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Transcript of Ayman Fayed, Ph.D.

Date: January 28, 2025

Case: ADC Solutions Auto, LLC -v- The NOCO Company (PTAB)

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WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

Transcript of Ayman Fayed, Ph.D.
Conducted on January 28, 2025

1 (1 to 4)

1	2
1 UNITED STATES PATENT AND TRADEMARK OFFICE	1 A P P E A R A N C E S
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12 Case IPR2024-00577 and IPR2024-00671	12 JACK GRAVES, ESQUIRE
13 Patents 11,447,023 and 11,584,243	13 JONES DAY
14 -----	14 North Point
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16 Virtual Deposition of AYMAN FAYED, Ph.D.	16 Cleveland, Ohio 44114
17 Tuesday, January 28, 2025	17 216.586.3939
18 8:57 a.m. CST	18
19 Job No.: 568181	19
20 Pages: 1 - 62	20
21 Reported Stenographically by:	21
22 Tiffany M. Pietrzyk, CSR RPR CRR	22

2	4
1 Virtual deposition of AYMAN FAYED, Ph.D.,	1 C O N T E N T S
2 pursuant to notice, before Tiffany M. Pietrzyk, a	2 EXAMINATION OF AYMAN FAYED, Ph.D. PAGE
3 Certified Shorthand Reporter in the States of	3 By Mr. Smelcer 6
4 Illinois, Texas, and California, Registered	4 By Mr. Sauer 58
5 Professional Reporter, Certified Realtime Reporter,	5 By Mr. Smelcer 60
6 and a Notary Public in and for the State of	6
7 Illinois.	7 E X H I B I T S
8	8 (Attached to transcript.)
9	9 DEPOSITION EXHIBITS PAGE
10	10 Exhibit 1001 U.S. Patent Number 55
11	11 11,447,023
12	12 Exhibit 1003 Declaration of Dr. C. 18
13	13 Arthur MacCarley for U.S.
14	14 Patent No. 11,447,023,
15	15 dated 9/20/22
16	16 Exhibit 1005 U.S. Patent Application 29
17	17 Publication Number U.S.
18	18 2013/0154543, dated
19	19 6/20/13
20	20 Exhibit 1006 U.S. Patent Number 37
21	21 9,391,467
22	22

Transcript of Ayman Fayed, Ph.D.
Conducted on January 28, 2025

2 (5 to 8)

5 1 E X H I B I T S (Cont.) 2 DEPOSITION EXHIBITS PAGE 3 Exhibit 1012 Data sheet for XR3403, 54 4 DC/DC Converter, Bates 5 number IPR2024-00577 6 Exhibit 1025 Battery Charging 49 7 Specification, dated 8 3/8/07, Bates numbers 9 USPIF000001 to 30 10 Exhibit 2011 Declaration of Dr. Ayman 13 11 Fayed for U.S. Patent No. 12 11,447,023, dated 11/21/24 13 Exhibit 2014 Declaration of Dr. Ayman 15 14 Fayed for U.S. Patent No. 15 11,584,243, dated 11/21/24 16 17 18 19 20 21 22	7 1 with some of this, but just to ensure we're on the 2 same page today, is it okay if we go over a few 3 ground rules? 4 A. Yes, please. No problem. 5 Q. Okay. Do you understand that you're here 6 today under oath with an obligation to provide 7 truthful and complete answers to my questions? 8 A. I do. 9 Q. Okay. Since we have a court reporter here 10 today transcribing your testimony, can we agree not 11 to speak over one another so we have an accurate 12 record? 13 A. Yes. 14 Q. And can you agree to let me know if I ask 15 another question before you have finished one of 16 your answers? 17 A. Yes. 18 Q. And to ensure we're getting accurate 19 testimony, can we make sure that we're giving 20 audible answers as opposed to a, you know, head or a 21 gesture, a nod, anything like that? 22 A. Yes.
6 1 P R O C E E D I N G S 2 (Witness sworn.) 3 WHEREUPON: 4 AYMAN FAYED, Ph.D., 5 called as a witness herein, having been first duly 6 sworn, was examined and testified as follows: 7 EXAMINATION 8 BY MR. SMELCER: 9 Q. Good morning. Could you please state and 10 spell your name for the record? 11 A. Yes. My name is Ayman Fayed. Ayman is 12 A-y-m-a-n. Fayed is F-a-y-e-d. 13 Q. And is it okay if I address you as 14 Dr. Fayed? 15 A. Yes. 16 Q. Okay. And, Dr. Fayed, have you been deposed 17 before? 18 A. I have, yes. 19 Q. Okay. About how many times? 20 A. I want to say eight times off the top of my 21 head. 22 Q. Okay. And so you're most likely familiar	8 1 Q. And can we agree that you'll let me know if 2 you don't understand one of the questions that I ask 3 today? 4 A. Yes. 5 Q. And we can take a break today anytime as 6 needed. The only thing that I'll ask is that you 7 answer any question that's pending before we go on a 8 break. 9 Is that fair? 10 A. Yes. 11 Q. Okay. And throughout the course of the 12 deposition today, can you let me know if you need to 13 supplement one of your answers? 14 A. Yes. 15 Q. Okay. Is there anything today that would 16 prevent you from truthfully or accurately answering 17 my questions? 18 A. No. 19 Q. And is it your understanding that you're 20 here today to provide testimony in connection with 21 two inter partes review proceedings? 22 A. Yes.

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EXHIBIT 1045

Petitioner ADC (IPR2024-00577)

