 A Well, if you remember, an ellipse can be 10:49:31

12 derived from a circle. You know, you just take the 10:49:39

13 two -- both sides join them together you get a circle 10:49:42

14 and then you move them apart from their original 10:49:49

15 ellipse, and that's why you have a derivative circle, 10:49:50

16 okay. I don't know if there are other shapes or forms 10:49:54

17 that do that. 10:49:56

18 Q And this new feature recites "providing a 10:49:58

19 force-fit connection therebetween to form a 10:50:02

20 leak-tight, button cell housing." Is it possible to 10:50:05

21 have a force-fit connection that isn't leak-tight? 10:50:08

22 A Sure. 10:50:14

1 Q Can you describe an example of how that 10:50:18  
2 could occur? 10:50:21

3 A Go back to Kaun. Kaun describes, as we 10:50:22  
4 discussed, he's got a force-fit initially. The 10:50:37  
5 main -- the burden of sealing is, as we discussed, and 10:50:42  
6 it's in all these reports, that the main burden is on 10:50:47  
7 their center, their center fastener, okay, but -- but 10:50:53  
8 you can have some friction and yet the cell under 10:50:58  
9 pressurization lifts and yields a vent. 10:51:05

10 Q So, in your opinion, Kaun is an example of a 10:51:11  
11 force-fit connection that isn't -- isn't leak-tight? 10:51:15

12 MR. MUELLER: Objection to form. 10:51:17

13 A It's a force-fit connection which under 10:51:18  
14 certain circumstances allows venting or leakage, if 10:51:24  
15 you will, under certain circumstances. 10:51:29

16 Q Okay. And if we go -- if we go down to, 10:51:31  
17 let's see here, page 21 of the PDF. I'm sorry, I'm 10:51:40  
18 just trying to find my place here real quick. Okay, 10:51:59  
19 I'm sorry, it's page 23 of the PDF, actually. 10:52:19  
20 Apologies for that. 10:52:24

21 A Which document are we looking at? 10:52:25

22 Q In your supplemental declaration -- 10:52:28



1       which I believe is element 103 in that figure? Yeah, 10:54:05  
2       I agree, it is -- it is a little hard to see it. 10:54:12  
3           A       It's hard to see, right, yeah. Right. 10:54:14  
4           Q       And so -- so, you know, this force-fit 10:54:26  
5       connection does require having a gasket between those 10:54:30  
6       two lateral surface areas. Is that correct? 10:54:33  
7           A       Yes. 10:54:35  
8           Q       All right. And now moving onto the next 10:54:36  
9       page, paragraph 40, which is at the very top, we'll 10:54:50  
10      move on to a new feature. And let me just read that 10:54:54  
11      feature out. It's "'the first metal conductor and the 10:55:00  
12      second metal conductor are respectively shielded from 10:55:05  
13      the lateral end sides of the spiral winding by a first 10:55:10  
14      insulating element and a second insulating element.'" 10:55:13  
15      Do you see that feature? 10:55:16  
16           A       Yeah, I see the paragraph. 10:55:17  
17           Q       Sorry, yeah, do you see that paragraph. 10:55:20  
18                    So does shielded there mean that the 10:55:27  
19      conductors have no contact with the spiral winding due 10:55:31  
20      to the insulating elements? 10:55:35  
21           A       Are shielded from the lateral end sides of 10:55:39  
22      the spiral winding. I mean, the idea in the VARTA 10:55:53



1 patent is that -- that the end faces by themselves 10:56:01  
2 don't contact either the floor or ceiling. That's 10:56:05  
3 what that paragraph refers to. That's what that 10:56:09  
4 paragraph refers to. 10:56:12

5 Q Okay. So the shielding can't prevent all 10:56:17  
6 contact with the electrode assembly because the output 10:56:21  
7 conductors would need to contact the electrode 10:56:26  
8 assembly for the battery to function? 10:56:30

