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# Transcript of Andrew Wolfe, Ph.D.

**Date:** February 14, 2025

**Case:** VusionGroup SA -v- Hanshow Technology Co., LTD. (PTAB)

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WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

Hanshow-Ex. 2012  
VUSIONGROUP vs. HANSHOW  
IPR2024-00857

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

3  
4 VUSIONGROUP SA,  
5 Petitioner,

6  
7 v.

8  
9 HANSHOW TECHNOLOGY CO., LTD.,  
10 Patent Owner.

11  
12 Case IPR2024-00857

13 U.S. Patent No. 11,540,216

14  
15  
16 REMOTE DEPOSITION of ANDREW WOLFE, Ph.D.  
17 Friday, February 14, 2025  
18 11:00 a.m. CST

19  
20 Job No.: 572019

21 Pages: 1 - 106

22 Reported By: Michelle M. Yohler, CSR, RMR, CRR

1       The deposition of ANDREW WOLFE, Ph.D., held  
2       remotely pursuant to notice before Michelle M.  
3       Yohler, CSR, RMR, CRR, a certified shorthand  
4       reporter, CSR No. 84-4531.

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A P P E A R A N C E S

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(Continued)

1       A P P E A R A N C E S       C O N T I N U E D

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11

12

13

14

15       ALSO PRESENT:

16              Ms. Brianna Bramlett, Technician

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E X A M I N A T I O N S

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

2 (Technician read-on.)

3 MS. REPORTER: Before I swear the witness  
4 in, can I please have all attorneys identify  
5 themselves and who they represent for the record.

6 MR. FAHY: My name is Christopher Fahy,  
7 I'm with Arch & Lake, and I represent Hanshow, the  
8 patent owner.

9 MR. TAN: Hao Tan here, also with Arch &  
10 Lake, for Hanshow.

11 You may want to identify yourself.

12 MR. DI: This is Yu Di here, also with  
13 Arch & Lake, for Hanshow.

14 MR. MARANDO: This is Chris Marando with  
15 the Perkins Coie law firm for the witness and  
16 VusionGroup, and I'm joined by my colleague, Tyler  
17 Knox.

18

19

20

21

22

1 (WHEREUPON, the witness was duly sworn.)

2 ANDREW WOLFE, Ph.D.,

3 called as a witness herein, having been first duly  
4 sworn, was examined and testified as follows:

5 EXAMINATION

6 BY MR. FAHY:

7 Q Good morning, Dr. Wolfe.

8 A Good morning.

9 Q First of all, I just want to make sure  
10 that you can hear me okay.

11 A I can right now.

12 Q Can you please state your full name for  
13 the record.

14 A Andrew Wolfe.

15 Q And where are you physically located  
16 today?

17 A I'm at the Perkins Coie office in  
18 Palo Alto.

19 Q Is anyone in the room with you?

20 A Yes, Mr. Marando and Mr. Knox are here.

21 Q And those are the Perkins Coie attorneys?

22 A Yes.

1 Q Do you have any hard copy documents with  
2 you today?

3 A Yes.

4 Q And what are those?

5 A I have Exhibits 1001, 1004, 1005, 1006,  
6 1007, 1013, 1014, 1015, 1016, 1017, 1018, 1019,  
7 1020, 1021, 1022, 1023.

8 The petition that was filed as part of  
9 this IPR; my declaration, which is Exhibit 1003;  
10 Hanshow's patent owner's preliminary response; and  
11 the PTAB's institution decision.

12 Q Anything else?

13 A That's all.

14 Q Are those hard copy documents that you  
15 just referenced clean, or do they have any  
16 markings or notes or anything else on them?

17 A As far as I know, they're clean. I have  
18 not made any markings nor seen any markings in my  
19 review of them.

20 Q And, as you know, we're here today  
21 regarding IPR number 2024-00857; is that your  
22 understanding?

1 A Yes.

2 Q And that's the IPR that involves Patent  
3 No. 11,540,216?

4 A That's my understanding.

5 Q And is it okay if I refer to the patent as  
6 the '216 patent throughout the deposition today?

7 A Yes, I will understand that.

8 Q And if I refer to the IPR, I may refer to  
9 it as the 857 IPR; does that make sense?

10 A That makes sense.

11 Q Other than the hard copy documents that  
12 you referenced earlier, do you have any electronic  
13 documents on your laptop or otherwise with you  
14 today?

15 A Probably half a million documents on my  
16 laptop; none of them open right now.

17 Q Do you have the same documents that you  
18 referenced as hard copy documents, do you have  
19 those in electronic form with you?

20 A I do.

21 Q And similar question as the hard copy  
22 documents; do you have any notes on the electronic

1 versions of the documents, or are they clean?

2 A I have not made or seen any notes in my  
3 review of those electronic copies of the  
4 documents.

5 Q Any highlighting?

6 A Not that I'm aware of. Again, I haven't  
7 reviewed every single page of that particular  
8 copy, but I'm not aware of any markings.

9 Q And did you receive the hard copy  
10 documents and the electronic versions from  
11 counsel?

12 A Yes.

13 Q Have you been deposed before?

14 A Yes.

15 Q Then you're likely familiar with the  
16 process, but I'd like to provide just a couple  
17 instructions before we begin in earnest.

18 First of all, if you could please answer  
19 all questions verbally and not with physical  
20 movements like a nod or a shrug so that the court  
21 reporter can record your answer.

22 Do you understand that?

1           A    I do.

2           Q    And please wait until I've completed my  
3 question before responding in order to allow for  
4 your counsel to object and for a clean record.

5                   Does that make sense?

6           A    I understand.

7           Q    And, of course, let me know if you don't  
8 understand a question or if you need me to repeat  
9 it; otherwise, I'll assume that you understood the  
10 question.

11                   Is that fair?

12          A    Yes.

13          Q    And, like I said, your counsel may from  
14 time to time object, but unless he specifically  
15 instructs you not to answer, then you still need  
16 to answer my question.

17                   Do you understand that?

18          A    I do.

19          Q    And this is not an endurance test, so just  
20 let me know if you need a break. I will just ask  
21 if a question is pending, that you answer the  
22 question before we go on a break.

1           Is that fair?

2           A   Understood.

3           Q   Dr. Wolfe, is there any reason why you  
4 cannot testify fully and truthfully today?

5           A   I don't think so. I was ill last week and  
6 one of the side effects of the medicine they gave  
7 me was laryngitis. I seem to be doing okay right  
8 now, but there is a possibility I could lose my  
9 voice at some point.

10          Q   Other than a potential issue with your  
11 voice, is there any reason that you cannot testify  
12 fully and truthfully today?

13          A   Nope.

14          Q   What did you do to prepare to testify at  
15 your deposition?

16          A   Well, all of the work that I put into this  
17 matter prepared me for my testimony. Began many,  
18 many months ago with reviewing the '216 patent,  
19 with looking for and reviewing prior art; with  
20 matching the prior art to the claims of the '216  
21 patent; preparing a declaration and a number of  
22 discussions with counsel at that time to convey my

1 opinions to them and to discuss how best to  
2 express them.

3 More recently, I reviewed a number of the  
4 materials that I talked about in my previous  
5 answer, and I met with counsel, both remotely and  
6 in person, to review my testimony.

7 Q And by "counsel," you mean Mr. Marando and  
8 Mr. Knox?

9 A Yes.

10 Q Did you speak to anyone besides the  
11 attorneys for petitioner in this matter?

12 MR. MARANDO: Objection. Form.

13 BY THE WITNESS:

14 A I have not discussed this case with anyone  
15 other than attorneys for petitioner.

16 BY MR. FAHY:

17 Q So other than meeting with the attorneys  
18 and speaking with the attorneys for petitioner and  
19 reviewing the documentation you mentioned, did you  
20 do anything else to specifically prepare for your  
21 deposition today?

22 A Put on a tie. Not much else, no.

1 Q How did you become aware of the 857 IPR?

2 A I was --

3 MR. MARANDO: Objection. Form.

4 Just be careful not to reveal the  
5 substance of any communications with counsel.

6 BY THE WITNESS:

7 A I was contacted by counsel prior to the  
8 filing of the IPR.

9 BY MR. FAHY:

10 Q Were you familiar with the '216 patent  
11 before you were contacted by Counsel regarding  
12 this IPR?

13 A No. I was familiar with the technology  
14 but not with the patent.

15 Q Do you recall when you were contacted by  
16 counsel -- first contacted by counsel regarding  
17 this IPR?

18 A I do not.

19 Q Do you know about when approximately? Was  
20 it in 2024, 2023?

21 A It was approximately a few months before  
22 filing.

1           Q   You just mentioned, kind of, you're  
2   familiar with the technology at issue in the IPR.  
3   How would you describe the technology at issue in  
4   the IPR?

5           MR. MARANDO:   Objection.   Form.

6   BY THE WITNESS:

7           A   The formal description is contained within  
8   the claims, but in a very general sense, it  
9   involves the operation of remote display devices  
10  like retail shelf tags that are connected through  
11  a wireless system to a server to exchange  
12  information.

13  BY MR. FAHY:

14          Q   Dr. Wolfe, were you familiar with  
15  petitioner before you were contacted about working  
16  on this IPR?

17          MR. MARANDO:   Objection.   Form.

18  Relevance.

19  BY THE WITNESS:

20          A   I was not familiar with VusionGroup, if  
21  that's what you're referring to.

22

1 BY MR. FAHY:

2 Q Yes, that was.

3 So you didn't know anyone at VusionGroup  
4 before being contacted about working on this IPR?

5 MR. MARANDO: Objection. Form.

6 BY THE WITNESS:

7 A I did not. I still don't think I know  
8 anyone at VusionGroup.

9 THE WITNESS: My Zoom is locked up.

10 MR. FAHY: I was just noticing your screen  
11 is frozen. I can still hear you, though.

12 THE WITNESS: Okay.

13 BY MR. FAHY:

14 Q Do you have any financial interest in  
15 VusionGroup?

16 A Not that I'm aware of. I have a  
17 retirement fund that invests in the entire market.  
18 I don't even know if VusionGroup is a public  
19 company or private company.

20 Q Do you have any financial interest in the  
21 '216 patent?

22 A Again, not that I'm aware of.

1           Q   Were you aware of patent owner Hanshow  
2   before being contacted about this IPR?

3           MR. MARANDO:  Objection.  Form.  
4   Relevance.

5   BY THE WITNESS:

6           A   Not that I can recall, no.

7   BY MR. FAHY:

8           Q   For purposes of your deposition today, I'm  
9   going to refer to the documents as they were filed  
10  in the IPR proceeding, so by their IPR exhibit  
11  number, rather than marking them anew.