9 1 Q. Okay. And those proceedings relate to 2 NOCO's '023 and '243 patents? 3 A. That's correct. 4 Q. Okay. So you know which patents I'm 5 referring to if I use the terminology the 6 '023 patent and the '243 patent today? 7 A. Yes, yes, I do. 8 Q. Okay. And just to be clear for the record, 9 so the '023 patent, that's U.S. patent number 10 11,447,023. And the '243 patent is the patent 11 number 11,584,243. 12 Is that your understanding? 13 A. I believe that's correct, yes. 14 Q. Okay. And you submitted two declarations, 15 one for each patent in these proceedings; is that 16 right? 17 A. That is correct. One declaration for every 18 patent, yes. 19 Q. Okay. And would you agree there's a fair 20 amount of repetition between those two declarations? 21 A. That's true, yes. They are very similar. 22 Q. Okay. I'm going to ask some questions today	11 1 documents approximately? 2 A. I think that would be fair, yes, correct. 3 Q. Okay. And did you speak with anyone during 4 your preparation? 5 A. I have -- yeah, I have spoken with my 6 attorneys. 7 Q. Okay. And who is that? 8 A. So that would be Joseph Sauer and Jack. 9 Q. Okay. And both of them are in the room with 10 you today? 11 A. Correct, yes. 12 Q. Okay. Is there anybody else in the room? 13 A. No. 14 Q. Okay. And besides these two attorneys, did 15 you speak to anybody else? 16 A. Regarding this case, I don't -- no, I did 17 not. 18 Q. Okay. So you didn't speak to anybody who is 19 not a lawyer in preparation for today's deposition? 20 A. Certainly not, no. 21 Q. Okay. In preparing your declarations, did 22 you speak to anyone who is not a lawyer for purposes
10 1 that I'll assume are applicable to both declarations 2 unless you tell me otherwise or unless the question 3 is directed to a specific patent. 4 Is that fair? 5 A. Yes, it is. 6 Q. Okay. What did you do today to prepare for 7 the deposition -- or sorry. Strike that. 8 What did you do to prepare for today's 9 deposition? 10 A. I read my declarations. I did study the 11 patents, very quick look on the patents one more 12 time. I look at some of the prior art that is 13 discussed in the report. That's primarily what I 14 have done. 15 Q. Okay. And approximately how long did you 16 spend reviewing those documents? 17 A. So I started the review over the weekend, so 18 I want to say in total, maybe ten hours. 19 Q. And did you -- I'm sorry. Go ahead. 20 A. Yeah, I said including the review that I did 21 yesterday as well. 22 Q. Okay. So ten hours total reviewing	12 1 of preparing the declaration? 2 A. No. 3 Q. Okay. You didn't speak to anybody at NOCO? 4 A. No. 5 Q. In connection with your preparation for 6 today's deposition, did you review any materials 7 that are not identified in your declarations? 8 A. Yes, I did. 9 Q. And what were those materials? 10 A. That was a transcript of a prior deposition. 11 Q. And whose deposition was that? 12 A. It was my own deposition. 13 Q. And what case was that from? 14 A. That was a prior case that involved 15 similar -- involved some of the prior art. 16 Q. Was that a case before the International 17 Trade Commission? 18 A. Yes, that's correct. 19 Q. Was that transcript marked confidential? 20 A. Yes, it was. 21 Q. Okay. And it's my understanding that you 22 have a set of exhibits printed out and available to

13 1 you today; is that right? 2 A. Correct, yes. 3 Q. Okay. And are there any notations or 4 highlighting on these exhibits? 5 A. Not that I'm aware of. They're all -- 6 they're all brand-new printed. 7 Q. Okay. And do you have any other notes or 8 reference materials in front of you today? 9 A. I do not, no. 10 Q. Okay. Bear with me a moment. I'm gonna go 11 ahead and upload one of the documents here. 12 MR. SAUER: Which document so I can grab it? 13 MR. SMELCER: Sure. It's gonna be 14 Exhibit 2011, Dr. Fayed's report for the 15 '023 patent. 16 (Exhibit 2011 was marked for 17 identification and is attached to the 18 transcript.) 19 MR. SMELCER: Okay. So I've uploaded 20 Exhibit 2011 from the IPR proceeding 2024-00577 for 21 the '023 patent. 22 ///	15 1 Q. Approximately how long did you spend 2 preparing this declaration? 3 A. The declaration itself, since I started 4 working on it, I want to say something like 50, 5 50 hours, 50 to 60 hours. Something around that. 6 Q. Okay. And do you recall any major 7 differences between this declaration and the second 8 declaration you submitted for the '243 patent? 9 A. Major differences? I would say no, I don't 10 remember there were any major differences. The 11 second declaration was pretty much minor 12 modifications to the '023 one. So I don't recall 13 that there were anything major difference. 14 Q. Okay. And I'll go ahead, if we could please 15 also have you get out your copy of Exhibit 2014 in 16 the second IPR proceeding, which is your declaration 17 for the '243 patent. 18 (Exhibit 2014 was marked for 19 identification and is attached to the 20 transcript.) 21 A. Okay, I have that. 22 Q. Okay. And do you recall approximately how
14 1 BY MR. SMELCER: 2 Q. Dr. Fayed, do you also have this document in 3 front of you, which is your declaration? 4 A. Yes, I do. 5 Q. Okay. And is this the declaration we talked 6 about earlier which you prepared in connection with 7 the '023 patent? 8 A. Yes, that's correct. 9 Q. Okay. And if we turn to the final page of 10 Exhibit 2011, do you see your signature there on the 11 final page? 12 A. Yes, I do. 13 Q. Okay. And so if we talk about your 14 declaration today, unless I talk about the 15 '243 patent, which is a separate declaration, do you 16 understand that we'll be referring to this exhibit 17 here, Exhibit 2011? 18 A. Yes, I understand. 19 Q. Okay. And did you write this declaration? 20 A. I have write -- I have written large 21 portions of the declaration, and the other parts 22 were written under my supervision and review.	16 1 long you spent preparing this second declaration for 2 the '243 patent? 3 A. I'm gonna say a fraction of the time that I 4 spent because a lot of it were identical to the 5 other declaration, so maybe -- maybe five hours. 6 Q. And if we turn to the final page of this 7 document, is that your signature on the final page? 8 A. Yes. 9 Q. Okay. And was the process of preparing this 10 declaration different or similar to your declaration 11 for the '023 patent? 12 A. It's very similar, yes. 13 Q. Okay. So wrote this declaration with the 14 assistance of others at your supervision? 15 A. That is correct. 16 Q. Okay. We can set that declaration aside. 17 And let's look back at your declaration for the 18 '023 patent. 19 A. Okay. 20 Q. Do you have that in front of you? 21 A. I do, yes. 22 Q. Okay. If we could please turn to the first