9 A Yes, but -- okay, maybe you should restate 10:56:33  
10 what you said. I mean -- I mean, what ends up 10:56:38  
11 happening is you've got these insulating surfaces on 10:56:42  
12 the end pieces, and then you pull -- in the VARTA 10:56:45  
13 patents you pull out a piece of the electrode and lie 10:56:48  
14 it flat on the insulating, whether it's a single 10:56:51  
15 insulator or a double insulator. 10:56:54

16 So what did you -- if you can repeat what 10:56:56  
17 you said, I can... 10:56:59

18 Q Yeah, sure. So the shielding where you use 10:57:00  
19 the term -- where the term "shielded" is used there, 10:57:04  
20 it means that there's no contact with the respective 10:57:07  
21 end face of the electrode assembly that the output 10:57:12  
22 conductor is adjacent to. 10:57:18



1 additional separate insulator and the at least one 10:58:43  
2 second additional separate insulator respectively 10:58:48  
3 preventing direct electrical contact between the 10:58:51  
4 lateral end sides of the spiral winding and the first 10:58:54  
5 metal conductor and the second metal conductor.'" 10:58:59  
6 Do you see that paragraph? 10:59:02  
7 A Yeah, right, it's describing what we just 10:59:03  
8 talked about, yes. 10:59:06  
9 Q So this is directed to another claim. This 10:59:08  
10 is directed to claim -- substitute Claim 15. Is that 10:59:13  
11 correct? 10:59:18  
12 A Substitute -- 15, you say? 10:59:18  
13 Q Correct, yeah, sorry, one five. 10:59:21  
14 A Okay. Well, I hate to do this, but can you 10:59:24  
15 pull that up and I could make a better determination. 10:59:28  
16 Q Yeah. Yes. 10:59:33  
17 MR. PALMIERI: And, Sarah, I will just 10:59:36  
18 circulate real quick the appropriate document to bring 10:59:39  
19 that up. 10:59:42  
20 Q Yes, and so this is in -- this will be in 10:59:49  
21 VARTA's revised contingent motion to amend for the 10:59:52  
22 '858 patent, and this will be -- Claim 15 is on page 11:00:01

1 43 of this document. 11:00:07

2 A This is the substitute claim, yeah. 11:00:11

3 Q Correct. Correct, this will be a substitute 11:00:14

4 claim. 11:00:17

5 THE TECHNICIAN: Would you like this to be 11:00:17

6 marked as an exhibit? 11:00:18

7 MR. PALMIERI: Yes, let's mark it as an 11:00:24

8 exhibit for this. So it's already filed in this case, 11:00:27

9 so, actually, I don't know if we need to mark it as an 11:00:39

10 exhibit if it's already been filed. It's one of the 11:00:42

11 papers. 11:00:45

12 Sarah, could you possibly just zoom in a 11:00:52

13 little bit more, too. I'm just having some trouble 11:00:57

14 seeing the text. Yeah. 11:01:01

15 BY MR. PALMIERI: 11:01:11

16 Q And so is that what you wanted to review, 11:01:12

17 Dr. Peckerar? 11:01:15

18 A Yeah. So there's an additional separate 11:01:15

19 insulating layer that's called for here associated 11:01:19

20 with the first metal and one second insulating layer 11:01:22

21 associated with the second metal, right? 11:01:26

22 Q Correct. 11:01:28





1 through the patent, I was concerned with the end line 11:04:11  
2 product and what the various structures were doing. I 11:04:16  
3 mean, in both cases you're not going to get electrical 11:04:20  
4 contact in the end faces. Whether or not there are 11:04:29  
5 broader applications or nuances in the -- you know, 11:04:33  
6 I'm not a linguist, okay, so I really have no opinion 11:04:38  
7 on that. 11:04:43

8 Q So while reviewing -- while reviewing these 11:04:43  
9 substitute claims, did you make note of the fact that 11:04:47  
10 substitute Claim 15 would include an extra insulator? 11:04:55

11 A Well, I made note that there was an extra 11:05:00  
12 insulator there, and when I looked at the products in 11:05:02  
13 the disassembly, I saw there were cases in which there 11:05:06  
14 was a separate -- another insulator, yeah, a tape, 11:05:10  
15 yeah. 11:05:12