12          Does that sound good to you?

13          A   That should be fine.

14          Q   So I'd like to bring up your CV, which is  
15  Exhibit 1004.

16          MR. FAHY:  If Ms. Bramlett could bring up  
17  Exhibit 1004, I'd appreciate it.

18          THE TECHNICIAN:  Yes.  One moment, please.

19          (WHEREUPON, Exhibit No. 1004 was presented  
20  to the witness.)

21          THE TECHNICIAN:  The exhibit is on the  
22  screen.

1 MR. FAHY: Thank you.

2 BY MR. FAHY:

3 Q Dr. Wolfe, do you recognize Exhibit  
4 VUSION-1004?

5 A Yes.

6 Q And what is it?

7 A It appears to be my CV as of last...

8 Q As of when? I'm sorry.

9 A Approximately last summer.

10 Q Has your CV changed in any material  
11 respect since last summer?

12 MR. MARANDO: Objection. Form.

13 BY THE WITNESS:

14 A You'd have to define material for me.  
15 There have been minor changes.

16 BY MR. FAHY:

17 Q What were those minor changes?

18 A I don't remember every word, but my title  
19 at the University changed in September; although,  
20 my responsibilities did not really change.  
21 Published another paper, and there have been some  
22 additional (inaudible).

1 (Reporter clarification.)

2 BY THE WITNESS:

3 A Some additional testimony by deposition or  
4 at trial, I believe.

5 BY MR. FAHY:

6 Q So let's start with, how did your title  
7 change?

8 A We started working under a union contract  
9 in September, it changed some titles, and my  
10 salary moved from being paid by the dean's office  
11 to being paid by the provost's office.

12 I can go into detail if you want, but  
13 current title is assistant teaching professor.

14 Q Thank you.

15 And you said you published an additional  
16 paper. What's the title of the paper?

17 A I don't remember the exact title because  
18 it was published in a neurology conference, and I  
19 have to admit, I don't even know all the  
20 vocabulary. But I designed the electronics for a  
21 brain experiment and there was a publication  
22 related to that.

1 Q So is it fair to say that's not related to  
2 electronic rack or shelf labels?

3 MR. MARANDO: Objection. Form.

4 BY THE WITNESS:

5 A Generally, no. Although, it did  
6 (inaudible).

7 BY MR. FAHY:

8 Q It did what? Sorry.

9 A Have power management.

10 Q But it did not specifically involve  
11 electronic rack or shelf labels?

12 A Not in any way, no.

13 Q You also mentioned that you've -- since  
14 last summer you've had some additional testimony  
15 by deposition or trial. Do you recall whether  
16 that deposition -- or whether that testimony was  
17 by deposition and/or trial?

18 A I have not been to any trials in the last  
19 year, so it would have been depositions. I'm sure  
20 there have been IPR depositions, there may have  
21 been some district court depositions as well. I  
22 believe there were.

1           Q   Do you recall how many proceedings you  
2   were involved with since -- with depositions since  
3   summer?

4           A   No.  It's probably somewhere in the range  
5   of three or four.

6           Q   Do you recall the titles of those  
7   proceedings or the parties involved?

8           A   I don't want to try to do that from  
9   memory.  I know one was for a client called Egnyte  
10   that does cloud backup services and file sharing  
11   services, but, again, it's hard for me to remember  
12   the exact dates of various things and what might  
13   have been before or after these particular dates,  
14   so I'd have to go back to my records.

15          Q   But none of the proceedings that would  
16   have occurred after you provided your CV in  
17   Exhibit VUSION-1004 involved VusionGroup or  
18   Hanshow, did they?

19          A   They did not.

20          Q   Did any of these proceedings involve  
21   specifically electronic rack or shelf labels?

22          A   No.

1           Q   Do you recall more generally what the  
2   proceeding -- the technology involved in the three  
3   or four proceedings that occurred after summer  
4   involved?

5           MR. MARANDO:   Objection.   Form.

6   BY THE WITNESS:

7           A   It's hard for me to remember the exact  
8   dates of various depositions, so I wouldn't want  
9   to try to do that from memory.

10          MR. FAHY:   And I'll just request on the  
11   record that counsel provide an updated CV when  
12   they have a chance.

13          MR. MARANDO:   We'll take that under  
14   advisement.

15          MR. FAHY:   Thank you.

16          Ms. Bramlett, if we could turn to Page 7  
17   of Exhibit VUSION-1004.

18          THE TECHNICIAN:   Okay.   We're on Page 7.

19   BY MR. FAHY:

20          Q   Dr. Wolfe, do you see on Page 7 of Exhibit  
21   VUSION-1004, this is a list of your expert  
22   testimony by deposition or at trial as of

1 April 15th, 2018, to the present?

2 A Yes. Understanding the present was at the  
3 time that I submitted this document.

4 Q Understood.

5 In any of the matters that you've listed  
6 your expert testimony in Exhibit 1004, for any of  
7 those matters, did you ever have an opinion  
8 excluded?

9 A Yes.

10 Q Which one or ones?

11 A In Innovative Memory Solutions, Inc.,  
12 versus Micron, there was a preliminary ruling from  
13 a magistrate that excluded one sentence from my  
14 expert report. The judge never made a  
15 determination prior to settlement.

16 Q And what technology did that matter  
17 involve?

18 A Memory devices.

19 Q Did it involve electronic rack or shelf  
20 labels?

21 A It involved components like in electronic  
22 rack or shelf label but not the entirety of the

1 product. And the opinion that was struck was not  
2 a -- was related to the value of the patents, not  
3 the technology within them.

4 Q When you say it involved the components in  
5 electronic rack or shelf labels, what components?

6 A Flash memory, the thing that would be used  
7 to store program code and likely data.

8 Q Any others?

9 A No. Micron is primarily a component  
10 manufacturer.

11 Q Other than Innovative Memory Systems,  
12 Inc., v. Micron, have you ever had an opinion --  
13 an expert opinion of yours excluded?

14 A I've had opinions excluded for procedural  
15 reasons, such as the issue was decided on summary  
16 judgment or a patent was dropped, or I was  
17 providing rebuttal testimony and the testimony I  
18 was rebutting was excluded. But never based on  
19 the substance of my testimony or the basis of my  
20 testimony.

21 Q Do or did any of the cases listed in your  
22 CV under the "Expert Testimony By Deposition Or At

1 Trial" heading specifically involve electronic  
2 rack or shelf labels?

3 A Not specifically.

4 MR. MARANDO: Object to form.

5 BY MR. FAHY:

6 Q Do you know, Dr. Wolfe, about how many  
7 cases that you have testified for petitioner in a  
8 PTAB proceeding?

9 MR. MARANDO: Objection. Form.  
10 Relevance.

11 BY THE WITNESS:

12 A I don't. I believe I've participated in  
13 just over 100 IPRs. Some of those have been for  
14 petitioner, some of them have been for patent  
15 owners, but I've never counted how many of each.

16 BY MR. FAHY:

17 Q In the cases where you represented a  
18 petitioner in an IPR, do you recall any instance  
19 where you did not ultimately conclude that the  
20 patent was invalid?

21 A Let's take a step back. I don't represent  
22 anybody in an IPR. I provide actual testimony and

1 opinions.

2 But in cases where I have done that,  
3 again, I can't go into any details, but I would --  
4 there have been times where I have declined to put  
5 in testimony. But for practical reasons, I have  
6 never actually put in testimony that did not  
7 conclude when I was the petitioner that -- well, I  
8 don't always reach a conclusion on my testimony,  
9 but the testimony that I've put in on behalf of  
10 petitioners has always been supportive of the idea  
11 that the challenged claims are invalid, either by  
12 anticipation or obviousness.

13 If that were not the case, counsel would  
14 not choose to submit my testimony.

15 Q Have you ever been deposed in any capacity  
16 other than as an expert witness?

17 A Yes.

18 Q How many times?

19 A Oh, it's over a 25- or 30-year period.  
20 Let me see if I...

21 I think I can recall three.

22 Q And can you just very generally give the

1 context of those three?

2 A I think the first two was when I was a  
3 corporate executive and they were 30(b)(6)  
4 testimony. One was related to the dismissal of a  
5 sales representative.

6 I don't remember the other -- what the  
7 other one was. It may have been related to  
8 whether or not a vendor was in breach. And then a  
9 number of years ago, I was a member of the board  
10 of directors of Turtle Beach. I was named in a  
11 security suit, and I was deposed in that.

12 Q Did any of those instances or cases  
13 involve electronic rack or shelf label?

14 A No.

15 Q In the past five years, roughly what  
16 percentage of your income would you say is from  
17 sources other than being an expert witness?

18 MR. MARANDO: Objection. Form.

19 BY THE WITNESS:

20 A I haven't calculated it. Probably  
21 somewhere in the ballpark of 60 percent.

22

1 BY MR. FAHY:

2 Q To your knowledge, is all the information  
3 in your CV, Exhibit VUSION-1004, accurate?

4 A As far as I know.

5 Q Other than the changes that we discussed  
6 earlier since you provided your CV, is your CV,  
7 VUSION-1004, a complete representation of your  
8 educational and professional background?

9 MR. MARANDO: Objection. Form.

10 BY THE WITNESS:

11 A No. I worked at Roy Rogers when I was a  
12 kid. I -- you know, not every consulting role is  
13 listed. It's a summary of major points of my  
14 background. That's -- as a CV normally is.

15 BY MR. FAHY:

16 Q Is there anything not in your CV that  
17 would be particularly relevant to this proceeding?

18 MR. MARANDO: Objection. Form.

19 BY THE WITNESS:

20 A In my opinion, no.

21 BY MR. FAHY:

22 Q Dr. Wolfe, have you ever personally

1 designed an electronic rack or shelf label?

2 MR. MARANDO: Objection. Relevance.

3 BY THE WITNESS:

4 A No, I've designed very similar devices,  
5 but not something that I would describe as an  
6 electronic rack or shelf label.

7 BY MR. FAHY:

8 Q Outside of this case or this IPR, have you  
9 ever personally used an electronic rack or shelf  
10 label?

11 MR. MARANDO: Objection. Form.

12 BY THE WITNESS:

13 A Yes.

14 BY MR. FAHY:

15 Q In what context?

16 A I can recall seeing them in stores and  
17 having buttons on them that you could push to get  
18 various kinds of information.

19 Q What time frame are you talking about?

20 A Probably ten years ago.

21 Q Do you recall what stores?

22 A No. It was in London.

1           Q   Did you personally use any electronic rack  
2   or shelf labels in connection with this IPR?

3           MR. MARANDO:  Objection.  Form.

4   BY THE WITNESS:

5           A   I didn't use one, no.

6   BY MR. FAHY:

7           Q   Your CV, Exhibit VUSION-1004, on Page 4  
8   references, quote, over 50 referred publications.  
9   Do you see that on Page 4?

