

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SONY COMPUTER ENTERTAINMENT AMERICA LLC

Petitioner

v.

APLIX IP HOLDINGS CORPORATION

Patent Owner

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Case No. IPR2015-00533

Case No. IPR2015-00476

Case No. IPR2015-00396

Patent No. 7,218,313

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DEPOSITION OF DR. GREGORY F. WELCH

VOLUME I, PAGES 1 - 87

AUGUST 19, 2015

(The following is the deposition of DR. GREGORY F. WELCH, taken pursuant to agreement of counsel, at the Hyatt Regency Orlando International Airport Hotel, Orlando, Florida, commencing at approximately 9:57 o'clock a.m., August 19, 2015.)

STEPHEN W. C. ASSOCIATES

Page 2

1 APPEARANCES:  
 2 On Behalf of the Petitioner:  
 3 Abran Kean  
 ERISE IP  
 4 5600 Greenwood Plaza Boulevard, Suite 200  
 Greenwood Village, Colorado 80111  
 5  
 On Behalf of the Patent Owner:  
 6  
 Robert J. Gilbertson  
 7 GREENE ESPEL PLLP  
 Campbell Mithun Tower, Suite 2200  
 8 222 South Ninth Street  
 Minneapolis, Minnesota 55402-3362  
 9  
 ALSO APPEARING:  
 10  
 Callie Pendergrass, Senior Technical  
 11 Advisor, Erise IP  
 12  
 13  
 14 INDEX  
 15 EXHIBITS DESCRIPTION PAGE MARKED  
 16 Ex 2006 Four-page excerpt of Willner  
 17 Patent 5,874,906 with handwritten  
 18 notations 74  
 19  
 20  
 21  
 22  
 23  
 24  
 25

Page 3

1 PROCEEDINGS  
 2 (Witness sworn.)  
 3 DR. GREGORY F. WELCH  
 4 called as a witness, first duly sworn,  
 5 was examined and testified as follows:  
 6 ADVERSE EXAMINATION  
 7 BY MR. GILBERTSON:  
 8 Q. Welcome back, Dr. Welch.  
 9 A. Thank you.  
 10 Q. You've been retained as an expert witness by  
 11 Sony Computer Entertainment America and have provided  
 12 declarations or direct testimony in seven IPR  
 13 proceedings relating to APLIX; is that right?  
 14 A. That's correct.  
 15 Q. That includes IPR proceedings relating to  
 16 the '245 and '692 patents, and you gave your  
 17 deposition on those two declarations on July 28 and 29  
 18 here in Orlando; is that correct?  
 19 A. That sounds right. I don't remember the  
 20 dates, but I'll take your word for it.  
 21 Q. Okay. And you also represent SDEA in  
 22 connection with three different IPRs challenging U.S.  
 23 Patent No. 7,218,313, and for the record I'll just  
 24 note those are IPR2015-00396, IPR2015-00476, and  
 25 IPR2015-00533; is that right?

Page 4

1 A. That's correct.  
 2 Q. And you're here today to give your  
 3 deposition in connection with those three declarations  
 4 that you submitted in those three IPRs.  
 5 A. That's correct.  
 6 Q. And just for the record, by agreement of the  
 7 parties we'll have one deposition and one transcript  
 8 for all three of those. All transcripts from the case  
 9 can be filed as exhibits in all of the IPRs. I think  
 10 the idea was that that would reduce the burden on  
 11 witnesses and reduce duplication. Many of the  
 12 references at issue in the '313 IPRs are the same as  
 13 references that were at issue in the '245 and '692  
 14 IPRs, so we don't necessarily have to cover everything  
 15 every time.  
 16 Are you ready to begin, Dr. Welch?  
 17 A. Yes. Thank you.  
 18 Q. Do you have in front of you the three  
 19 declarations? And for the record I'll note in the  
 20 00396 IPR it's Exhibit 1013, in the 00476 IPR it's  
 21 Exhibit 1009, and in the 00533 IPR it's Exhibit 1008.  
 22 Do you have all those?  
 23 A. I do.  
 24 Q. And do those declarations contain true and  
 25 complete statements of your testimony and opinions