16 Q And so what -- what advantages would a 11:05:13  
17 person of ordinary skill in the art see or seek to 11:05:16  
18 achieve by including this extra insulator layer? 11:05:19

19 A In my initial analysis I pointed out what 11:05:28  
20 the patent language says, that it's an added assurance 11:05:36  
21 that you're not going to get that kind of contact. 11:05:40  
22 But the tape itself, okay -- perhaps I shouldn't go 11:05:43

1 this far, but the tape itself holds the output 11:05:46  
2 conductor flat, prevents wrinkling. But that wouldn't 11:05:51  
3 be -- that goes beyond the scope of what I said 11:05:55  
4 before. I'm just sharing that right now. 11:05:58  
5 Q And so in your opinion, would a person of 11:06:01  
6 ordinary skill in the art understand the term 11:06:04  
7 "shielded" to have the same meaning as the term 11:06:07  
8 "preventing direct electrical contact"? 11:06:11  
9 MR. MUELLER: Objection to form. 11:06:13  
10 A I mean, I hate to be obstinate on this. I 11:06:15  
11 mean, if there are linguistic differences between 11:06:21  
12 those two terms, I would open -- be open to that, 11:06:26  
13 okay. In my interpretation, I took "shielding" and 11:06:32  
14 "insulation" in isolation, insulate, to have the same 11:06:36  
15 function in this case. But that doesn't mean in other 11:06:41  
16 cases they might have different implication. 11:06:45  
17 Q Okay. So -- so based on that understanding, 11:06:48  
18 both -- the insulators in both Claim 10 as well as the 11:06:53  
19 separate insulators in Claim 15 perform the same 11:06:57  
20 function? 11:07:02  
21 A Well, the global function is isolation, 11:07:06  
22 okay. The second insulator as stated improves it, the 11:07:13



1 likelihood that you're going to achieve full isolation 11:07:23  
2 of the end face from the cup, the ceiling or floor, 11:07:27  
3 okay. 11:07:33

4 I went a little bit further in that in which 11:07:34  
5 I pointed out what I, as hopefully someone with skill 11:07:37  
6 in the art, would see based on disassembly could have 11:07:44  
7 been a tape here that's holding things flat. So there 11:07:52  
8 is an additional -- but that's not really included in 11:07:55  
9 the text here. 11:07:59

10 Q So -- so it's your opinion that the 11:08:02  
11 insulators are performing the same isolation function 11:08:04  
12 in both claims? 11:08:07

13 MR. MUELLER: Objection to form. 11:08:09

14 A No. What I was -- I think the answer is no, 11:08:11  
15 okay. As I just said, I mean, the second insulator 11:08:15  
16 surely it does have some aspect, but there are other 11:08:20  
17 envisionable functions for that second insulator. As 11:08:25  
18 I mentioned, it's a tape, hold things flat. 11:08:29

19 Q But those other functions aren't claimed 11:08:33  
20 here. Is that correct? 11:08:35

21 A I think a POSA would be open to the idea 11:08:38  
22 that there are other functions. 11:08:44

1 Q That may be so, but in terms of the claim 11:08:47  
2 scope, the functions and purposes set forth and 11:08:52  
3 covered by this claim, those other functions are not 11:08:55  
4 recited by the claim? 11:09:01  
5 A But they would be suggested to a POSA by 11:09:03  
6 looking at the cross section. 11:09:06  
7 Q Perhaps. But just as a yes or no, those 11:09:08  
8 functions are not recited in these claims? 11:09:10  
9 MR. MUELLER: Objection to form. 11:09:12  
10 A I would repeat what I just said. 11:09:13  
11 Q So can you provide a yes or no answer to 11:09:21  
12 whether those additional functions, whether or not 11:09:24  
13 considered by a person of ordinary skill, are those 11:09:28  
14 functions recited in these claims? 11:09:31  
15 A They're suggested by the claims. 11:09:35  
16 Q But they are not recited by the claims? 11:09:38  
17 A I think a POSA, if you see two materials, 11:09:42  
18 you might scratch your head and say why are you doing 11:09:49  
19 this, and I would take it from there. I mean, to me, 11:09:53  
20 as a POSA, it became clear, especially on looking at, 11:09:57  
21 studying the diagrams provided, that there would be a 11:10:04  
22 secondary function, and I provided what that function 11:10:07