10          A   It says over 50 refereed publications.

11          Q   I'm sorry, I misread that.  Over 50  
12   refereed publications.

13               What do you mean by that?

14          A   That I've had over 50 peer-reviewed  
15   publications.

16          Q   Do any of those peer-reviewed publications  
17   that you authored specifically involve electronic  
18   rack or shelf labels?

19          A   Not specifically, but a number of them are  
20   related to underlying technologies that might be  
21   used in such a device.

22          Q   And then you list on Page 4 of your CV one

1 publication since January 2006.

2 Do you see that?

3 A Yes.

4 Q Does that publication involve specifically  
5 electronic rack or shelf labels?

6 A Not specifically, no.

7 Q And do you maintain a list of your  
8 refereed publications anywhere?

9 A Yes.

10 Q Is there a reason why you did not include  
11 them in your CV? Or did I miss them perhaps?

12 A No, it's that most of the federal courts  
13 require that you disclose publications for the  
14 past 10 years, and most of them are 20 to 25,  
15 30 years old.

16 Q You also list in your CV, Exhibit  
17 VUSION-1004, starting on Page 5 a list of patents.

18 Do you see that?

19 A I do.

20 Q Do any of your patents listed in your CV  
21 specifically mention electronic rack or shelf  
22 labels?

1           A   Not that I can recall.  Again, most of  
2           them are technologies that some of which could be  
3           used in such a device, but not -- they're not  
4           specific to such a device.

5           Q   You also list a number of your consulting  
6           work on the first page of VUSION-1004 from  
7           October 2002 to the present.

8                     Do you see that?

9           A   Yes.

10          Q   Did any of the consulting jobs listed in  
11          your CV specifically relate to electronic rack or  
12          shelf labels?

13          A   Not specifically.  Although, again, much  
14          relates to the underlying technologies that one  
15          would use in a shelf tag or in a shelf tag system.

16          Q   Are you now or have you in the past done  
17          any other work for VusionGroup in any capacity?

18          A   Not that I'm aware of.

19          Q   Now, going back to when you were first  
20          contacted by counsel in connection with this IPR,  
21          were you at any point given a specific assignment  
22          in this case?

1 MR. MARANDO: Objection.

2 You can describe generally what you did,  
3 but don't disclose -- if you can do that without  
4 disclosing the substance of communications with  
5 counsel, go ahead; otherwise, I instruct you not  
6 to answer.

7 BY THE WITNESS:

8 A Yes.

9 BY MR. FAHY:

10 Q And, to be clear, I do not want to know  
11 any of your communications with counsel, but I  
12 will ask, if you can answer without providing  
13 those communications, what were you asked to do  
14 generally?

15 MR. MARANDO: Same objection.

16 BY THE WITNESS:

17 A I don't know how to answer that without  
18 providing at least some substance of the  
19 communications.

20 BY MR. FAHY:

21 Q How did you go about carrying out your  
22 assignment?

1           A   I described it before.  I reviewed the  
2   '216 patent.  I searched for prior art.  I was  
3   provided with some examples of prior art.  I  
4   reviewed all that.  I developed opinions about how  
5   best to document the invalidity of the asserted --  
6   of the challenged claims.  I discussed my opinions  
7   with counsel.  I worked with counsel in  
8   preparation of a declaration.

9           Q   Do you recall which prior art you found  
10   versus was provided to you by counsel?

11           MR. MARANDO:  Objection.  Form.  
12   Relevance.

13           You can answer.

14   BY THE WITNESS:

15           A   I do not.

16           MR. FAHY:  Ms. Bramlett, if we could  
17   please pull up Exhibit 1003.

18           THE TECHNICIAN:  Yes.  One moment.

19           (WHEREUPON, Exhibit No. 1003 was presented  
20   to the witness.)

21           THE TECHNICIAN:  Exhibit 1003 is on the  
22   screen.

1 MR. FAHY: Thank you.

2 BY MR. FAHY:

3 Q Dr. Wolfe, do you recognize Exhibit  
4 VUSION-1003?

5 A Yes.

6 Q What is it?

7 A It appears to be the declaration that I  
8 filed in the 857 IPR.

9 Q And if we can turn to Paragraph 23.

10 THE TECHNICIAN: One moment.

11 BY THE WITNESS:

12 A Okay.

13 THE TECHNICIAN: Okay. Paragraph 23 is on  
14 the screen. Is this correct, Counsel?

15 MR. FAHY: Yes.

16 THE TECHNICIAN: Great.

17 BY MR. FAHY:

18 Q Dr. Wolfe, do you see that Paragraph 23 of  
19 your declaration, which is VUSION-1003, is under a  
20 heading titled "Materials Reviewed"?

21 A Yes.

22 Q So does Paragraph 23 identify all the

1 materials you considered in evaluating whether the  
2 asserted patent claims of the '216 patent are  
3 valid?

4 MR. MARANDO: Objection. Form.

5 BY THE WITNESS:

6 A I don't recall if I considered other  
7 materials or not. I may have looked at other art  
8 and determined it wasn't important or wasn't the  
9 best, but this is what I reviewed in preparing the  
10 declaration, and this is a list of what I relied  
11 upon for the opinions in the declaration.

12 BY MR. FAHY:

13 Q Have you considered any additional  
14 documents since the date of your declaration?

15 A Yes.

16 Q What are those?

17 A The patent owner's preliminary response  
18 and the PTAB's institution decision.

19 Q Anything else?

20 A No.

21 Q Did the consideration of the patent  
22 owner's preliminary response or the PTAB's

1 institution decision change any of the opinions  
2 that you have in your declaration?

3 A No.

4 Q Have you formed any additional opinions  
5 since the time of your declaration?

6 MR. MARANDO: Objection. Form.

7 BY THE WITNESS:

8 A I'm sure I've formed many different  
9 opinions but none that I'm prepared to testify  
10 about in this case at this time.

11 BY MR. FAHY:

12 Q What do you mean by that?

13 A Well, first place, it was a very broad  
14 question. I have lots of opinions on lots of  
15 things that have nothing to do with this case.

16 I have reviewed the additional materials  
17 that were in the POPR. At this point, I have  
18 opinions in which I disagree with those materials  
19 or those assertions, but, at this point, I'm not  
20 going to provide any opinions to the PTAB other  
21 than what I've provided in my declaration.

22 Q Do any of the additional opinions that you

1 have formed change the opinions that are in your  
2 declaration?

3 MR. MARANDO: Objection. Form.

4 BY THE WITNESS:

5 A I think I answered that already. No.

6 BY MR. FAHY:

7 Q Are you aware of a co-pending litigation  
8 that involved the '216 patent between VusionGroup  
9 and Hanshow?

10 MR. MARANDO: Objection. Form.

11 Relevance.

12 BY THE WITNESS:

13 A I'm aware of its existence.

14 BY MR. FAHY:

15 Q Have you reviewed any documents involved  
16 in that litigation?

17 MR. MARANDO: Objection (inaudible).

18 (Reporter clarification.)

19 MR. MARANDO: Objection. Form.

20 BY THE WITNESS:

21 A I don't really know anything about the  
22 litigations. To the extent that the documents

1     that I listed that I relied on are in that  
2     litigation, I've reviewed those documents as I've  
3     explained.

4             I have not reviewed any additional  
5     documents outside of what I've listed here that  
6     were related to that litigation.

7             THE TECHNICIAN: Counsel, would you like  
8     to go off record to try to troubleshoot?

9             MR. MARANDO: Yeah, let's go off the  
10    record.

11            MR. FAHY: Can we take a ten-minute break?

12            (WHEREUPON, a recess was had from  
13    11:44 a.m. to 11:54 a.m.)

14            BY MR. FAHY:

15            Q Dr. Wolfe, during the break, did you speak  
16    with anyone about your testimony today?

17            A No, I did not speak with anyone about my  
18    testimony.

19            Q Before the break, we were discussing the  
20    co-pending litigation that involved the '216  
21    patent; do you recall that?

22            A Yes.

1           Q   Are you aware that there was a claim  
2   construction order issued by the Court in that  
3   litigation in January of this year?

4           MR. MARANDO:   Object to form.

5   BY THE WITNESS:

6           A   I'm aware that there was a claim  
7   construction order.   I'm not aware of the time  
8   frame.   I haven't read it.   And I don't know  
9   whether or not it's final or preliminary.

10   BY MR. FAHY:

11          Q   Dr. Wolfe, you render certain opinions in  
12   your declaration in this IPR in Exhibit  
13   VUSION-1003 regarding obviousness; is that  
14   correct?

15          A   Yes.

16          Q   What is obviousness?

17          MR. MARANDO:   Objection.   Form.

18   BY THE WITNESS:

19          A   I'm not an attorney, but I was provided  
20   with relevant legal standards to apply for  
21   purposes of this matter.   They're in Paragraph 30  
22   through 54 of my declaration.   They include the

1 standards for obviousness, and I've applied them  
2 in the manner that they were cited in the  
3 declaration.

4 BY MR. FAHY:

5 Q Did you make any assumptions in evaluating  
6 validity in this IPR?

7 MR. MARANDO: Objection. Form.

8 BY THE WITNESS:

9 A I assumed that the dates on the face of  
10 prior art patents were accurate. I don't think  
11 there were any other assumptions that I made. If  
12 I made any other assumptions, they're stated in  
13 the declaration.

14 BY MR. FAHY:

15 Q Your declaration, Exhibit VUSION-1003,  
16 references secondary considerations in  
17 Paragraph 225 on Page 133.

18 A I see that.

19 Q What are secondary considerations?

20 MR. MARANDO: Objection. Form.

21 BY THE WITNESS:

22 A Well, again, there is a legal definition I

1 believe that was recited here.

2 Secondary considerations, to my  
3 understanding, not as an attorney, are factors  
4 that would influence in a positive or negative way  
5 the likelihood of obviousness. They can include  
6 things like simultaneous invention by others, a  
7 long-felt need, copying, commercial success,  
8 opinions from third parties about the novelty of  
9 the invention once it became public. And there  
10 are some others that are listed.

11 So I considered any evidence that I was  
12 aware of in forming my opinion, but because there  
13 was no discovery process here, I'm not aware of  
14 relevant evidence of secondary considerations for  
15 this particular matter.

16 BY MR. FAHY:

17 Q What evidence did you consider that you  
18 were aware of at the time of your declaration?

19 MR. MARANDO: Objection. Form.

20 BY THE WITNESS:

21 A I don't think I had any relevant to  
22 consider. I did not have any evidence one way or

1 the other of commercial success. There was  
2 nothing that was particularly relevant and that --  
3 there was nothing in this particular case that  
4 influenced my base opinion tied to the references,  
5 either positively or negatively.