17 1 numbered page of this document, so that will be 2 page 1. I think it's about the fourth page in. 3 A. Yes, page number 1. 4 Q. Sure. 5 And do you see paragraph 3 there, you've 6 identified a list of materials that you considered 7 in preparing your declaration? 8 A. Yes, I do see that. 9 Q. Okay. And are you aware of any materials 10 that are exhibits in this proceeding that you did 11 not consider? 12 A. That I did not consider? The list of the 13 material listed here, this is what I considered for 14 this report. 15 Q. Okay. 16 A. Yeah. 17 Q. And so if we look through the subsections 18 for paragraph 3, do you see that, when we get down 19 to subsection N, compared to subsection O, there are 20 a number of exhibits that aren't listed there, such 21 as Exhibit 1022, 1023, and 1024. 22 Do you see that?	19 1 Q. Okay. Great. And if you could please turn 2 to -- if you could please turn to page 6 of 3 Exhibit 1003 and let me know when you're there? 4 A. Yes, I'm there. 5 Q. Okay. And if we look at page 6 of 6 Exhibit 1003, then leading on to the next page, 7 page 7, do you see that there's some exhibits listed 8 there, Exhibit 1022, 1023, and 1024? 9 A. I see -- that's in page 6 and it's 1022, 10 1023, and 1024. I am seeing this list, yes. 11 Q. Okay. So if we just take a look at 12 Exhibits 1022, and 1023, do you see that those 13 exhibits are identified as the Chinese and certified 14 English translations of a utility model patent 15 numbered CN 203788026 U? 16 A. Yes, I see that. 17 Q. Okay. And then, if we could please turn 18 back to your declaration, paragraph 3 that we were 19 looking at before? 20 A. Okay. 21 Q. I just wanted to confirm, so you did not 22 consider Exhibits 1022 and 1023 in connection with
18 1 A. I do not. Are you referring to page 2 number 1 or page number 2 now? 3 Q. This is on page 2 now. 4 A. Oh, on page 2 and then you're asking about 5 items M and N? 6 Q. Sorry. Between N and O, there's a few 7 exhibits there that aren't listed which would be 8 Exhibit 1022, 1023, and 1024. 9 A. I'm not sure what you're referring to, 10 Counsel. I mean, I'm looking at N -- you're saying, 11 between N and O, there are exhibits that are not 12 listed? Is that what you are saying? 13 Q. Sure. I think it will help if we take a 14 look at a document, so if we could please pull out 15 Exhibit 1003, which is Dr. MacCarley's declaration 16 in IPR proceeding 2024-00577. 17 MR. SMELCER: And I'll go ahead and upload 18 that now. 19 (Exhibit 1003 was marked for 20 identification and is attached to the 21 transcript.) 22 A. Okay. So I have Exhibit 1003.	20 1 your declaration? 2 A. Okay. So I did consider the Chinese utility 3 model patent. We call it the Yu patent, and that 4 one is listed under item F in the list of documents 5 that I considered. These are the ones, that Yu 6 patent is the one that I considered. 7 Now, this patent listed here in page 6 of 8 the petition, which is 1022, 1023, I have to go 9 compare the numbers, but it appears that the numbers 10 are different. So unless -- I want to go and look 11 at the '243 list of items considered because I know 12 that there was an extra prior art, I believe, in the 13 '243, but I don't remember whether it would be that 14 one or not. Like, I don't remember the numbers. 15 Q. Okay. Well, we can turn to Exhibit 2014, 16 then, which is your declaration for the '243 patent. 17 A. Okay. 18 Q. If you could please confirm that Exhibits 19 1022 and 1023 are also not identified in your list 20 of materials considered? 21 A. So I do not see that particular number 22 listed in '243. So based on that list in both

21 1 declarations, that document is not listed. 2 Q. Okay. And are you aware why you did not 3 consider that document? 4 MR. SAUER: Objection. Form. 5 A. I have to look at my folder where -- I mean, 6 maybe I have read it, but I -- what I know for sure 7 is the list of documents listed in my report, this 8 is what I considered for the purpose of writing the 9 report. So if it's not listed there, then I didn't. 10 Q. Okay. And so then that would mean that 11 you've not considered every document that was 12 considered by Dr. MacCarley? 13 MR. SAUER: Objection. Form. 14 A. Well, I can tell you that I have read his 15 declaration and I have studied all the points that 16 he is referring to in his declaration. But if 17 it's -- if I didn't list it in this report, in my 18 own report, then I didn't rely on something from it 19 for the purpose of my report. 20 Q. Understood. If we could please turn back to 21 your declaration for the '023 patent, which, again, 22 for the record, is gonna be Exhibit 2011, and if we	23 1 is running. So how much power will be transferred 2 during that period, I did not really look into that. 3 Q. And so if we were gonna assume, for the sake 4 of an example, that we have a jump starter that's 5 gonna discharge power at 12 volts with a peak 6 current of 1,000 amps for 20 to 50 milliseconds, can 7 you use those numbers to calculate how much power is 8 being discharged? 9 MR. SAUER: Objection. Form. 10 A. Theoretically, you could. I mean, power is 11 basically rate of energy. And if you have the 12 voltage and if you have the amount of current that 13 you are discharging during that period of time, you 14 can multiply V times I and integrate that over the 15 period of time where you are consuming that power, 16 and that will give you the total energy that you 17 have transferred during that time. 18 Q. Okay. So in this example, if we multiply 19 our 1,000 peak amps by our 12 volts, that's going to 20 give us the amount of watts? 21 A. That will give you that, what we call the 22 instantaneous power, the instantaneous power, and/or
22 1 could please turn to page 35, and feel free to let 2 me know when you're there. 3 A. Okay. I'm there. 4 Q. Okay. And do you see in the first sentence 5 of paragraph 70, you're talking about the duration 6 of a jump start? 7 A. Yes, correct. 8 Q. Okay. And so is it your opinion that a jump 9 start is gonna require power to be discharged for 10 approximately 20 to 50 milliseconds from the 11 batteries of the jump starter device? 12 A. That's the typical range that you would 13 expect for a jump starter to be able to provide the 14 peak current for in order to jump-start the vehicle. 15 Q. Okay. So is power being provided outside of 16 that 20-to-50-millisecond window? 17 A. Not the peak amount. The peak current is 18 basically what jump-starts the vehicle, and that's 19 what you need to provide for that period of time. 20 What happens after that will depend on what happened 21 to the vehicle. If the vehicle started, then, you 22 know, your alternator is running and now the battery	24 1 the rate of energy, if you will. Now, if you take 2 that number and multiply it by the period of time, 3 20 to 50 milliseconds, that will give you the total 4 energy during that period of time that you 5 transferred. 6 Now, of course, there are a lot of 7 mathematical assumptions for you to be able to do 8 that. For example, you will have to assume that the 9 12-volt is actually remaining fixed at 12 during the 10 entire duration. You'll also have to assume that 11 the amount of current, which is 1,000-amp that 12 you're referring to, is also fixed during that 13 duration. If they are, then it's a simple 14 multiplication, as I described earlier. If they're 15 not, then you're gonna have to find the waveform and 16 perform an actual integration to be able to figure 17 it out. 18 Q. And so if I have 20 to 50 milliseconds of 19 time in this example, if I divide that by 3600, 20 that's gonna give me hours, the amount of hours that 21 are gonna be involved in this jump start? 22 A. Yeah. If you want to transfer millisecond