1 is. And so all of this was a chain of thought that 11:10:10  
2 went through my head, and I'm -- I am certainly a POSA 11:10:13  
3 in this, so... 11:10:18

4 Q So -- so Dr. Peckerar, I'm not asking about 11:10:19  
5 what a POSA might consider additional purposes are. I 11:10:21  
6 just need a yes or no answer to are those additional 11:10:26  
7 functions recited in this claim? 11:10:30

8 MR. MUELLER: Objection to form. 11:10:32

9 Q Just a yes or no. 11:10:34

10 A I don't think it's a yes or no issue. I 11:10:37  
11 think -- I think if you, you know, it's -- it's like 11:10:40  
12 in general parlance if you repeat a word twice, you 11:10:45  
13 know, it's not just because you like to hear your own 11:10:50  
14 voice, but you see things that have different meanings 11:10:55  
15 and so you are led in your mind to think about other 11:11:00  
16 meanings here, so... 11:11:04

17 Q Other meanings that are not recited in the 11:11:05  
18 claim? 11:11:07

19 A That are not recited, right. 11:11:07

20 Q Okay. Thank you. Now, let's go back to the 11:11:09  
21 supplemental declaration. 11:11:13

22 A Yup. 11:11:16

1 Q And I want to move on to paragraph 44, and 11:11:16  
2 this is another -- another new feature recited by the 11:11:21  
3 substitute claims. It's -- paragraph 44 starts on 11:11:25  
4 page 27 of the PDF and then bleeds over to -- 11:11:31  
5 A I've got it. 11:11:35  
6 Q -- 28. 11:11:35  
7 A Yes, I've got it. 11:11:36  
8 Q Okay. And so this feature is "(i) the 11:11:38  
9 first housing half or the second housing half to which 11:11:43  
10 the metal foil connects, (ii) the metal foil, and 11:11:46  
11 (iii) one of the first insulating element or the 11:11:50  
12 second insulating element form a sequence of three 11:11:52  
13 flat layers in direct contact with one another in 11:11:56  
14 which the metal foil is interposed between the other 11:11:59  
15 two layers.'" 11:12:02  
16 A Yes. 11:12:05  
17 Q Okay. 11:12:07  
18 A Yeah, got it. 11:12:08  
19 Q So according to this claim language, the 11:12:09  
20 metal foil connects to the housing. Is that correct? 11:12:11  
21 A The metal foil has to connect somewhere to 11:12:14  
22 the housing, otherwise you wouldn't get electricity 11:12:18

1 out. 11:12:22

2 Q And it would also have -- it would also be 11:12:22

3 in contact with the insulating elements? 11:12:25

4 A It lies flat on the -- the output conductor 11:12:28

5 lies flat on the insulating elements. 11:12:33

6 Q Okay. So it's in contact with them? 11:12:35

7 A There's that too, as stated. 11:12:37

8 Q Is the output conductor -- apologies. Is 11:12:42

9 the metal foil connected to the insulating element? 11:12:45

10 A It lies flat thereon. 11:12:48

11 Q Okay. But is it connected to it? 11:12:52

12 A If it lies flat, I don't see how it can't -- 11:12:58

13 it can't be in contact with. If you want to get into 11:13:02

14 the linguistics of the meaning of connection, we can 11:13:05

15 be here all day, but -- 11:13:08

16 Q Would you consider it to be connected to the 11:13:10

17 insulating element? 11:13:12

18 A It's not an essential feature here. It lies 11:13:14

19 flat thereon. 11:13:19

20 Q So just a yes or no, is the metal foil 11:13:21

21 connected to the insulating element? 11:13:24

22 MR. MUELLER: Objection to form. 11:13:27

1           A     Maybe. I'm sorry, I don't mean to be           11:13:28  
2     facetious, but, you know.           11:13:32