6 BY MR. FAHY:

7 Q In Paragraph 225 of your declaration, you  
8 state that you have -- "I have considered evidence  
9 of secondary considerations that I'm aware of at  
10 this time."

11 Do you see that?

12 A Yes.

13 Q So what evidence of secondary  
14 considerations did you consider that you were  
15 aware of at the time of your declaration?

16 A The things that are in the declaration,  
17 the existence of a large amount of prior art, the  
18 existence of well-known core technologies to be  
19 used to implement an embodiment of the '216  
20 patent. So I considered those.

21 I wasn't aware of anything else. And, as  
22 I said, those didn't influence my opinion one way

1 or the other.

2 Q I believe you had testified a moment ago  
3 that you were not aware of, at the time of your  
4 declaration, any evidence of commercial success;  
5 is that right?

6 A Correct.

7 Q What types of evidence in your opinion  
8 would be relevant to commercial success?

9 MR. MARANDO: Objection. Form.

10 BY THE WITNESS:

11 A I would need to see the evidence to  
12 understand if it was relevant, but things that in  
13 the abstract are often relevant are things such as  
14 products that practice the invention suddenly  
15 displacing other products in the market; huge  
16 growth in a particular product category among  
17 things that practice the invention; and, in  
18 particular, then that has to be evaluated as to  
19 whether or not there's a nexus between the  
20 invention and those economic factors or whether or  
21 not those economic factors are primarily tied to  
22 other forces.

1 BY MR. FAHY:

2 Q And I believe earlier you also testified  
3 that there was no discovery in this IPR; is that  
4 right?

5 A As far as I'm aware, I don't think there  
6 was any -- I'm not aware of any discovery in the  
7 IPR.

8 Q Have you been provided any of the  
9 discovery that's been exchanged between  
10 VusionGroup and Hanshow in the co-pending  
11 litigation that involved the '216 patent?

12 A No.

13 Q Have you seen or been provided any of the  
14 written discovery responses from the co-pending  
15 litigation that involved the '216 patent?

16 A No.

17 Q Any contentions from that litigation?

18 A No.

19 Q How did you go about generally preparing  
20 your declaration, Exhibit VUSION-1003?

21 A I think I described that before. I  
22 reviewed the '216 patent, I reviewed the prior

1 art, I formed initial opinions, I discussed them  
2 with counsel.

3 Then we went through a writing process.  
4 Portions of the declaration that I wrote the first  
5 draft of. There were portions that counsel wrote  
6 the first draft of. And then I reviewed all of it  
7 to make sure that it reflected the opinions that I  
8 had discussed with counsel accurately, and, once  
9 it did, I submitted it.

10 Q Which portions did you write the first  
11 draft of?

12 A I don't recall at this point. Certainly  
13 the stuff that describes my background, but there  
14 were other sections as well.

15 Q But you don't recall which sections those  
16 were?

17 A No.

18 Q If we could turn to Paragraph 67 of your  
19 declaration, Exhibit VUSION-1003.

20 THE TECHNICIAN: I'm on Paragraph 67, and  
21 if it helps other people, it's on Page 30 of the  
22 declaration.

1 MR. FAHY: Thank you.

2 BY THE WITNESS:

3 A I have it in front of me.

4 BY MR. FAHY:

5 Q Dr. Wolfe, you state in Paragraph 67, in  
6 part: "The '216 patent proposes mitigating power  
7 consumption by switching tag devices between a  
8 normal (less frequent) and fast (more frequent)  
9 communication monitoring mode and a base station  
10 in a normal and fast wake-up mode to conserve  
11 power by reducing communication while preserving  
12 'customer experience requirements.'"

13 Do you see that?

14 A I do.

15 Q What do you mean by normal being less  
16 frequent and fast being more frequent?

17 A Well, the '216 patent is very vague on  
18 that. It primarily discusses it in the background  
19 section in a very aspirational way.

20 I don't think it tells us specifically  
21 what it means by "normal" and "fast" with respect  
22 to the invention or any embodiment of the

1 invention, but there's a general suggestion in the  
2 '216 specification that a normal mode would be a  
3 lower-power mode in which there is potentially a  
4 longer latency for communication, and that a fast  
5 mode would be potentially a high-power mode that  
6 would likely have a shorter latency for  
7 communication.

8 Although, the claims aren't quite that  
9 narrow.

10 Q So the frequency that you were comparing,  
11 less frequent versus more frequent, is the latency  
12 for communication; is that fair?

13 A In the background section -- again, this  
14 is not the claimed invention, but in the  
15 background section, there's actually a discussion  
16 of a less-frequent and a more-frequent  
17 communication monitoring period.

18 But that's the extent. Maybe "discusses"  
19 is a better term than "proposes."

20 Q Well, what I'm trying to get at is what  
21 you state in Paragraph 67 of your declaration  
22 between a normal/less frequent and fast/more

1 frequent communication monitoring mode, what the  
2 less frequent and more frequent is referring to;  
3 whether that's latency for communication or  
4 something else.

5 MR. MARANDO: Objection. Form.

6 BY THE WITNESS:

7 A Well, it's not completely consistent  
8 within the '216 patent. That's one of the  
9 challenges.

10 Are you asking about when those terms are  
11 used in the claim or when those terms are used in  
12 the background or when those terms are used in the  
13 description of the invention?

14 BY MR. FAHY:

15 Q I'm asking about what you meant when you  
16 used those terms in Paragraph 67 of the  
17 declaration.

18 A I'm referring to the aspirational  
19 description that's in the background of the '216  
20 patent.

21 Q And, more specifically, what are you  
22 comparing as normal/less frequent and fast/more

1 frequent?

2 MR. MARANDO: Objection. Form.

3 BY THE WITNESS:

4 A In the background section, there is --  
5 there are some examples given in which, for  
6 example, a tag could respond within three seconds  
7 or a tag could respond within one second.

8 But clearly it's a little bit muddled  
9 here, right? There's not a very clear definition  
10 in the specification as to how one can distinguish  
11 a normal mode from a fast communications  
12 monitoring mode. And based on that, my  
13 understanding is those terms, because they're  
14 describing different ways in different places,  
15 they're intended to be very broad.

16 BY MR. FAHY:

17 Q Well, and that really does get at my  
18 question. Do you have Exhibit VUSION-1001 in  
19 front of you, the '216 patent?

20 A I do.

21 (WHEREUPON, Exhibit No. 1001 was presented  
22 to the witness.)

1 BY MR. FAHY:

2 Q If you could look at -- and this is what  
3 you cited for the comparison between a normal/less  
4 frequent and fast/more frequent in Paragraph 67 of  
5 your declaration, you cite the '216 patent at  
6 column 6, lines 35 to 42.

7 Do you see that?

8 A I do.

9 Q I don't see any reference in column 6,  
10 lines 35 to 42 to less frequent or more frequent,  
11 do you?

12 A That's correct; I think those were  
13 exemplary.

14 Q So then what is your basis for your  
15 statement in your declaration, Paragraph 67, when  
16 you're comparing between a normal/less frequent  
17 and fast/more frequent?

18 A As I said, those are exemplary. Those  
19 come from the previous citation, column 1 and 2,  
20 but the patent as a whole certainly treats any  
21 mode in which one would expect a quicker response  
22 as a fast mode.

1           Q   So when you're referring to a normal/less  
2   frequent and fast/more frequent mode in  
3   Paragraph 67 of your declaration, you're comparing  
4   the response?

5           MR. MARANDO:   Objection.   Form.

6   BY THE WITNESS:

7           A   No, I'm just referring back to the fact  
8   that that was a suggestion in the background  
9   section of the patent.

10   BY MR. FAHY:

11          Q   The response time, not less frequent or  
12   more frequent?

13          A   Well, they're both kind of suggested,  
14   right?   I mean, it doesn't seem to limit it.  
15   Again, the discussion is somewhat unclear, right?  
16   It does not give specific definitions for a normal  
17   or a fast monitoring mode.

18                But when read in the context of the entire  
19   thing, of the entire specification, it's certainly  
20   clear that the intent of having a fast monitoring  
21   mode is one in which it is expected that the  
22   communications with the base station will complete

1 more quickly.

2 Q Complete more quickly or occur more  
3 frequently?

4 A Complete more quickly. It doesn't have to  
5 be more frequent. There's certainly some examples  
6 given where the device simply stays awake for a  
7 long time, and there's nothing -- I mean, again,  
8 there's really nothing in the specifications of  
9 the claims that defined the bounds of a fast  
10 monitoring mode.

11 Instead, it's all expressed in terms of  
12 the objective of a fast monitoring mode, which is  
13 that the system be more responsive.

14 Q So then why did you use the words "less  
15 frequent" related to the normal monitoring mode  
16 and "more frequent" related to the fast monitoring  
17 mode in Paragraph 67 of your declaration?

18 A Well, given that these are not terms that  
19 are defined in the specification, I thought it  
20 would be helpful to the PTAB to at least give an  
21 example of how the specification can reach or can  
22 implement those two modes.

1           Q   And what is happening less frequently in  
2   the normal mode and more frequently in the fast  
3   mode?

4           MR. MARANDO:   Objection.

5   BY THE WITNESS:

6           A   The ability to communicate.   And, again,  
7   that can be a result of either enabling  
8   communications less often or for a shorter period  
9   of time, either one.

10   BY MR. FAHY:

11          Q   And you also refer in Paragraph 67 of your  
12   declaration, Vusion Exhibit 1003:   "To conserve  
13   power by reducing communication, while preserving  
14   'customer experience requirements.'"

15               Do you see that?   It's the end of the same  
16   sentence we were just looking at.

17          A   Yes, I see that.

18          Q   In your opinion, how does the '216 patent  
19   reduce communication?

20          A   That's probably not the most elegant way  
21   to say that.   It reduces the amount of time that  
22   the communication hardware is powered up.

1           Q   And if we could turn to Paragraph 71 of  
2   your declaration. That begins a section titled  
3   "Overview of the Prior Art References"; is that  
4   right?

5           A   Yes.

6           Q   And the first prior art reference you go  
7   on to discuss in your declaration is the Nagata  
8   reference, Exhibit 1005?

9           A   Correct.

10          Q   If you look at Paragraph 74 of your  
11   declaration.

12               Do you see Paragraph 74?

13          A   I do.

14          Q   In the last sentence of Paragraph 74 of  
15   your declaration, you state: "The access points  
16   further use beacons to prepare an electronic rack  
17   label to wake up to receive and implement a  
18   server-generated command, thereby consuming  
19   battery power or return to sleep to save battery  
20   power."