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25 1 to hours, then you have to divide by 1,000 first to 2 get it in seconds and then you divide by 60 to get 3 it in minutes and then you divide by another 60 to 4 get it in hours. So I think the 5600 that you're 5 referring to is only 60 times 60, so you would be 6 missing another factor of 1,000 there. 7 Q. Got it. And so if I wanted to determine a 8 reasonable estimate of the amount of power that's 9 gonna be consumed under this scenario, I would take 10 my 20 to 50 milliseconds and convert it into hours, 11 multiply by my volts and my 1,000 peak amps, and 12 that's going to give me an estimate of my watt hours 13 that are used for this jump start? 14 A. Okay. I just want to make sure we don't 15 conflate power and energy because they're two 16 different things. Right? So what you're referring 17 to just now, that will give you the total energy 18 during that period of time. So you would be correct 19 there, yes. If you take the 20 to 50 millisecond, 20 convert that to hours, take that and multiply by the 21 voltage and current, it will give you the total 22 energy that was transferred during that period of	27 1 give us, in watt hours, a reasonable estimate of how 2 much energy has been discharged from our jump 3 starter battery during one jump start? 4 A. That would be correct, yes. 5 Q. And if we turn to a few sentences down in 6 this paragraph 70, which is on page 35 of 7 Exhibit 2011, do you see that you're talking about a 8 peak current need typically between 1,000 and 9 4,000 amps for a jump starter? 10 A. That is correct, yes, I see that. 11 Q. Okay. And do you see that you did not cite 12 any documents here to support these amp values? 13 A. I do not see citation, no. 14 Q. Okay. And are you aware of a specific 15 vehicle that, as of July 2, 2014, would have 16 required 4,000 amps to be jump-started? 17 MR. SAUER: Objection. Form. 18 A. I cannot tell you that. I cannot tell you, 19 like, there was a specific vehicle that would 20 require 4,000 amps. I cannot identify or tag a 21 specific tag -- a specific vehicle for that, no. 22 Q. What about 3,000 amps? Can you think of a
26 1 time. This is under the assumption that the 12-volt 2 remains constant during that period and the 3 1,000-amp also remain constant during that same time 4 period. 5 Q. And if the 12-volt and the 1,000 amps did 6 not stay constant, would they be decreasing, 7 potentially, during that period? 8 A. I mean, they could be decreasing. They 9 could be increasing. It really depends on what they 10 are going to. Right? I mean, they could be spiking 11 upward. They don't have to be decreasing. If you 12 have a little bit of an extra impedance in the path, 13 for example, of the load that you're transferring 14 that to, then that 1,000-amp can cause the voltage 15 to spike above 12. Or if you have any drew [sic]. 16 So I cannot tell you if -- I cannot tell you 17 exactly how it will move, but it is definitely 18 conceivable that it can go up or down. There are a 19 variety of reasons that can cause it to behave in 20 either way. 21 Q. Got it. And so this calculation we've run 22 of peak amps times volts times hours is going to	28 1 specific vehicle or engine that would need that 2 amount of peak amps? 3 A. Not a specific vehicle, no. The way these 4 numbers came about is that I actually looked at the 5 variety of jump starters and I looked at their 6 specifications in terms of peak current. So it was 7 not driven by a vehicle, it was driven by devices. 8 Q. And were these devices devices that are on 9 the market today? 10 A. Many of them, I believe, are on the market 11 today or remain to be on the market today, yes. 12 Q. Did you confirm whether any of those devices 13 were marketed with these peak amp values before 14 July 3, 2014? 15 A. I cannot confirm that, no. I looked at a 16 variety of devices available in the marketplace and 17 I looked at their specifications. I didn't look at 18 specific dates as of what these specs were in 2014 19 or before 2014. Unless, obviously, vehicle 20 specifications changed dramatically from 2014 until 21 now, I have no reason to think that it would have 22 been any different.

29 1 Q. But you did not review any documents to 2 confirm that? 3 A. No, I have not. 4 Q. And are you aware of any engines that 5 existed before July 3, 2014, that used a 48-volt 6 starter system? 7 A. I cannot identify a specific vehicle that 8 would use 48-volt. I know from my experience in the 9 field that there has been a lot of research being 10 done, a lot of work on the vehicle electrical system 11 and that 48-volt was one of the voltage levels that 12 were known. But I can't tell you, like, a specific 13 car model, for example, that had that. 14 Q. Okay. If we could set aside this exhibit 15 and turn to Exhibit 1005, which is the Richardson 16 reference. 17 MR. SMELCER: And I will go ahead and upload 18 that now. 19 (Exhibit 1005 was marked for 20 identification and is attached to the 21 transcript.) 22 A. Yeah, I have it ready, Paul -- Counsel.	31 1 this example where the batteries don't have enough 2 power, you could use the capacitors to perform a 3 jump start? 4 A. Yes. If you don't mind, I will just read 5 the sentence out loud. It says, "Even in situations 6 in which the jump starter batteries 22 may be 7 discharged to an extent that they alone may not be 8 able to provide the necessary power to start a 9 vehicle, the capacitors 21 may be rapidly recharged 10 to start many vehicles in a row." 11 Q. And so is this sentence explaining that 12 you're able to jump-start a car using just the 13 capacitors? 14 A. Well, the sentence itself is not saying 15 that. It says that if the battery is discharged, so 16 it has limited ability in providing you the peak 17 current that you need, which by the way, does not 18 mean that the battery is necessarily empty, it just 19 is unable to provide the necessary peak current, 20 then the capacitor that is placed in parallel can 21 help with that process and provide that charge very 22 rapidly in order to jump-start the vehicle. Very
30 1 Q. Great. Thank you. I will upload it now. 2 If we could please turn to paragraph 55 of 3 the Richardson reference, which is going to be on 4 page 18. If you could please let me know when 5 you're there. 6 A. Okay, I am at page 18. Which specific 7 paragraph? 8 Q. Paragraph 55, please. 9 A. Yes, I am there. 10 Q. Okay. And do you see in the middle of this 11 paragraph, the references discuss an example where 12 capacitors 21 and jump starter batteries can be 13 fully recharged in about 1 to 5 minutes? 14 A. Yes, the full statement says, "This allows 15 the capacitor 21 and jump starter batteries 22 to be 16 fully recharged in about 1 to 5 minutes and can 17 therefore start many vehicles in a row without 18 becoming discharged." 19 Q. And then do you see in the second -- sorry. 20 Strike that. 21 Do you see in the next sentence that the 22 Richardson reference goes on to describe that in	32 1 common practice, you know, in many electrical 2 systems where you have a big capacitor in parallel 3 to provide you a peak current that your energy 4 source may not be able to at this particular moment. 5 Q. In your experience, would it be possible to 6 jump-start a car using solely capacitors? 7 A. In my experience, no. These capacitors are 8 only transient. They help you provide -- supplement 9 the peak current if the main energy source is unable 10 to do that for one reason or another. But to 11 jump-start the capacitor -- the vehicles with a -- 12 capacitors only, I am not aware of any device that 13 does that. 14 Q. So in your opinion, a capacitor would not be 15 able to store sufficient energy and be able to 16 supply enough peak current to jump-start a vehicle? 17 A. In my experience, it's always supplementary 18 source of energy for transient purposes, being able 19 to very rapidly give you a large amount of charge in 20 a brief period of time. That's what the capacitors 21 are for. 22 It's -- I can elaborate a little bit on the