3           Q     Can you point me to any elements that would           11:13:36  
4     facilitate that connection?           11:13:39

5           A     Well, as I said, you know, in my           11:13:41  
6     interpretation of the second insulating layer is a           11:13:44  
7     tape, okay. It holds the output conductor in place to           11:13:47  
8     prevent wrinkling and provides a flat surface to           11:13:53  
9     eventually perform a well-defined electrical contact           11:13:56  
10    with the can floor and ceiling.           11:14:00

11          Q     And so, in your opinion, would a person of           11:14:05  
12    ordinary skill in the art understand the metal foil to           11:14:07  
13    be connected to the insulating element?           11:14:11

14                 MR. MUELLER: Objection to form.           11:14:12

15          A     It would be in contact with. I mean, if you           11:14:13  
16    mean connected in some other sense, I don't know.           11:14:18  
17    Sorry.           11:14:24

18          Q     Okay. And so in order for this cell to           11:14:26  
19    function --           11:14:30

20          A     Yeah.           11:14:30

21          Q     -- the metal foil would have to also be in           11:14:32  
22    contact with the electrode assembly. Is that correct?           11:14:34

1           A     It eventually is in direct contact with --           11:14:37  
2     electrical contact with the floor or ceiling.           11:14:42

3           Q     I'm discussing the electrode assembly           11:14:47  
4     itself, the spiral, the spiral winding.           11:14:50

5           A     Well, the spiral winding by itself is never           11:14:53  
6     in contact, okay. It's shielded from, okay. But what           11:14:56  
7     is in contact with the housing is the output           11:15:01  
8     conductor.           11:15:07

9           Q     Yeah, so the metal foil, which is what I'm           11:15:09  
10    discussing, has to be in contact with the electrode           11:15:14  
11    assembly. Is that correct?           11:15:17

12          A     The metal foil eventually has to be in           11:15:19  
13    electrical contact with the assembly, yes.           11:15:24

14          Q     So the entire metal foil can't be interposed           11:15:28  
15    between the insulating element and the housing. Is           11:15:33  
16    that correct?           11:15:45

17          A     That's not what the patent says. I mean,           11:15:45  
18    the patent just says that you've got these two           11:15:47  
19    insulating layers which rest on the end face and --           11:15:50  
20    and the output conductor lies flat on the uppermost           11:15:56  
21    insulating layer. By that I mean the one that's           11:16:01  
22    closest to the floor and ceiling.           11:16:05

1 Q So I just want to point you to some -- the 11:16:08  
2 specific language of this substitute claim, which 11:16:11  
3 states that, you know, these three layers -- the 11:16:15  
4 housing half, metal foil and insulating element -- 11:16:18  
5 form a sequence of three layers in direct contact with 11:16:21  
6 one another in which the metal foil is interposed 11:16:24  
7 between the other two layers. Do you see that 11:16:27  
8 language? 11:16:31  
9 A Yeah. 11:16:32  
10 Q So the entire metal foil cannot be 11:16:35  
11 interposed between those layers in order for the 11:16:39  
12 battery to function? 11:16:41  
13 MR. MUELLER: Objection to form. 11:16:42  
14 A I'm not sure where we're going with it. 11:16:43  
15 Q So let me clarify. At least some portion of 11:16:51  
16 the metal foil has to connect to the electrode 11:16:54  
17 assembly. Is that correct? 11:16:57  
18 A Yes, yeah, it's pulled out from the line, 11:16:59  
19 yeah. 11:17:02  
20 Q And that portion would not be -- that 11:17:02  
21 portion which connects to the electrode assembly would 11:17:05  
22 not be interposed between the housing and the 11:17:09