Page 5

1 relating to these IPRs?  
 2 A. Yes, they do, at the time of the writing for  
 3 sure.  
 4 Q. And is there something that's come up since  
 5 that's caused you to believe that there was an error  
 6 or something incomplete about them?  
 7 A. No.  
 8 Q. Who wrote those declarations?  
 9 MR. KEAN: Objection to the extent it calls  
 10 for protected information.  
 11 A. So I don't know how much we can rely on the  
 12 previous deposition that we did back on the 18th, but,  
 13 you know, my answer would be the same as then, which  
 14 is that the intellectual content -- certainly all the  
 15 technical intellectual content came from the -- out of  
 16 discussions. You know, some of it I may have  
 17 handwritten, some of it someone else may have hand-  
 18 drafted, but it's all intellectually mine. The  
 19 legal --  
 20 And this is -- this is not specific to this  
 21 necessarily because I don't want to convey -- or break  
 22 confidences in any way, but that's the way I typically  
 23 work, is we talk, I respond to questions, I give  
 24 ideas, and then we draft somehow together, and  
 25 that's -- I believe that's how we did it here.

1 Q. And just so you know, the testimony from the  
2 '245 and '692 IPRs will be available in this  
3 proceeding as well.

4 It sounds like the process you used to  
5 create the three declarations for the '313 patent is  
6 about the same as the process you used for the '245  
7 and '692 declarations.

8 **A. That's correct, yeah. As I -- as I said,  
9 that's the way I typically work and I believe that's  
10 the way we did it here, yeah.**

11 Q. So as with the '245 and '692 IPRs, am I  
12 right that your declarations in the '313 patent IPRs  
13 do not include opinions about how particular claim  
14 terms in the '313 patent should be construed?

15 **A. I don't think that they do. I don't recall  
16 that. I think I refer to proposed constructions,  
17 maybe, in the -- if I could refer to the 00533  
18 declaration as the 00533 declaration, I think in there  
19 I refer to proposed constructions by the petitioner,  
20 and it's my understanding that -- since then that the  
21 board has adopted those constructions. But beyond  
22 that, I have not, that I recall, offered an opinion on  
23 any claim construction.**

24 MR. GILBERTSON: This is a question for  
25 counsel for SDEA. It occurred to me that the

1 transcripts might be more usable for the judges if,  
2 when we refer to the 396, 476 and 533, that the  
3 transcript would show those with the two zeroes  
4 preceding the numbers so it doesn't look like three  
5 different patents.

6 MR. KEAN: Sure. Yeah, I think that's a  
7 good solution. I think that makes good sense.

8 MR. GILBERTSON: Okay. Thank you.

9 THE WITNESS: I'll try and refer to them in  
10 that way also.

11 MR. GILBERTSON: I guess what I'm suggesting  
12 is even if you don't, that if, by agreement of  
13 counsel, and presuming the court reporter is okay with  
14 it, that the trans -- even if we say "the 533  
15 declaration," it will be transcribed as "00533." Does  
16 that make sense?

17 THE WITNESS: I understand. That makes  
18 sense and I like it.

19 MR. KEAN: Yeah. I think that's a good  
20 idea.

21 BY MR. GILBERTSON:

22 Q. Let me ask you about the 00396 declaration,  
23 paragraph 14.

24 **A. Okay.**

25 Q. In this paragraph you list materials that

1 you analyzed in connection with your work on the 00396  
2 declaration; is that right?

3 **A. That's correct.**

4 Q. And I'm going to have some questions for you  
5 today about Pallakoff and Ishihara. They're listed in  
6 the 00396 declaration as Exhibits 1006 and 1007; is  
7 that right?

8 Are you having trouble finding them?

9 **A. I'm having trouble finding Ishihara.**

10 Q. It's the next one right below Pallakoff.

11 **A. Yes, I see it. Okay. It doesn't --**

12 **"Certified English Translation..." I got  
13 it. Thank you.**

14 Q. And just for the record, I'll note that  
15 Pallakoff is Exhibit 1004 in the 00476 IPR and also  
16 Exhibit 1004 in the 00533 IPR, and Ishihara is not  
17 used in the 00476 IPR but is Exhibit 1005 in the 00533  
18 IPR.

19 Dr. Welch, how did Pallakoff initially come  
20 to your attention?

21 MR. KEAN: Objection to the extent it calls  
22 for privileged information and protected information.

23 **A. I don't recall, as I think I've said before.**

24 **I looked at and discussed a lot of art -- which is  
25 typical for me if I do something like this -- with the**

1 **petitioner, and together decided that some was better  
2 than others for this purpose. But specifically, I  
3 don't recall.**

4 Q. Same answer for Ishihara?

5 **A. That's correct.**

6 Q. Let me ask you to turn in --

7 Actually, please turn to the 00533  
8 declaration to paragraph 33.

9 **A. Okay.**

10 Q. And this paragraph appears within the  
11 section of your 00533 declaration on Background of the  
12 Technology. You cite a couple of exhibits in -- well  
13 let me back up.