33 1 technical aspect for it, but what you -- what you 2 need to take into account, that the capacitor, the 3 voltage across a capacitor is a direct function of 4 the amount of charge stored on the capacitor, 5 meaning that once you start taking any charge from 6 the capacitor, the voltage on the capacitor will 7 drop. It will not stay the same. And that's the 8 biggest distinction between a capacitor and a 9 battery. 10 A battery is capable of giving you that 11 charge but maintaining the voltage. And remember 12 you need both. So the capacitor, once you start 13 taking that charge, the voltage will immediately 14 drop. And if it drops below what the other battery 15 is, then it's not gonna be able to do anything. In 16 fact, it might end up transferring energy on the 17 opposite direction. But the battery is what 18 maintains the voltage. So the capacitor is usually 19 added in parallel to be able to give you that 20 supplemental charge at the very rapid pace, and the 21 battery maintains the voltage. So it's complicated. 22 It's not a simple thing that I can just take a	35 1 A. Yeah. These are supercapacitors we also 2 call them. That's another expression for it, yes. 3 So he's citing, like, a specific product from a 4 company or something, Maxwell Technologies, so maybe 5 that's the name they call it. But it's a 6 supercapacitor. These are what we call 7 high-capacity capacitors. Yeah. 8 Q. And so if you had enough supercapacitors 9 connected in series, would you have enough energy 10 and peak current to be able to jump-start a vehicle? 11 A. I believe if they're fitted or they're 12 connected in parallel, not in series because when 13 you connect capacitors in series, you actually 14 reduce the capacitor. So I believe you are 15 referring they're connected in parallel, so you add 16 the charge up. 17 So you're saying -- well, these 18 supercapacitors, they do not alter the fundamental 19 behavior of a capacitor. A capacitor behaves 20 whether it's supercapacitor or any other type of 21 capacitor. It has the same impedance versus 22 frequency. The supercapacitors are just high
34 1 capacitor and use it for that purpose. 2 Q. What about an ultracapacitor? Would those 3 be sufficient to jump-start a vehicle? 4 A. I'm sorry. What about what type of 5 capacitor again? 6 Q. If you had a series of ultracapacitors 7 connected, would that be sufficient to jump-start a 8 vehicle? 9 A. A series of ultracapacitors? 10 Q. Yes. 11 A. I'm not sure what you mean by 12 ultracapacitors. What is that? Do you mean 13 supercapacitors? What is that term "ultra"? 14 Q. Why don't we go turn to page 15 of the 15 Richardson reference and look at paragraph 15. 16 Please let me know when you're there. 17 A. Yes, I'm there. 18 Q. Okay. And do you see that in paragraph 15, 19 the Richardson reference is talking about examples 20 of ultracapacitor cells and identifies the Boostcap 21 Energy Storage Module available from Maxwell 22 Technologies?	36 1 capacity, meaning that they allow you to charge a 2 very large amount of -- to store a very large amount 3 of charge in a small volume. 4 If these capacitors are very high capacity, 5 then the drop in voltage as you take charge out is 6 going to be smaller. So if you have a very large 7 capacitor -- and by the way, a battery, you know how 8 like I say the battery will maintain the voltage as 9 you take charge? A lot of times, we model that as 10 if it's a very large capacitor, like a huge 11 capacitor. So it would all depend on the size of 12 these capacitors. 13 If you have a huge value capacitance, then 14 you could potentially use the 4,000 peak current 15 that you need out of it, and the voltage will not 16 drop to a level where the jump-starting process will 17 fail. So it's just a matter of what the size of 18 these capacitors are going to be. But in theory, 19 yes, if you have an infinite amount of capacitance, 20 you can do whatever you want to do with it, and the 21 voltage will remain the same. 22 Q. If we could please turn to Exhibit 1006,

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37 1 which is the Zhao reference, and please let me know 2 when you have that in front of you. 3 A. Okay. 4 (Exhibit 1006 was marked for 5 identification and is attached to the 6 transcript.) 7 A. I do. 8 MR. SMELCER: Okay. I'm gonna go ahead and 9 upload this. 10 Q. If we could please turn to page 11 of 11 Exhibit 1006. Please let me know when you're there. 12 A. I'm there. 13 Q. Okay. And if we look at column 4 of the 14 Zhao reference, lines 40 to 41, there's an example 15 there that's talking about a final voltage that can 16 be about 8.4 volts. 17 Could you please let me know when you're 18 there? 19 A. Yes, I am there. And if I read the full 20 sentence, if that's okay, "When battery voltage 21 V BAT is greater than threshold voltage 22 V threshold 1 but less than the final voltage V CV	39 1 3.6 rapidly drops all the way to 2.7 and then 2.3. 2 And depending on the system that is using it and 3 what voltage it can or cannot tolerate, you will 4 determine whether you shut down the system or not. 5 But that's the typical -- we call it the 6 discharge profile of the battery. When you're fully 7 charged, it's 4.2-volt. You start loading it, it 8 quickly drops to 3.6. And then for the vast 9 majority of time, it stays at 3.6. 10 Now, the definition of nominal voltage of 11 the battery is actually the integration of the 12 entire voltage profile over time, which you can 13 think of it as if it's the average of the voltage, 14 and because most of the time it stays at 3.6, that's 15 why the result of that math is about 3.6. So the 16 nominal voltage of a lithium-ion battery is about 17 3.6-volt. 18 Q. Okay. And so in this example here where 19 Zhao is talking about two lithium batteries are 20 connected in series and there's 8.4 volts 21 contemplated, does that mean that each of these 22 batteries has 4.2 volts?
38 1 (for example, final voltage V CV can be about 2 8.4-volt if two lithium batteries are connected in 3 series), step-up converter control circuit 102 can 4 maintain output current I OUT at a predetermined 5 operating current" -- I think that's sufficient, I 6 guess, for your purpose. 7 Q. Uh-huh. 8 My specific question is in this example, 9 there's two lithium cells discussed. 10 What is the nominal voltage of these cells? 11 A. So lithium-ion batteries specifically, their 12 voltage obviously varied with time as you'll start 13 consuming but typically, for the most period of 14 time, usable time of the battery, it's about 15 3.6-volt. That's the nominal voltage of the 16 lithium-ion battery. When you charge the 17 lithium-ion battery and it becomes fully charged, 18 it's about 4.2-volt. But once you load it with some 19 loading, it will very quickly drop to 3.6 and 20 remains there for an extended period of use. And 21 then towards the end when it becomes, you know, 22 not -- when it becomes discharged, if you will, that	40 1 A. He's contemplating in this when the battery 2 is fully charged. Right? So that's kind of like 3 the maximum you would expect from them when they are 4 fully charged. 5 Q. Okay. So each of these cells that's 6 discussed here is 4.2 volts fully charged for a 7 total pack voltage of 8.4 volts? 8 A. Correct. Yes. If they are both fully 9 charged, each one is about 4.2 volt, and then there 10 is two of them so that will give you the 8.4 listed 11 in this patent. 12 Q. And so if I connect another cell in series 13 within that pack, I'm gonna get 12.6 volts for my 14 total pack voltage? 15 A. For a brief period of time, yes, when they 16 are fully charged. Once you load them with any 17 load, they will drop to 3.6 each. And then you can 18 multiply the 3.6 times 3 and that will get you what 19 you would expect to have for the vast majority of 20 time where you're using the battery. 21 Q. And so -- 22 A. And one clarification, Counsel, that I think