21               Do you see that?

22          A   Yes.

1           Q   What do you mean by "use beacons to  
2   prepare an electronic rack label to wake up"?

3           A   So we need to be very careful when we talk  
4   about beacons with respect to Nagata because it  
5   uses beacons in a number of ways, and we don't  
6   want to confuse them.

7                   But one way that it uses beacons is that  
8   when the base station, the access point, wants to  
9   communicate data, usually in response to a  
10   request, back to the shelf tag, it will send one  
11   of two different beacon types: Either something  
12   that I call a stay-awake beacon that says, "I have  
13   instructions and data coming; you should stay  
14   awake so that we can communicate them quickly"; or  
15   a go-to-sleep beacon where it says, "I don't have  
16   any other commands or data to send to you right  
17   now, so you should go to sleep and save power."

18                   And they already have an existing  
19   agreement that the tag will wake up at some point  
20   in the future to allow further communications.

21           Q   So does the stay-awake beacon in Nagata  
22   cause the electronic rack label to wake up?

1           A   Doesn't cause it to wake up; it causes it  
2   to stay awake and stay awake longer.

3           Q   Does the go-to-sleep beacon cause the rack  
4   label to go to sleep then?

5           A   Essentially. I mean, again, these beacons  
6   aren't in control; they're really suggestions, but  
7   in this properly operating system, they're  
8   suggestions that are always acted on.

9           Q   What do you mean by "suggestions"?

10          A   They're instructions. They don't control  
11   the device physically, but they tell the device  
12   what it should do, and in a properly operating  
13   device, it will always do that.

14          Q   If the beacon doesn't control the --  
15   whether the rack label is awake, for example, what  
16   is controlling whether the rack label is awake?

17               MR. MARANDO: Objection. Form.

18               BY THE WITNESS:

19          A   Well, so it may be an oversimplification  
20   talking about the rack label being awake,  
21   certainly it's possible parts are awake, parts of  
22   it are asleep.

1 But Nagata describes his operation in the  
2 same way as the '216 patent where something's  
3 awake when it's capable of communicating, and it's  
4 not awake when it's not capable of communicating.

5 And because the beacon is a form of  
6 communication, the beacon can only happen when the  
7 tag is awake. So it doesn't literally wake up the  
8 tag; instead, it instructs the tag that it should  
9 stay awake in the exemplary embodiment for an  
10 additional 30 seconds so that further instructions  
11 and messages can be transmitted and will be  
12 received, in most cases accurately the first time.

13 BY MR. FAHY:

14 Q Earlier you mentioned a number of ways  
15 that the beacons are used in Nagata, and you  
16 described two types: Stay awake or go to sleep.  
17 Are there any others?

18 A There are other beacons disclosed that go  
19 in the other direction from the tag to the base  
20 station. And those are used to request  
21 information or to query the server or to send  
22 information to the server, all things that are

1 pretty much not relevant to understanding the  
2 claims.

3 Q Are there any other ways beacons are used  
4 in Nagata?

5 A There may be, but none others that were  
6 relevant to my opinions.

7 Q If we turn to Paragraph 79 of your  
8 declaration, VUSION-1003.

9 A Yes.

10 Q You state in Paragraph 79, in part: "The  
11 access points further use beacons to prepare an  
12 electronic rack label to wake up to receive and  
13 implement a server-generated command (thereby  
14 consuming battery power) or return to sleep (to  
15 save battery power)" and you're referencing the  
16 Hashiguchi reference, VUSION-1005.

17 Do you see that?

18 (WHEREUPON, Exhibit No. 1005 was first  
19 referenced.)

20 BY THE WITNESS:

21 A Yes.

22

1 BY MR. FAHY:

2 Q What do you mean by "use beacons to  
3 prepare an electronic rack label to wake up"  
4 regarding the Hashiguchi reference?

5 A Let me take a quick look at the cited  
6 passage.

7 Q And the cited passage you're referring to  
8 is in Hashiguchi, Exhibit 1005, at Paragraphs 127  
9 to 129; is that right?

10 A Yeah. I think maybe a better description  
11 for Hashiguchi is that the beacon that comes back,  
12 in this case, will either tell the shelf tag to  
13 wake up more often or less often.

14 So it will either tell it to wake up more  
15 frequently so it can receive its messages more  
16 quickly; or to sleep more, in which case it may  
17 take longer to receive messages. But in this  
18 case, the sleep-more message is sent when there is  
19 no current message pending, so it doesn't matter  
20 whether or not it can receive messages quickly.

21 Q So like with Nagata, the beacons in  
22 Hashiguchi do not cause the electronic rack label

1 to wake up; is that right?

2 A Right. Just like in the '216, the  
3 implication is that these devices can only  
4 communicate when they are awake.

5 So anything that they receive from the  
6 base station is received when they were already  
7 awake. And the communication, the instruction  
8 from the base station can put it into a mode in  
9 which it's going to be more responsive to  
10 communications from the base station.

11 Q Is there anywhere in Hashiguchi  
12 Paragraphs 127 to 129 disclosing the waking up of  
13 electronic rack label?

14 A It discusses the rate of waking up, not --  
15 it doesn't say that it causes it to wake up  
16 because, as I said, in order to receive the  
17 beacon, it needs to be awake. And in that aspect,  
18 it's really no different than the '216 patent.

19 Q Turning now to Paragraph 84 of your  
20 declaration, Exhibit VUSION-1003, where you're  
21 discussing the Thubert reference, T-h-u-b-e-r-t.

22 Do you see Paragraph 84?

1           A    I do.

2           Q    Regarding your statement in Paragraph 84  
3 of your declaration, why do you conclude or why do  
4 you think that the '216 patent addresses the  
5 problem of improving communications between the  
6 end-point device and a server by selecting the  
7 access point with the strongest signal to perform  
8 the communications?

9           A    Well, if you look at the first citation I  
10 have there, it talks about how, at least in some  
11 embodiments disclosed in the '216, the energy  
12 value is used to determine the optimal base  
13 station to use for future communications. That's  
14 the same process that's being described in  
15 Thubert.

16          Q    And the citation you refer to, is that  
17 column 4, line 61, to column 5, line 10 of the  
18 '216 patent?

19          A    Yes.

20          Q    You mention the term "energy value" in  
21 that citation. What does "energy value" mean?

22          A    Well, again, it's not defined in the '216

1 patent, but, in context, I think the most  
2 reasonable understanding is that it's the amount  
3 of energy required to communicate with each base  
4 station.

5 Q So there's a difference then between the  
6 energy value and the signal strength?

7 MR. MARANDO: Objection. Form.

8 BY THE WITNESS:

9 A One would expect them to be correlated  
10 that --

11 BY MR. FAHY:

12 Q Correlate --

13 A -- that to get a particular signal  
14 strength or acceptable signal strength with a base  
15 station, the amount of energy to be used would be  
16 reflective of the signal strength.

17 Q Would it be reflective of anything else?

18 MR. MARANDO: Objection.

19 BY THE WITNESS:

20 A Might be. I didn't really consider it.  
21 It would be reflective of the distance. It would  
22 be reflective of the atmospheric environment.

1 But, again, the purpose of this whole process as  
2 described in the '216 patent is to select the best  
3 base station and to do that based on the energy  
4 characteristics of the signal being communicated.

5 And that's the same process that's  
6 described in Thubert.

7 BY MR. FAHY:

8 Q And I think in that regard, the '216  
9 patent refers to selecting the optimal base  
10 station; is that right?

11 MR. MARANDO: Objection. Form.

12 BY THE WITNESS:

13 A The '216 patent does talk about  
14 determining the optimal base station among a  
15 plurality of base stations based on the energy  
16 value.

17 BY MR. FAHY:

18 Q So is the '216 patent then optimizing  
19 based on the energy value or anything else?

20 A It only discloses the energy value.

21 Q Is the '216 patent then disclosing  
22 choosing the base station with the highest energy

1 value?

2 A I don't think it's specific enough to tell  
3 us -- it doesn't tell us what units are used for  
4 the energy value, so it doesn't tell us whether or  
5 not it's a unit that optimizes higher values or a  
6 unit that optimizes lower values.

7 Q Do you have an opinion one way or the  
8 other what you think it's optimizing?

9 MR. MARANDO: Objection. Form.

10 BY THE WITNESS:

11 A Not in terms of that degree of  
12 specificity. I think it's clear that it's trying  
13 to find the base station that can communicate  
14 using the least amount of energy. That would  
15 typically be the one with the strongest signal  
16 strength.

17 BY MR. FAHY:

18 Q So is energy value, as used in the '216  
19 patent, the same as signal strength in your  
20 opinion?

21 MR. MARANDO: Objection. Form.

22

1 BY THE WITNESS:

2 A I think it's something that corresponds to  
3 signal strength. Again, there are many different  
4 units that can be used to measure something. The  
5 '216 patent is vague as to that. But I think it's  
6 certainly at least broad enough to include signal  
7 strength.

8 BY MR. FAHY:

9 Q What else could it include?

10 MR. MARANDO: Objection. Form.

11 BY THE WITNESS:

12 A I don't know. I didn't really need to  
13 consider that to reach the opinions in my  
14 declaration.

15 BY MR. FAHY:

16 Q And what is your basis for corresponding  
17 signal strength with energy value as energy value  
18 is used in the '216 patent?

19 A Based on the objective to save battery  
20 power and to select an optimal base station. And  
21 in that context, selecting something with, for  
22 example, the strongest signal would allow for the

1 lowest error rate, the lowest likelihood of  
2 requiring a retransmission.

3 And the ability almost all of these  
4 2.4-gigahertz communication mechanisms allow for  
5 adjustable signal strength, so it would allow the  
6 signal strength to be reduced to the  
7 minimum-necessary level.

8 Q If you can turn back to your declaration,  
9 Dr. Wolfe, at Paragraphs -- or Paragraph 86.

10 A Okay.

11 Q Paragraph 86 begins under the heading --  
12 the large heading "Detailed Explanation of  
13 Grounds"; is that right?

14 A Yes.

15 Q In Paragraph 86, you state: "In my  
16 opinion, Nagata discloses and/or suggests..."

17 Do you see that language?

18 A Yes.

19 Q What's the difference, if any, between  
20 "discloses" or "suggests" when you use those terms  
21 in your declaration?

22 MR. MARANDO: Objection. Form.

1 BY THE WITNESS:

2 A I think the difference is that "discloses"  
3 means uses language that any reasonable person  
4 would conclude expresses the claim limitation.

5 Where "suggests" means that it uses  
6 language that would create an impression or an  
7 understanding in the mind of a person of ordinary  
8 skill of the claim limitation.

9 In my opinion, Nagata does both.

10 BY MR. FAHY:

11 Q If you look at Paragraph 88 of your  
12 declaration, you conclude that it is your opinion  
13 that Nagata discloses or suggests the element that  
14 you're referring to. Which is it?