14 Paragraph 33 of your 00533 declaration has  
15 to do with touchscreens generally; right?

16 **A. Generally, yes, I believe that's correct.**

17 Q. And you cite a couple of exhibits in that  
18 paragraph, one of which is referred to as Sears,  
19 Exhibit 1026; is that right?

20 **A. That's correct.**

21 Q. If you could have a look at the third  
22 sentence of your declaration that begins, "The use  
23 of..."

24 **A. The third sentence in 33, paragraph 33?**

25 Q. Yes.

1 **A. Okay.**  
 2 Q. And just so it's easy for someone reading  
 3 the testimony, I'll read that sentence into the  
 4 record. Quote, "The use of sliding gestures on touch  
 5 surfaces for various applications, including games,  
 6 was common at least as early as 1990, and was  
 7 understood to offer 'a more powerful method of input  
 8 than either target selection or direct manipulation."  
 9 Did I read that correctly?  
 10 **A. Yes.**  
 11 Q. And for that proposition you cite both of  
 12 the exhibits noted in that paragraph, the first of  
 13 which is Sears, Exhibit 1026, at page 17; is that  
 14 right?  
 15 **A. I believe that is correct.**  
 16 Q. That's what it says on the page; right?  
 17 **A. That's right.**  
 18 Q. Okay. Let me hand you just now a copy of  
 19 Exhibit 1026, which is Sears, and ask you to look at  
 20 page 17 that you cited in the declaration. Let me  
 21 know when you're there.  
 22 **A. Okay.**  
 23 Q. And the part of Sears that you quote in the  
 24 sentence I read from your declaration appears in the  
 25 first full paragraph on internal page 17 of the Sears

1 reference -- the Sears article; is that right?  
 2 **A. "Internal" means the --**  
 3 **Do you mean the original page numbers in the**  
 4 **article as opposed to the exhibit page?**  
 5 Q. Yeah. That's the issue with these exhibits  
 6 is --  
 7 **A. Okay.**  
 8 Q. -- it's exhibit page 18 but the internal or  
 9 intrinsic page is 17.  
 10 **A. Okay.**  
 11 Q. And the part that you quoted is in that  
 12 first full paragraph on page 17 of Sears?  
 13 **A. Yes, that appears to be correct.**  
 14 Q. And that paragraph does not specifically  
 15 refer to sliding gestures; does it? Instead, the  
 16 words that it uses are "free hand input;" is that  
 17 correct?  
 18 **A. That's correct. That sentence starts with**  
 19 **"Free hand input....," which is, in my mind, defined**  
 20 **earlier in the preceding paragraph on the preceding**  
 21 **page, which would be -- would be the last paragraph of**  
 22 **the intrinsic page 16, where, for example, it says,**  
 23 **"Free hand input allows users to move their hands**  
 24 **across the screen with every location they touch being**  
 25 **used as input." And the next sentence says, "Gestures**

1 **allow users to draw shapes or letters which are used**  
 2 **as input." So just as one example, you know, those**  
 3 **would all involve sliding gestures, as would the -- I**  
 4 **guess it's the fourth sentence, which says, "Free hand**  
 5 **input includes tasks like drawing in a graphics**  
 6 **package....," and so on, which would all involve**  
 7 **sliding your finger across the screen.**  
 8 Q. The part from Sears that you quoted includes  
 9 the phrase "target selection." Do you see that in the  
 10 first full paragraph on intrinsic page 17 of the Sears  
 11 reference, Exhibit --  
 12 **A. I do.**  
 13 Q. -- 1026?  
 14 **A. I do.**  
 15 Q. That's not referring to targets of a game;  
 16 is it? That's talking about something you find on a  
 17 screen that you want to do something with.  
 18 **A. I don't recall. And I could look further**  
 19 **through Sears for a definition, but what I say, that**  
 20 **seems plausible. So it could include something in a**  
 21 **game but more generally would be as you described, I**  
 22 **think, just -- you know, sitting here right now just**  
 23 **reading that sentence without looking further in the**  
 24 **Sears exhibit.**  
 25 Q. And the paragraph we're talking about, the