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EXHIBIT 1045

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41 1 it's a useful data point, that in -- when we build 2 lithium-ion-operated systems and we start thinking 3 about the number of batteries that we need to use in 4 a system, we typically base it on the nominal 5 voltage, not on the fully charged voltage, because 6 the fully charged voltage only lasts for a brief 7 period of time. So keep that in mind. 8 Q. And so if we have a DC-DC boost converter 9 that can boost a 5-volt input to 8.4 volts, what 10 would be the primary difference between that DC-DC 11 boost converter and one that could boost from 12 5 volts up to 12.6 volts? 13 A. There would be notable difference in terms 14 of performance and in terms of design. So to -- in 15 terms of design, the difference is as follows: 16 These boost converters are what we call switching 17 power converters. And the way these converters 18 operate, they operate with a specific duty cycle 19 switching that is a function of the ratio between 20 the input voltage and the output voltage. 21 So when the space between the input and 22 output voltage, it gets bigger, or when the	43 1 converter, the -- you're gonna get degraded 2 transient response and degraded power conversion 3 efficiency. So that's from a design standpoint. 4 Now, another aspect that significantly 5 degrades the efficiency is that, as you know, from 6 energy conservation, input power and output power 7 are supposed to be the same, ideally, if you don't 8 have any losses. What that means is, if you 9 increase the output voltage of that boost converter, 10 that means that, for the same amount of current that 11 you want to deliver at that higher voltage, the 12 corresponding input current becomes larger because 13 energy conserve. Like think about it like, if your 14 total energy is 4 and you're doing 2 times 2 versus 15 1 times 4, right, so when the voltage is less, the 16 current will have to go up. So the end result of 17 that, that the input current will increase. So when 18 you go from 8.4 to 12, for example, whatever the 19 issue is, 20 percent, 50 percent, whatever it is, 20 then your input current is gonna increase by the 21 same amount. 22 Well, the problem is that your input current
42 1 difference between them is bigger, your duty cycle 2 of switching becomes smaller and smaller. And what 3 that means is that all your power transistors, all 4 your devices in the system, they start to have to be 5 able to handle smaller pulses when the difference 6 between the voltages are big. That means you have 7 to make everything a lot faster. And what that 8 means is that your amount of losses becomes bigger. 9 So you start seeing significant drop in 10 efficiency of the converter as the difference 11 between the input and output gets bigger. And the 12 design becomes also more difficult and you might end 13 up -- actually most of the time you do, because 14 these pulses become too short, you end up having to 15 increase the switching period, which degrades your 16 ability to provide high amounts of current at short 17 periods of time. So basically the bandwidth of your 18 system will have to be degraded if the difference 19 between the input and output voltage becomes bigger. 20 So without too much details into that, 21 bottom line is, if the difference between input and 22 output from a design standpoint for the boost	44 1 determines a lot of what we call conduction losses. 2 These are I-squared-R losses. So they go with the 3 square of the current. So any increase in that 4 current gets squared and your losses are going to 5 increase accordingly. So that brings your 6 efficiency even further down in addition to the 7 design aspects that I just explained. 8 So in summary, therefore, yes, there is 9 material difference going from 8.4 to 12 volt and it 10 will be primarily degraded efficiency and degraded 11 transient response. 12 Q. And so if we turn to the Zhao reference at 13 column 1, lines 59 to 61, could you please let me 14 know when you're there? 15 A. Page number again, Counsel? 16 Q. So this would be page 10 of Exhibit 1006. 17 A. Okay, I'm there. And which lines? 18 Q. We're looking at column 1, lines 59 to 61. 19 A. Okay. I am there. This is the one that 20 describes "Figure 1 is a schematic block diagram of 21 a first example step-up battery charger in 22 accordance with embodiments of the present

45 1 invention." I see that, yes. 2 Q. Okay. And then if we turn to the next 3 adjacent column, column 2, starting at line 63, do 4 you see that this paragraph is further describing 5 what's shown in figure 1? 6 A. I see that, yes. 7 Q. Okay. And if we turn to the next page, do 8 you see that, in this same paragraph, the second 9 sentence of column 3 is talking about an output 10 signal from the step-up converter? 11 A. Yes, I see that. 12 Q. Okay. And then the following sentence talks 13 about an output of the charging control circuit that 14 can charge a plurality of series-connected 15 batteries. 16 Do you see that? 17 A. Yes, I see that. 18 Q. Okay. And so the output of this charging 19 control circuit 201, that's gonna connect to the 20 batteries to provide their charging input? 21 A. I would like to read the entire paragraph 22 just to make sure I know the context.	47 1 would be symbols, that is correct. The only thing I 2 will point out is that a lot of times, when people 3 use the symbol for the battery, it doesn't 4 necessarily mean that that means it's a single cell. 5 It could also by itself mean multiple cells. So the 6 only thing I can say for sure, by just looking at 7 the figure, that there are three units of batteries 8 that this patent is contemplating. Whether each 9 unit is a single cell or not, it may or may not be. 10 Q. And so if these are three cells here 11 connected in series, we talked before about Zhao 12 contemplating 4.2 volts per cell, so the total pack 13 here would be at least 12.6 volts; is that right? 14 A. If the fully charged voltage of each cell is 15 4.2 and there are three of them, then that will be 16 the number that you referred to, 12-point-something. 17 If they are lithium-ion batteries and they are fully 18 charged, then yes, that would be the voltage level. 19 Q. And so there's this three dots here or 20 ellipses in the pack which suggests that we could 21 add even more cells, connect them in series if we 22 wanted to?
46 1 Q. Sure. 2 A. Okay. I'm done. So what was the question 3 again? 4 Q. The question was, do you see that it's 5 describing that the output of charging control 6 circuit can charge the pack of batteries? 7 A. Yes, I see that. 8 Q. Okay. And so you would expect that this 9 charging output of the control circuit 201, that's 10 gonna connect to your battery pack? 11 A. I expect that to be the case, yes, but I 12 would like to, if you don't mind, I want to look at 13 figure 1 just to -- yes, that is correct. 14 Q. Okay. And so we're looking at figure 1 now, 15 which is page 2 of Exhibit 1006. So the output of 16 charging control circuit 201, that's connected to 17 those three symbols there on the far right-hand 18 side, the battery pack? 19 A. Yes. 20 Q. Okay. So in this figure, it's contemplating 21 that there's a pack of at least three cells here? 22 A. Well, a minimum of three of these units	48 1 A. That's what that normally indicates in 2 schematics, correct. 3 Q. Okay. So our pack voltage could actually 4 go -- could go up above 12.6 volts here if we wanted 5 it to? 6 A. Yeah. If somebody is gonna use that circuit 7 and choose to add more cells, they could do that, 8 yes. Or that figure leaves the room for doing that, 9 yes. 10 Q. Okay. And if we could please turn to 11 Exhibit 1025? 12 MR. SAUER: Whenever a good time for a 13 break, a bio break would be -- 14 MR. SMELCER: Yeah, let's go ahead and take 15 a break now if that's good for everybody. 16 MR. SAUER: Yeah. 17 (A short break was had.) 18 BY MR. SMELCER: 19 Q. So, Dr. Fayed, before the break, I asked you 20 to turn to Exhibit 1025, which I'll go ahead and 21 upload now. If you could please let me know when 22 you have that document in front of you.