1 insulating element. Is that correct? 11:17:13

2 A There is another alternative, which is 11:17:17

3 suggested by the drawings, okay. If you have -- if 11:17:21

4 you have a piece of tape and then you have another 11:17:26

5 insulating layer on top and you cut a little rectangle 11:17:29

6 in that and then you press down on it, then you have 11:17:33

7 an insulator -- output conductor insulator 11:17:36

8 configuration. 11:17:41

9 Q But then would that metal foil still be, in 11:17:42

10 your opinion, interposed between those layers then, if 11:17:47

11 there's now a hole in one layer? 11:17:50

12 A In that case it would be interposed, yes, of 11:17:52

13 course, yeah. I mean, there's -- yes, in that case. 11:17:56

14 Q So -- so let me just clarify that. In that 11:17:59

15 case where there's -- and please correct me if I'm 11:18:04

16 misunderstanding -- a hole in one of the insulating 11:18:08

17 elements through which the metal -- 11:18:12

18 A Yes. 11:18:12

19 Q -- foil would go, you would still consider 11:18:14

20 that to be interposed between the layers? 11:18:17

21 A Sure, yeah. I mean, you got the three 11:18:19

22 layers. I can put labels on it; one, two, three. 11:18:22

1 Q Despite the fact that the metal foil would 11:18:27  
2 have to go through one of those layers? 11:18:30

3 A Oh, yes. I don't find any difficulty with 11:18:33  
4 that. I don't think any other POSA would either. 11:18:37

5 MR. PALMIERI: Okay. So that is it for -- 11:18:44  
6 for my questions today. I appreciate your time, 11:18:47  
7 Dr. Peckerar. 11:18:51

8 Do we want to take a -- Wes, do you want to 11:18:51  
9 take a brief break? 11:18:55

10 MR. MUELLER: Yeah, let's take like a 10, 11:18:57  
11 15-minute break. I'm not sure if we've got anything 11:18:59  
12 or not. 11:19:02

13 MR. PALMIERI: Okay. I think we can go off 11:19:03  
14 the record then. 11:19:04

15 THE VIDEOGRAPHER: Okay. It is 11:19 a.m. 11:19:06  
16 We go off the record. 11:19:09

17 (Recess 11:19 a.m. - 11:41 a.m.) 11:19:10

18 THE VIDEOGRAPHER: It is the beginning of 11:41:41  
19 Media Number 3, Volume Number 3 of the testimony of 11:41:43  
20 Dr. Martin Peckerar. It is 11:51 [sic] a.m. We are 11:41:47  
21 back on the record. 11:41:52