15 A I think it's both, given the explanation  
16 that I gave before. Certainly no doubt that it  
17 discloses it if you look at Figure 1.

18 Q And I'm just really trying to get at this  
19 terminology is used throughout your declaration  
20 "discloses and/or suggests," in some instances,  
21 "discloses or suggests" in other instances. And  
22 based on your testimony that those have different

1 meanings, I'm trying to determine is there any  
2 instance where you use the phrase "discloses or  
3 suggests" in your declaration where you meant only  
4 one and not the other of those terms? Or is it  
5 always in the conjunctive, you meant both?

6 A No, if I meant one or the other, I only  
7 would have used one of those terms.

8 In cases where I used both terms, even in  
9 the phrases like "discloses or suggests," that  
10 means, in my opinion, it does both; it explicitly  
11 discloses it in an unambiguous way, and it also  
12 suggests it in a way that a person of ordinary  
13 skill would understand that it's suggesting the  
14 likelihood of that particular structure or step.

15 Q And is it your terminology, or did it come  
16 from counsel?

17 MR. MARANDO: Objection. Form.

18 BY THE WITNESS:

19 A I don't know. As I said, I've written  
20 hundreds of declarations, so I've used this  
21 terminology many, many, many times before over  
22 decades, and I don't remember where it originally

1     came from.

2     BY MR. FAHY:

3           Q   If we continue in your declaration under  
4     the first ground and look at Paragraph --  
5     actually, back up a little.

6                   Starting at Paragraph 86, you address  
7     ground 1, which is titled "Obviousness Over  
8     Nagata"; is that right?

9           A   Yep.

10          Q   If we turn then to Paragraph 103, which I  
11     believe remains in that same section, I'd like to  
12     ask you a couple questions about Paragraph 103 of  
13     your declaration.

14          A   I'm there.

15          Q   So Paragraph 103 of your declaration is  
16     under the subheading on the previous page, 59,  
17     "Claim 1.2.1," which is, "The first communication  
18     path supports two monitoring modes: A normal  
19     monitoring mode and a fast monitoring mode."

20                   Do you see that?

21          A   Yes.

22          Q   And in the last sentence of Paragraph 103,

1     you state: "Also the awake state may be prolonged  
2     (e.g. for an additional 30 seconds) when the  
3     second communications part receives a beacon from  
4     the access point during the awake state."

5             Do you see that?

6             A   Yes.

7             Q   And I'm just curious which portion of the  
8     claim limitation that we just read is this last  
9     sentence of Paragraph 103 mapping to?

10            MR. MARANDO:  Objection.  Form.

11     BY THE WITNESS:

12            A   It is descriptive of one aspect of the  
13     fast monitoring mode.

14     BY MR. FAHY:

15            Q   And if we continue to Paragraphs 105 and  
16     106 of your declaration in the same section, you  
17     use the term -- well, are you there?

18            A   Yes.

19            Q   You use the term "monitoring period" in  
20     Paragraphs 105 and 106 of your declaration.  
21     What's your understanding of the term "monitoring  
22     period"?

1           A   In what context?

2           Q   In the context of how you use it in  
3   Paragraph 105.

4           A   In the disclosure of the Nagata, the --  
5   well, actually, in this particular paragraph, I'm  
6   referring back to the background section of the  
7   '216 patent. And in that section, monitoring  
8   period is used to describe the length of time that  
9   the tag is awake and available for communication  
10   before it goes back into a sleep mode.

11          Q   And what is the basis for your -- for that  
12   understanding?

13          A   That's my understanding of the way that  
14   term is used in, for example, column 1, line 57  
15   and also column 1, lines 64 and 65.

16               I'm sorry. In those paragraphs,  
17   monitoring period is referring to how frequently  
18   the tag is awake in those particular paragraphs.

19          Q   105 and 106 of your declaration?

20          A   Well, I was referring to the paragraphs in  
21   the '216 patent, but that's what I'm citing to in  
22   Paragraphs 105 and 106.

1 Q Column 1, lines 23 to 65?

2 A Yes. Now, again, monitoring period is not  
3 claimed, if I recall correctly, but it is  
4 discussed in the background section of the '216.

5 Q If you turn to Paragraph 108 of your  
6 declaration, it begins your opinion regarding  
7 subheading E, Claim 1.2.2: "And the base station  
8 comprises two wake-up modes: A normal wake-up  
9 mode and a fast wake-up mode."

10 Do you see that?

11 A Yes.

12 Q You state about midway through  
13 Paragraph 108 of your declaration that: "A POSITA  
14 would have understood the access points operate in  
15 a coordinate mode with the labels because the  
16 access points can only communicate with the labels  
17 when the labels are awake in those modes.  
18 Specifically, Nagata's access points have modes  
19 corresponding to the labels' modes so they can  
20 exchange transmission."

21 Do you see that?

22 A I do. There's a typo there, but yes.

1 Q What's the typo?

2 A It should read "in a coordinated mode."

3 Q And what are the modes that you refer to  
4 in that sentence?

5 A I think it depends on context, the tag has  
6 a normal monitoring mode and a normal -- and a  
7 fast monitoring mode; and the base station has a  
8 normal wake-up mode and a fast wake-up mode.

9 Q So what is the difference then in the  
10 access points operations when a label is in the  
11 normal monitoring mode or when the label is in  
12 what you refer to as the fast monitoring mode?

13 MR. MARANDO: Objection. Form.

14 BY THE WITNESS:

15 A I'm not sure I understand that question.  
16 All that this limitation requires is that the base  
17 station has two modes, and it does.

18 BY MR. FAHY:

19 Q And those two modes, if I heard you  
20 correctly, are normal monitoring mode and a fast  
21 monitoring mode?

22 A No, the base station's two modes are a

1 normal wake-up mode and a fast wake-up mode.

2 Q So in Paragraph 108 in your declaration  
3 where you state "a POSITA would have understood  
4 the access points operate in a coordinated mode  
5 with the labels," what modes are you referring to  
6 there?

7 A All of the modes. If the access point is  
8 in its normal wake-up mode, it will send a beacon  
9 to the tag saying: You can go back to sleep. And  
10 if the access point is in its fast wake-up mode,  
11 it will send a message to the tag saying: You  
12 should stay awake.

13 Q Is there any other difference in the  
14 access point's operation besides the one you just  
15 articulated when a label is in the normal  
16 monitoring mode versus the fast monitoring mode?

17 MR. MARANDO: Objection. Form.

18 BY THE WITNESS:

19 A I don't know what you mean by a  
20 difference. The base station chooses its mode  
21 based on how long or based on how it wants the tag  
22 to stay awake and does that based on whether or

1 not it's got data to communicate or it doesn't.

2 So the two modes would either be the  
3 normal wake-up mode where it says: You don't need  
4 to stay awake; I don't have information to send  
5 you. Or the fast wake-up mode where it says: You  
6 should stay awake; I have information to send you  
7 and I want you to get it fast.

8 BY MR. FAHY:

9 Q Yeah, and I -- and you may have answered  
10 this, so I apologize if I'm asking the same  
11 question, but what I'm trying to get at is, where  
12 you reference in Paragraph 108 of your declaration  
13 that the access points operate in a coordinated  
14 mode, I'm asking what is the difference in the  
15 access point's operation depending on which mode  
16 the label is in? Or is there none?

17 MR. MARANDO: Objection. Form.

18 BY THE WITNESS:

19 A I don't think it -- well, there would be,  
20 but it's very subtle. But it's -- doesn't have  
21 anything to do with what the base station's mode  
22 is.

1           If the tag is in its fast monitoring mode,  
2   then it's likely to get the beacon very, very  
3   quickly. If it's in its normal monitoring mode,  
4   it may have to wait to get the beacon and delay  
5   the communication.

6           But, either way, the base station is  
7   indicating to the tag what behavior it wants the  
8   tag to adopt in terms of being awake or being  
9   asleep.

10          Q And if we could look specifically at  
11   Exhibit 1005, which is Nagata, at Paragraph 33,  
12   which is one of the paragraphs you cite in your  
13   declaration, Paragraph 108.

14          MR. FAHY: So Paragraph 33 of Exhibit  
15   VUSION-1005.

16          THE TECHNICIAN: Exhibit 1005 is on the  
17   screen.

18          MR. FAHY: Thank you.

19   BY THE WITNESS:

20          A Okay.

21   BY MR. FAHY:

22          Q So in Paragraph 33, in part, Nagata's

1 disclosing the access points transmit beacons at a  
2 pre-described time interval; is that right?

3 A Correct.

4 Q So this just -- is this transmitting a  
5 beacon at a fixed pre-described time interval just  
6 one of the modes that we were just discussing?

7 A No, it does that in both modes. In one  
8 mode, it sends the stay-awake beacon during that  
9 interval, and in the other mode, it sends the  
10 go-to-sleep beacon during that interval.

11 Q And are those intervals fixed, or does  
12 Nagata disclose dynamically changing them?

13 A The interval between beacons is fixed, but  
14 during any particular interval, the base station  
15 can be in one mode or the other and will send a  
16 beacon that is indicative of its mode.

17 Q What do you mean by sending a beacon  
18 indicative of its mode?

19 A It will either send a stay-awake beacon,  
20 which means: I have data to send to you; or it  
21 will send a go-to-sleep beacon, which indicates:  
22 I don't have data to send to you.

1           Q   If we turn back to your declaration,  
2   Dr. Wolfe, Paragraph 111 of VUSION-1003.  So it's  
3   in the same section we were just discussing.

4           Do you see Paragraph 111 of your  
5   declaration?

6           A   Yes, it's a little bit long.  Take a look  
7   at it.

8           Q   Yeah, go ahead and read through it and let  
9   me know when you're done.

10          A   Okay.

11          Q   You state at the beginning of  
12   Paragraph 111 of your declaration:  "A POSITA  
13   would have recognized Nagata's label server  
14   communications through the access points require a  
15   system-wide timing that causes the access points  
16   to switch into an active state (wake up) at  
17   different rates of communication (normal and fast)  
18   according to the rate of communications of the  
19   labels to avoid wasted power and transmissions."

20          Do you see that?

21          A   Yes.

22          Q   What is the basis for your opinion that

1 Nagata's access points would have an active state?

2 A I think that's just a description of the  
3 state in which it wishes to send the message back  
4 because it wants both the tag and the base station  
5 to stay awake so that the message can be  
6 transmitted quickly.

7 Q And you cite Nagata Paragraph 5 to support  
8 that; is that right?

9 A I do.

10 Q Which part of -- and if you want, please  
11 turn to Nagata, which is VUSION-1005, Paragraph 5.

12 And my question for you, Dr. Wolfe, is,  
13 which part of that cited disclosure, Paragraph 5  
14 of Exhibit VUSION-1005, supports that the access  
15 points switch into this active state at different  
16 rates?