49 1 A. I do. 2 (Exhibit 1025 was marked for 3 identification and is attached to the 4 transcript.) 5 Q. And do you recognize this document as the 6 USB battery charging specification that was 7 originally issued on March 8, 2007? 8 A. Yes, I do. 9 Q. And are you familiar with this 10 specification? 11 A. Yes, I have looked at this document in the 12 process so I'm familiar with it, yes. 13 Q. Okay. And in connection with this 14 specification, would a USB input power source be 15 providing 5 volts? 16 A. I'm sorry, Counsel. Can you repeat the 17 question again? 18 Q. Sure. In connection with the power that can 19 be provided under this specification, would the 20 voltage be 5 volts? 21 A. Yes, the USB VBUS voltage is 5 volt, 22 correct.	51 1 And then for the next example below that, 2 1.5 amps at 5 volts, that would be 7.5 watts? 3 A. Correct. 4 Q. Okay. And are you aware of revisions to 5 this specification that increased these amp values? 6 MR. SAUER: Objection. Form. 7 A. I am aware that, yeah, USB -- USB evolved 8 over the years, and there have been many revisions 9 that came later on that did alter or modify these 10 values, correct. 11 Q. And are you aware of specification revision 12 to this specification we're looking at that was 13 issued in 2012 that increased the amps to 5 amps? 14 MR. SAUER: Objection. Form. Outside the 15 scope. 16 A. I will say that I -- the documents -- for 17 the purpose of this report, I only considered these 18 documents, so I cannot really make specific comments 19 about any specific values without studying that 20 separately to be able to affirmatively answer your 21 question. 22 Q. Okay. So sitting here today, you're not
50 1 Q. And if we could please take a look at 2 page 29 of Exhibit 1025, and specifically I wanted 3 to look at table 5-2 labeled "Currents." If you 4 could please let me know when you're there? 5 A. Yes, I am there. 6 Q. Okay. And do you see that there's a few 7 listings here of currents that can be provided for 8 USB charging? 9 A. Yes, that is correct. 10 Q. Okay. And do you see in the third row, 11 there's an amperage of 1.8 amps that can be 12 provided? 13 A. I see that, yes. 14 Q. Okay. And below that there's 1.5 amps? 15 A. I see that, yes. 16 Q. Okay. So for that first example of 17 1.8 amps, if we're obtaining power at 5 volts, that 18 would be approximately 9 watts of power that can be 19 provided? 20 A. It would be 5 times 1.8, which would be, 21 yeah, around 9.4 I think, yeah. 22 Q. Okay.	52 1 aware of a revision to this specification in 2012 2 that increased the amps to 5 amps? 3 MR. SAUER: Same objection. 4 A. I am aware that there has been revisions to 5 USB specification over the years, but I -- sitting 6 here today, I can't really comment on specific 7 numbers and specific dates without me studying these 8 documents first, which I'm not prepared to answer 9 questions about these documents now. 10 Q. Are you aware of a 2012 revision to this 11 specification? 12 MR. SAUER: Same objection. 13 A. As I mentioned, I am aware of a variety of 14 USB specifications that came out over the years that 15 did modify what the power ratings will be, but I'm 16 unable to make any specific comment on -- in which 17 year what amperage was listed. 18 Q. Do you recall submitting a declaration in a 19 lawsuit with a company called Deltran? 20 MR. SAUER: Objection. Outside the scope. 21 A. I believe I had some declaration submitted 22 in a case that involved that name that you just

53 1 mentioned, yes. 2 Q. Okay. And do you recall relying on certain 3 USB specifications in connection with that 4 declaration? 5 MR. SAUER: Same objection. 6 A. I recall that there was discussion of USB, 7 but I have not really prepared or looked into that 8 information for the purpose of this deposition or 9 this declaration. So I don't recall what was there. 10 Q. And so if we're looking at table 5-2 of 11 Exhibit 1025, would you agree that if these amp 12 values were increased to 5 amps, that you'd be able 13 to source 25 watts of power from USB? 14 MR. SAUER: Objection to form. 15 A. In theory, I mean, if you increase the 16 current rating of an energy source, it means that 17 you can take more power out of it. That statement 18 is factually correct. 19 Q. And so sitting here today, are you aware of 20 a revision to this specification that would allow 21 USB power to be provided at 25 watts before July 3, 22 2014?	55 1 believe I've seen it before. I believe that's in 2 the NOCO patent. Not hundred percent sure. If you 3 would allow me to go back to the patent itself just 4 to verify that this is the same part, I'll be happy 5 to confirm. 6 Q. Okay. Yeah, if we could please turn to 7 Exhibit 1001, which is gonna be a copy of the 8 '023 patent. 9 (Exhibit 1001 was marked for 10 identification and is attached to the 11 transcript.) 12 Q. And I may be able to save you some time. If 13 we could please look at page 18 of Exhibit 1001, 14 you'll see in the center of the page, there's an 15 integrated circuit labeled XR3403 there. 16 A. Yes. Yes, that is correct. So it is the 17 same number. That is the part, correct. 18 Q. Okay. So if we could please turn back to 19 Exhibit 1012. 20 A. Okay. 21 Q. Do you see that at the bottom of page 1, 22 there's figure 1, a "Typical Application Circuit"?
54 1 MR. SAUER: Objection. Form. Outside the 2 scope. 3 A. As I mentioned, I am aware that USB spec has 4 been revised over the years and available of power 5 to be expected from a USB port has been revised over 6 the years. But I cannot, sitting here today, 7 comment on when any specific number was released or 8 became available. That's something that requires 9 further study to be able to answer. 10 Q. I want to please turn to Exhibit 1012. 11 Please let me know when you're there. 12 (Exhibit 1012 was marked for 13 identification and is attached to the 14 transcript.) 15 A. Yes, I have it. 16 Q. And do you recognize this document as a data 17 sheet for the XR3403 DC/DC converter? 18 A. I do, yes. 19 Q. Okay. And is this the DC/DC converter 20 that's depicted in the figures of NOCO's patents? 21 MR. SAUER: Objection. Form. 22 A. So the title, like, XR3403 rings a bell. I	56 1 A. Yes, I see that. 2 Q. Okay. And is it common for data sheets to 3 include these type of reference circuits? 4 MR. SAUER: Objection. Form. 5 A. I have seen many data sheets in the past, 6 and it's not unusual that they would put an 7 exemplary, you know, use of the chip. So yes, I 8 would say yes it's not unusual to see that. 9 Q. So this typical application circuit would 10 provide guidance on how to integrate this chip into 11 a larger system to be used for its intended purpose. 12 MR. SAUER: Objection. Form. 13 A. I wouldn't say it provides guidance. I 14 would say it provides an example of how you may 15 choose to integrate it in your system. I have seen 16 many chips where we use it in ways that are not 17 shown necessarily in the data sheet. 18 Q. And so in those scenarios, you're able to 19 figure out on your own how to integrate the chip. 20 MR. SAUER: Objection. Form. 21 A. Right. Using the data sheet, using the 22 specification of the chip, you would -- it's not