22 EXAMINATION 11:42:01

1 BY MR. MUELLER: 11:42:02

2 Q Dr. Peckerar, I'd like to touch on one topic 11:42:02

3 you talked about this morning, and I would refer you 11:42:02

4 to paragraph 13 of your supplemental expert 11:42:03

5 declaration at page 9. Do you see that? 11:42:06

6 A 13 on page 9, yes. 11:42:19

7 Q Now, can you explain whether Kaun discloses 11:42:23

8 that gaps will exist between an adjacent separator 11:42:32

9 layers? 11:42:39

10 THE TECHNICIAN: Doctor, could you please 11:42:39

11 center yourself in frame? I think you're -- 11:42:40

12 THE WITNESS: Sorry. 11:42:43

13 THE TECHNICIAN: Thank you. 11:42:44

14 THE WITNESS: Yes. Is that okay? Super. 11:42:45

15 MR. PALMIERI: Objection to form, just 11:42:48

16 before you... 11:42:50

17 A Okay. Kaun by himself doesn't disclose the 11:42:52

18 formation of gaps, no. There's no language -- 11:42:58

19 BY MR. MUELLER: 11:43:04

20 Q In fact, Kaun discloses that the separator 11:43:04

21 layers will abut each other, correct? 11:43:07

22 A Well, that's what he draws and he doesn't go 11:43:10

1 further than that either in the drawing or the text. 11:43:14

2 Q Now, if you even assume that there are small 11:43:18

3 gaps between adjacent separator layers in Kaun's 11:43:21

4 electrolytes -- or in Kaun's battery cell, will that 11:43:27

5 affect or impact the operation of the battery? 11:43:34

6 MR. PALMIERI: Objection to form. 11:43:36

7 A As I expressed in my original report, my 11:43:39

8 declaration, no. During the processing of the cell 11:43:47

9 itself, the layers would squeeze together under the -- 11:43:54

10 as they were -- as they were wound, and there would be 11:44:03

11 no appreciable gap. And as I said, there's no verbal 11:44:10

12 mention of that, nor any in Kaun, nor is there any 11:44:15

13 illustration of a gap per se. 11:44:23

14 Q Now, earlier today you also talked about the 11:44:26

15 use of Kynar disclosed by Kaun to glue adjacent 11:44:30

16 separator edges together. Do you recall that? 11:44:35

17 A Yes. 11:44:38

18 Q Now, is it your understanding that dendrites 11:44:38

19 would be more likely to form where there was Kynar -- 11:44:44

20 A No, no, absolutely not. 11:44:48

21 MR. PALMIERI: Objection to form. 11:44:49

22 Q And why is that? 11:44:50

1 MR. PALMIERI: Same objection. 11:44:54

2 A Kynar would make the region less likely to 11:44:56

3 form the dendrites. It's a -- it's a kind of a 11:45:00

4 plastic resin and it wouldn't allow the dendrite 11:45:04

5 growth. 11:45:10

6 Q Okay. And can you explain why that is? 11:45:11

7 A As I said, it's density and there are no 11:45:14

8 exposed nucleating sites through the Kynar. 11:45:18

9 Q Can you compare that to whether there would 11:45:23

10 be nucleating sites in the separator material? 11:45:26

11 A Yes -- 11:45:29

12 MR. PALMIERI: Objection to form. 11:45:29

13 A Well, two things -- sorry to interrupt. 11:45:31

14 There are two things, the -- the separators 11:45:34

15 can contain many nucleating sites because of their 11:45:43

16 ambient surface area; that's one thing. And the 11:45:47

17 second issue associated with the -- with the -- with 11:45:51

18 the separators themselves is they can act as a 11:46:00

19 scaffolding on which the incoming flow of lithium ions 11:46:03

20 would aggregate and would prevent the absorption of 11:46:10

21 those in the intercalating sites in the underlying 11:46:16

22 layer. 11:46:20

1 Q And would you have that same type of 11:46:20  
2 scaffolding if there were a gap? 11:46:22

3 A No. 11:46:25

4 MR. MUELLER: Okay. No more questions from 11:46:25  
5 patent owner. 11:46:28

6 MR. PALMIERI: We have no -- no follow-up 11:46:31  
7 questions either. 11:46:35

8 THE VIDEOGRAPHER: Okay. So it is the end 11:46:37  
9 of the testimony of Martin Peckerar, Dr. Martin 11:46:40

10 Peckerar. It is 11:46 a.m. We are off the record. 11:46:45

11 (Time noted: 11:46 a.m.) 11:46:51

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1 CERTIFICATE OF CERTIFIED SHORTHAND REPORTER

2  
3 I, MONIQUE VOUTHOURIS, Certified Court  
4 Reporter and Notary Public within and for the States  
5 of New Jersey and New York, do hereby certify:

6 That MARTIN C. PECKERAR, Ph.D., the witness  
7 whose deposition is hereinbefore set forth, was duly  
8 sworn by me before the commencement of such  
9 deposition, and that such deposition was taken before  
10 me and is a true record of the testimony given by such  
11 witness.

12 I further certify that the adverse party was  
13 represented by counsel at the deposition.

14 I further certify that the deposition of  
15 MARTIN C. PECKERAR, PH.D., occurred virtually via Zoom  
16 Videoconference, on Friday, September 10, 2021,  
17 commencing at 8:56 a.m. to 11:46 a.m. EDT.

18 I further certify that I am not related to  
19 any of the parties to this action by blood or  
20 marriage, I am not employed by or an attorney to any  
21 of the parties to this action, and that I am in no way  
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1 of this matter.

2

3 IN WITNESS WHEREOF, I have hereunto set my  
4 hand this 12th day of September 2021.

5

6

7



8

Monique Vouthouris, CCR, RPR, CRR

9

Notary Public of the State of New Jersey

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My commission expires: April 8, 2024

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