17 A I think that's my explanation of  
18 everything starting on line 48 to the end of the  
19 paragraph, that because they can only communicate  
20 while they're both in the awake state, that the  
21 monitoring mode determines, at least  
22 probabilistically, the rate at which they can

1 communicate.

2 If the tag is awake for large periods of  
3 time, it's likely that the communication will be  
4 completed fast. If the tag is asleep most of the  
5 time, it's likely that the communication will be  
6 completed more slowly.

7 Q So that's your interpretation of Nagata;  
8 that's not explicitly disclosed in Exhibit 1005 --

9 MR. MARANDO: Objection --

10 BY MR. FAHY:

11 Q -- correct?

12 MR. MARANDO: Objection. Form.

13 BY THE WITNESS:

14 A I think that's what is being explained to  
15 a person of ordinary skill in the art through the  
16 description that's provided, but it is my language  
17 to describe what's being taught.

18 BY MR. FAHY:

19 Q And is it your opinion that those  
20 different rates avoid wasted power and  
21 transmissions?

22 A In most circumstances. If you choose to

1 stay awake when you know there's a communication  
2 coming and you choose to go to sleep when you've  
3 been informed that there is no communication  
4 pending, then you will save power as compared to  
5 staying awake all the time.

6 All of these patents, all of these  
7 references, including '216, are about balancing  
8 responsiveness and power consumption, and what's  
9 disclosed in Nagata allows you to communicate more  
10 quickly, more often, with less power than a more  
11 naive approach.

12 Q Are there circumstances in which use of  
13 these different rates would not avoid wasted power  
14 and transmissions?

15 MR. MARANDO: Objection. Form.

16 BY THE WITNESS:

17 A There might be. If a component fails or  
18 if a message is corrupted or if someone  
19 maliciously hacks the server, there could be  
20 cases, but in normal operation, you would not  
21 expect that.

22

1 BY MR. FAHY:

2 Q And why not? How is that ensured through  
3 the disclosure of Nagata?

4 A Because when you have communications  
5 pending, you stay awake long enough to get a  
6 response from the base station. The base station  
7 response informs you as to whether or not data is  
8 coming back.

9 You then go into either stay in the fast  
10 monitoring mode and get the data quickly, or you  
11 switch into the normal monitoring mode because  
12 there is no data to get back from the search and  
13 in that case you save power.

14 So, again, it's a tradeoff, but it's a  
15 good tradeoff. Nagata's tradeoff of saying I'm  
16 going to use less power when there's no messages  
17 pending and more power to get better  
18 responsiveness when there are messages pending is  
19 a good solution, and essentially it's the same  
20 solution that's in the '216 patent.

21 Q And is there just one active state  
22 disclosed in Nagata, or are there several

1 different active states?

2 A I'm not sure I really understand the  
3 question. So there are two different modes of  
4 operation described for the tag, and there are two  
5 different modes of operation described for the  
6 base station.

7 I described one of them as an active  
8 state, but there can be a variety of states where  
9 individual components are active.

10 Q And would you consider that a different  
11 active state than the way you use the term in  
12 Paragraph 111 of your declaration?

13 MR. MARANDO: Objection. Form.

14 BY THE WITNESS:

15 A In 111, I talk about an active state of  
16 access point. The tag could have its own state.

17 BY MR. FAHY:

18 Q Concentrating on the active state of the  
19 access point, as you refer to it in Paragraph 111  
20 of your declaration, are there other active states  
21 of the access point beyond the one that you  
22 reference in Paragraph 111?

1           A   It describes how you use that term.  I  
2   mean, certainly there could be states where the  
3   access point's talking to a different tag or where  
4   the access point's talking to the server.

5           But what I'm doing here is distinguishing  
6   the state where it is actively preparing to send a  
7   message to the tag as opposed to an alternative  
8   state where it is not actively preparing to send a  
9   message to the tag.

10          MR. FAHY:  We've been going a bit over an  
11   hour.  How about like a ten-minute break?

12          MR. MARANDO:  Sounds good.

13          MS. REPORTER:  Off the record.

14          (WHEREUPON, a recess was had from  
15   1:05 p.m. to 1:14 p.m.)

16   BY MR. FAHY:

17          Q   Dr. Wolfe, did you speak with anyone about  
18   your testimony during the break?

19          A   I did not.

20          Q   When we left off, we were discussing  
21   Paragraph 111 of your declaration, VUSION-1003.  
22   I'd like to turn to Paragraph 113.

1           A    Okay.

2           Q    You state, about the middle of  
3   Paragraph 113 of your declaration:  "A POSITA  
4   would have therefore looked to Bluetooth to  
5   determine additional modifications and  
6   enhancements useful for improving this  
7   architecture, and one critical advantage offered  
8   in this type of network offers is dynamic  
9   incremental power management to conserve label  
10   battery power drain and improve connectivity and  
11   communicability between two devices, but only if  
12   both devices using the channel support that  
13   feature power control."

14           Do you see that?

15           A    Yes.

16           Q    And you cite Exhibit VUSION-1016, a  
17   Bluetooth specification; is that right?

18           A    Yes.

19           MR. FAHY:  If we can pull up VUSION-1016.

20           THE TECHNICIAN:  One moment.

21

22

1 (WHEREUPON, Exhibit No. 1016 was presented  
2 to the witness.)

3 BY MR. FAHY:

4 Q Do you recognize VUSION-1016, Dr. Wolfe?

5 A Yes.

6 Q What is it?

7 A It's select pages from the Bluetooth 5.0  
8 specification. Bluetooth 5.0 included the  
9 Bluetooth LE specification which had a number of  
10 low-power extensions.

11 Q And is this the Bluetooth specification  
12 that you cited to in Paragraph 113 of your  
13 declaration?

14 A Yes.

15 Q And specifically you cited Page 533 of  
16 Exhibit 1016, which is actually, I think, Page 5  
17 of the PDF.

18 A I believe that's correct.

19 Q And do you see the paragraph on Page 533  
20 of Exhibit 1016 titled "Power Control"?

21 A That's a section of that document, yes.

22 Q And in that section, it refers to a

1 device's transmit power level.

2 Do you see that?

3 A Yes.

4 Q What is transmit power level?

5 MR. MARANDO: Objection. Form.

6 BY THE WITNESS:

7 A In this context, it's an adjustable amount  
8 of radiofrequency energy that's used to transmit  
9 from a device. If you increase the power level,  
10 you can typically go further with the same  
11 accuracy; and if you decrease the power level, you  
12 typically can't go as far but you save power.

13 BY MR. FAHY:

14 Q Is the power control in VUSION-1016 at 533  
15 that we're looking at concerned with using the  
16 correct transmit power level in communication?

17 MR. MARANDO: Objection. Form.

18 BY THE WITNESS:

19 A Not completely sure what you mean by that,  
20 but you would certainly want to use a correct  
21 power transmission level in a reliable working  
22 system.

1 BY MR. FAHY:

2 Q Is that disclosed, though, in  
3 Exhibit 1016?

4 A It tells you how to select the appropriate  
5 power level. An appropriate power level would be  
6 correct.

7 Q And appropriate for what?

8 A For communicating between two Bluetooth  
9 devices on the unlicensed 2.4-gigahertz band.

10 Q What parameters go into determining the  
11 appropriate power level in that context?

12 MR. MARANDO: Objection. Form.

13 BY THE WITNESS:

14 A Specifically in the Bluetooth context?  
15 There are quite a few of them, but the ones that  
16 are mentioned here on Page 533 are setting a  
17 maximum power level and a minimum power level,  
18 which then within the Bluetooth protocol then get  
19 adjusted based on packet error rates.

20 BY MR. FAHY:

21 Q Then turning back to your declaration at  
22 Paragraph 113, further down in the paragraph you

1 state: "Specifically, communication power in this  
2 type of channel can be managed carefully to  
3 improve the connection and communicability of a  
4 node-type device with another device in this type  
5 of network, but only if both the devices support  
6 the feature."

7 Do you see that?

8 A Yes.

9 Q And, again, you cite to Exhibit 1016, the  
10 Bluetooth specification; is that right?

11 A Yes.

12 Q In Paragraph 113, that sentence, what do  
13 you mean by "communication power"?

14 A Transmit power.

15 Q And how is that managed, if at all?

16 A Well, we manage a number of different  
17 ways. Server gives us one, but the one that's  
18 discussed for Bluetooth under the Bluetooth 5.0 is  
19 that if a receiving device is -- can request that  
20 it get more power or less power from the  
21 transmitting device. And it would do that based  
22 on a variety of criteria, which would include

1 things like communication error rate.

2 Could also be a correct measurement of the  
3 signal strength.

4 Q Anything else?

5 A I don't think it's constrained as to what  
6 can be considered. It's really a protocol for  
7 adjusting the power rather than insisting on what  
8 criteria one would use to adjust the power.

9 Q What did you mean by "can be managed  
10 carefully" in Paragraph 113 of your declaration?

11 A It can be adjusted up or down to balance  
12 power consumption with communication reliability.

13 Q If we turn to Paragraph 123 of your  
14 declaration. And Paragraph 123 is under the  
15 subheading for claim element 1.7.

16 Do you see that?

17 A Yes.

18 Q And further down in Paragraph 124, under  
19 that same subheading, you state in the last  
20 sentence of Paragraph 124: "Because the beacon is  
21 sent to maintain the label in the fast monitoring  
22 mode, a POSITA would have understood it to be a

1 'fast wake-up instruction.'" "

2 Do you see that?

3 A I do.

4 Q How does a beacon maintain the label in a  
5 fast monitoring mode?

6 A Because the particular beacon that is  
7 described in Nagata is a beacon from the base  
8 station to the tag that says: I have instructions  
9 and data to send to you.

10 And, in particular, the example that's  
11 provided is the storage and display change command  
12 and image data that is included within that  
13 command protocol.

14 And when those commands are to be sent,  
15 the base station sends a wake-up beacon that says:  
16 "You should stay awake for another 30 seconds to  
17 make sure we can complete this communication now  
18 and we don't have to wait for a later  
19 communication period."

20 Q When the communication is completed, when  
21 the information is actually transmitted, is that a  
22 different mode, or is that the fast monitoring

1 mode?

2 A Once the beacon arrives, the label will  
3 stay in the fast monitoring mode for 30 seconds,  
4 and then it will revert back to the normal  
5 monitoring.