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57	59
1 like -- it's not even optional. You actually have	1 is from the '023 IPR.
2 to consider these things to make sure that you are	2 Do you recognize this document?
3 integrating it properly in your system. But the	3 A. I do, yes.
4 specific schematic that may be shown on the face of	4 Q. And I think you testified that you reviewed
5 a data sheet is typically exemplary. There could be	5 this document in connection with preparing your
6 many variations to it in order for you to be able to	6 declaration; is that true?
7 use the chip.	7 A. That is correct, yes.
8 Q. Okay. And then if we look at page 1 here,	8 Q. And in reviewing this document, were you
9 we see some applications listed and then some bullet	9 provided with all the citations that are -- any
10 points.	10 documents cited in this document?
11 Do you see that?	11 A. Yes, I have. I -- I -- it was -- yes, I
12 A. I see that, yes.	12 received a folder that contained the declaration and
13 Q. Okay. And so this would provide some	13 all the documents associated with it.
14 suggestions on the types of devices that this chip	14 Q. Did you review those documents?
15 could work with?	15 A. I have when -- I have gone through all these
16 A. Yeah, example of applications that the chip	16 documents. There were many of them, but I have,
17 can be integrated within these systems, correct.	17 yes.
18 Q. Okay.	18 Q. And as you reviewed this declaration, if
19 A. I will note -- I will note, though, that	19 there was a statement made supported by a cited
20 doesn't mean -- doesn't mean it will, meaning, for	20 document, did you review that cited document?
21 example, when you see "portable applications," you	21 A. I did, yes, absolutely.
22 probably would appreciate that that includes	22 MR. SAUER: No further questions.
58	60
1 millions of things, right? So this is just meant as	1 FURTHER EXAMINATION
2 categories of devices that you could use it for.	2 BY MR. SMELCER:
3 That doesn't mean every device can use it. It would	3 Q. Dr. Fayed, we took a couple of breaks today
4 all be a function of what specifications you're	4 during your deposition.
5 looking for. So it's all exemplary, I guess, the	5 Did you speak with anyone about the
6 point that I'm trying to make.	6 substance of your testimony during the break?
7 Q. Okay.	7 A. No, I have not.
8 MR. SMELCER: I'll pass the witness.	8 MR. SMELCER: All right. Thank you.
9 MR. SAUER: Can we take a ten-minute break?	9 Pass the witness.
10 You're done?	10 MR. SAUER: No further questions.
11 MR. SMELCER: Yes.	11 (Off the record at 10:26 a.m.)
12 MR. SAUER: I don't know that I have	12
13 redirect. Let me take ten minutes to think about it	13
14 and then come back.	14
15 MR. SMELCER: Okay. Sounds good.	15
16 (A short break was had.)	16
17 MR. SAUER: Just a couple questions on	17
18 redirect.	18
19 EXAMINATION	19
20 BY MR. SAUER:	20
21 Q. I'm handing the witness Exhibit 1003, which	21
22 is the declaration of Arthur MacCarley, and this one	22

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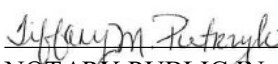
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EXHIBIT 1045

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Transcript of Ayman Fayed, Ph.D.
Conducted on January 28, 2025

16 (61 to 64)

61 1 CERTIFICATE OF COURT REPORTER - NOTARY PUBLIC 2 3 I, TIFFANY M. PIETRZYK, Certified Shorthand 4 Reporter No. 084-004371, CSR, RPR, CRR, and a Notary 5 Public within and for the State of Illinois, do 6 hereby certify: 7 8 That AYMAN FAYED, Ph.D., the witness whose 9 deposition is hereinbefore set forth, was duly sworn 10 by me before the commencement of such deposition and 11 that such deposition was taken before me and is a 12 true record of the testimony given by such witness. 13 14 I further certify that the adverse party, 15 THE NOCO COMPANY, was represented by counsel at the 16 deposition. 17 18 I further certify that the deposition of 19 AYMAN FAYED, Ph.D. occurred virtually, via Zoom 20 videoconference, on Tuesday January 28, 2025, 21 commencing at 8:57 a.m. CST to 10:26 a.m. CST. 22	
62 1 I further certify that I am not related to 2 any of the parties to this action by blood or 3 marriage, I am not employed by or an attorney to any 4 of the parties to this action, and that I am in no 5 way interested, financially or otherwise, in the 6 outcome of this matter. 7 8 IN WITNESS WHEREOF, I have hereunto set my 9 hand and affixed my notarial seal this 1st day of 10 February, 2025. 11 12 13 14 15 My commission expires: February 28th, 2028 16 17 18 19  20 NOTARY PUBLIC IN AND FOR THE 21 STATE OF ILLINOIS 22	

A			
a-y-m-a-n	across	58:4, 58:5,	51:13, 52:2,
6:12	33:3	59:9, 59:13,	53:12
ability	action	59:15, 60:8	another
31:16, 42:16	62:2, 62:4	allow	7:11, 7:15,
able	actual	36:1, 53:20,	25:3, 25:6,
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about	35:15, 47:21,	35:1, 42:12,	7:20, 8:13
6:19, 14:6,	48:7	47:5	any
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