6 Q And are there any other modes that the  
7 label is in other than normal or fast monitoring?

8 A Nagata doesn't preclude other modes, but I  
9 don't recall him disclosing other modes.

10 Q If we go further in your declaration,  
11 Paragraph 164.

12 You see, Dr. Wolfe, that Paragraph 164,  
13 which is now I believe under the ground 2, Nagata  
14 in view of Hashiguchi section, particularly  
15 Subsection B referencing claim element 1.2.2.

16 Do you see that?

17 A Yes.

18 Q You state in I think it's the third  
19 sentence of Paragraph 164: "The access point's  
20 transmission mode is 'synchronized' with 'the  
21 awake operation timing of the electronic rack  
22 label 240,' such that the access point transmits

1 'beacon signals' synchronized with the label's  
2 awake time ratio."

3 Do you see that?

4 A Yes.

5 Q Does it matter which command transmission  
6 mode, normal or rapid, the server is in, or do the  
7 access points always transmit beacons at that same  
8 interval?

9 A Let me look at the citations for a second.

10 My understanding is that at least in one  
11 embodiment of Hashiguchi, the beacon rate from the  
12 access point is synchronized with the tag, so it  
13 would happen at approximately the same rate, so  
14 when the tag changes modes, the beacon would as  
15 well.

16 Q So it would be the same between the two  
17 modes?

18 MR. MARANDO: Objection. Form.

19 BY THE WITNESS:

20 A No, I believe it would be different  
21 between the two modes based on at least this  
22 embodiment.

1 BY MR. FAHY:

2 Q And which embodiment is that?

3 A The one that's described in Paragraph 68  
4 through 71.

5 Q And what is your basis for it being  
6 different based on that disclosure, 68 to 71?

7 A The description that it's synchronized.

8 I think it's more specific, not directly  
9 in Paragraph 127, but maybe more in 128 and 127  
10 where it talks about, in one case, sending beacons  
11 at a 20-second interval and another at a 4-second  
12 interval.

13 Q Are those intervals, or is it always  
14 4-second intervals, just over 20-second length of  
15 time?

16 A Actually, you're right, in that particular  
17 example, they are -- the beacons are set to  
18 4-second intervals.

19 Q So is there another example then that you  
20 meant to refer to or that you were referring to  
21 where the intervals are different between the two  
22 modes, the normal command transmission mode and

1 the rapid command transmission mode, or are they  
2 always the same?

3 A Not necessarily always the same. The  
4 description is that it's synchronized. They could  
5 be synchronized based on a constant transmission  
6 rate; they could be synchronized based on a  
7 variable transmission rate.

8 Q But the only interval disclosed is that  
9 4 seconds, correct?

10 A That's an -- that's the exemplary one that  
11 I cited to.

12 Q Are you aware of any examples where the  
13 interval is different depending on which command  
14 transmission mode they're in?

15 A There's not a specific example given, but  
16 as I mentioned in Paragraph 68, it simply says  
17 that the beacons are synchronized. That could  
18 happen either with a fixed or variable beacon  
19 transmission rate.

20 Q What is your basis for that conclusion,  
21 that it could happen with a fixed or a variable  
22 transmission rate?

1           A   It's the basic nature of synchronization,  
2           right? As long as they're happening at the same  
3           time, it's not really relevant as to whether or  
4           not there are additional beacons that are  
5           happening that are sent while the device is asleep  
6           because they would simply be ignored.

7           Q   But you'd agree that the only examples  
8           that are provided in the reference are at a fixed  
9           interval?

10           MR. MARANDO: Objection.

11           BY THE WITNESS:

12           A   The only numerical example that's provided  
13           is a fixed interval.

14           BY MR. FAHY:

15           Q   What nonnumerical examples are you  
16           referring to?

17           A   The description in Paragraph 68 where  
18           specific transmission interval's not listed, it  
19           just simply says they need to be synchronized.

20           Q   If we look back at your declaration  
21           further down, Paragraph 172 to 174.

22                   Do you see Paragraphs 172 to 174?

1           A   Yes.

2           Q   And, in general, it appears in those  
3 paragraphs stating that a POSITA would have a  
4 reasonable expectation of success in combining  
5 Hashiguchi and Nagata; is that right?

6           A   Yes, Hashiguchi was one of the inventors  
7 on Nagata. They were at approximately the same  
8 time. They're describing essentially the same  
9 infrastructure and just minor variations on how to  
10 implement certain aspects of operation.

11          Q   And specifically in Paragraph 173 of your  
12 declaration, you state: "This implementation  
13 would have only needed to apply Hashiguchi's  
14 shorter transmission time intervals to Nagata's  
15 access number 106 points as explained in  
16 Hashiguchi to achieve success."

17               Do you see that?

18          A   Yes.

19          Q   What are the actual steps that a POSITA  
20 would need to take to apply Hashiguchi's shorter  
21 transmission time intervals to Nagata's access  
22 points as described here in your declaration?

1 MR. MARANDO: Objection. Form.

2 BY THE WITNESS:

3 A It would be embodiment-specific, but, in  
4 general, the person who is constructing the system  
5 would write software code that would specify the  
6 intervals and conditions for sleep and awake for  
7 each of the access point and the tag and the  
8 nature of the communications between them.

9 One would simply have to take the  
10 teachings of Hashiguchi, which actually preceded  
11 Nagata, and take the timing intervals that are  
12 described there and the beacon communications that  
13 are described there and embody them in that code.

14 BY MR. FAHY:

15 Q Other than changing the code, would any  
16 other steps need to be taken to implement  
17 Hashiguchi's method in Nagata?

18 A I don't believe so.

19 Q Do you have an opinion as to how much  
20 effort it would take to change the code as you  
21 just described?

22 MR. MARANDO: Objection.

1 BY THE WITNESS:

2 A I'm not really suggesting it would change,  
3 only that it would be implemented differently.  
4 And I don't think it would take any more effort to  
5 implement the combination than it would to  
6 implement Nagata alone.

7 BY MR. FAHY:

8 Q Turning now to Paragraph 190 of your  
9 declaration, which is under the subheading  
10 referencing claims 2, 8, and 15.

11 A Yes.

12 Q You state in the next paragraph,  
13 Paragraph 191, in the second sentence that:  
14 "Hashiguchi does not expressly disclose that the  
15 electronic rack label transmits the first data to  
16 the base station through the first communication  
17 path."

18 Do you see that?

19 A I do.

20 Q So if Hashiguchi's electronic rack labels  
21 are not transmitting information to the base  
22 station, then what, if anything, are the labels

1 transmitting and to where?

2 A I think that's the wrong question. In  
3 combination with Nagata, the labels would be  
4 transmitting information because that would be an  
5 aspect of Nagata that would be obvious to include  
6 in the combination.

7 So where Hashiguchi does not teach that  
8 particular limitation, the combination does teach  
9 that limitation.

10 Q I understand that's your opinion, but I'm  
11 asking specifically about Hashiguchi, and in  
12 Hashiguchi, if the rack labels are not  
13 transmitting information to the base station, then  
14 what, if anything, are they transmitting and to  
15 where?

16 MR. MARANDO: Objection. Form.

17 BY THE WITNESS:

18 A In Hashiguchi's alone, not in combination  
19 with Nagata, the rack labels don't need to  
20 transmit in this scenario.

21 The terminal transmits on behalf of the  
22 rack label in Hashiguchi alone, and then the

1 information is returned to the rack label.

2 BY MR. FAHY:

3 Q And why would Hashiguchi be implemented  
4 in -- you know, what's the advantage, if any, of  
5 Hashiguchi's implementation versus Nagata?

6 MR. MARANDO: Objection. Form.

7 BY THE WITNESS:

8 A Mostly it's just different. They're both  
9 absolutely reasonable ways to do things.  
10 Hashiguchi's would have the advantage that might  
11 use a little bit less power on the tag, but it has  
12 the disadvantage that, unlike Nagata, a typical  
13 customer can't walk up to the tag and cause the  
14 operation to begin.

15 BY MR. FAHY:

16 Q And that's because of the way the  
17 transmission is implemented or carried out?

18 A Well, because Hashiguchi talks about using  
19 a specific kind of terminal. Where Nagata,  
20 slightly later disclosure, talks about using,  
21 among other things, a standard cell phone to be  
22 able to perform the access. That would be

1 something that lots of people would have.

2 MR. FAHY: I need about a 15-minute break.

3 MS. REPORTER: Okay. Off the record.

4 (WHEREUPON, a recess was had.)

5 MR. FAHY: Dr. Wolfe, I have no further  
6 questions at this time, so I pass the witness.

7 MR. MARANDO: And we don't have any  
8 questions, so we can close the deposition.

9 MS. REPORTER: Okay. Off the record.

10 (WHEREUPON, the deposition was concluded  
11 at 2:20 p.m. CST.)

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ACKNOWLEDGMENT OF DEPONENT

I, ANDREW WOLFE, Ph.D., do hereby  
acknowledge that I have read and examined the  
foregoing testimony and the same is a true,  
correct, and complete transcription of the  
testimony given by me and any corrections appear  
on the attached errata sheet signed by me.

\_\_\_\_\_  
(SIGNATURE) (DATE)

C E R T I F I C A T E   O F   R E P O R T E R

I, MICHELLE M. YOHLER, a Certified  
Shorthand Reporter within and for the County of  
Will, State of Illinois, do hereby certify:

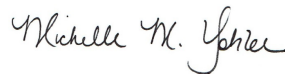
That Andrew Wolfe, Ph.D., the witness  
whose deposition is hereinbefore set forth, was  
duly sworn by me before the commencement of such  
deposition and that such deposition was taken  
before me and is a true record of the testimony  
given by such witness.

I further certify that the adverse party,  
VUSIONGROUP SA, was represented by counsel at the  
deposition.

I further certify that the deposition of  
Andrew Wolfe, Ph.D., occurred virtually on  
Friday, February 14, 2025, commencing at 11:00  
a.m. to 2:20 p.m.

1 I further certify that I am not related  
2 to any of the parties to this action by blood or  
3 marriage, I am not employed by or an attorney to  
4 any of the parties to this action, and that I am  
5 in no way interested, financially or otherwise, in  
6 the outcome of this matter.

7  
8 IN WITNESS WHEREOF, I have hereunto set  
9 my hand this 18th day of February, 2025.

10  
11  
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13 

14 \_\_\_\_\_  
15 Michelle M. Yohler, CSR, RMR, CRR  
16 Certified Shorthand Reporter  
17 CSR No.: 84-4531  
18  
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21  
22

| A                 |                       |                   |                    |
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| <b>about</b>      | <b>accurate</b>       | <b>admit</b>      | <b>almost</b>      |
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Transcript of Andrew Wolfe, Ph.D.  
Conducted on February 14, 2025

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Transcript of Andrew Wolfe, Ph.D.  
Conducted on February 14, 2025

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Conducted on February 14, 2025

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