1 first full paragraph on intrinsic page 17 of Sears,  
 2 Exhibit 1026 in the 00533 IPR, that comes up in the  
 3 context of talking about input generally. There's  
 4 nothing specific in that context about games; is  
 5 there?  
 6 **A. I don't recall. I would have to look more**  
 7 **carefully. But, you know, based just on the title of**  
 8 **the article, which is "A new era for touchscreen**  
 9 **applications," I believe the methods described would**  
 10 **be universal or pervasive across any applications, but**  
 11 **I don't recall that there was any specific application**  
 12 **beyond the ones I just mentioned, like drawing or**  
 13 **graphics packages.**  
 14 Q. In section 4.4 of the Sears reference,  
 15 Exhibit 1026 in the 00533 IPR that starts on intrinsic  
 16 page 16 and finishes on intrinsic page 17, that  
 17 section isn't specific to games; is it?  
 18 **A. That is correct. I don't think that it's,**  
 19 **you know, specific to anything. It appears to be --**  
 20 **and again, this is just based on a quick read here --**  
 21 **general teaching about different -- as it says, many**  
 22 **novel applications, but not -- nothing specific that I**  
 23 **can see about games.**  
 24 Q. Let me ask you about your 00533 declaration,  
 25 paragraph 34, the next paragraph after the one we were

1 just discussing. Do you have that in front of you?  
 2 **A. I do.**  
 3 Q. The first sentence of your paragraph 34  
 4 reads, quote, "It was generally recognized that using  
 5 touchscreen input mechanisms with any computing device  
 6 created usability issues, including lack of precision,  
 7 high error rates, figures obscuring detail on the  
 8 screen, and the screen smudging." Did I read that  
 9 correctly?  
 10 **A. You did.**  
 11 Q. And you cite for that the Preece document  
 12 that's Exhibit 1011 in the 00533 IPR; is that right?  
 13 **A. That is correct.**  
 14 Q. Let me show you a copy of that exhibit. The  
 15 one I'm handing you happens to be from the -- it  
 16 happens to be an exhibit in the 00396 matter, which is  
 17 Exhibit 1016, but it's the same document. And you  
 18 cited page 218 of Preece. Can you turn to that page  
 19 within the Preece exhibit, please.  
 20 **A. Okay.**  
 21 Q. So I think the material we're talking about  
 22 appears in the second paragraph on intrinsic page 218  
 23 of the Preece exhibit, 00533 IPR Exhibit 1011.  
 24 And I think we've figured out the typo that  
 25 we talked about in connection with the other IPRs

1 where your declaration uses the word "detail." Am I  
 2 right that you meant to say "detail?"  
 3 **A. That sounds entirely plausible. Where is  
 4 that in my declaration?**  
 5 Q. It's in that sentence I just read, first  
 6 sentence of paragraph 34.  
 7 **A. Oh. Yes. Absolutely. It must be "detail."**  
 8 Q. And then in the middle of the second  
 9 paragraph of intrinsic page 218 of Preece it uses  
 10 similar language, including fingers obscuring detail  
 11 on the screen. Do you see that?  
 12 **A. I do.**  
 13 Q. Okay. Obviously, no big deal on the typo, I  
 14 just wanted to make sure we were looking --  
 15 **A. Yes.**  
 16 Q. -- at the same thing.  
 17 Preece cites the usability issues that you  
 18 note in your declaration and it also cites one more:  
 19 arm fatigue; is that right?  
 20 **A. That's right. The first part of that  
 21 paragraph is describing good things, and starting at  
 22 that point Preece is describing bad things, and you're  
 23 right, he also describes arm fatigue in the next  
 24 sentence.**  
 25 Q. So of the bad things or downsides of

1 touchscreens, if you put the touchscreen on the back  
 2 of a device, would I be right that that might do  
 3 something about fingers obscuring detail on the screen  
 4 and screen smudging, but wouldn't in itself do  
 5 anything about the lack of precision, the high error  
 6 rates or the arm fatigue? Is that correct?  
 7 **A. That's a -- you know, that's a very broad  
 8 question, so I would say broadly that all of those  
 9 things depend on every aspect of the system, not any  
 10 one thing, so -- and, you know, I think Preece would  
 11 agree that those are very broad, general  
 12 characterizations. So it would depend on what was  
 13 drawn on the screen, you know, how the device was  
 14 meant to be held and all sorts of other things. So  
 15 it's hard to answer with any definitive answer. It's  
 16 a very broad question, it depends on a lot of  
 17 different factors, some of which are listed here, but  
 18 not all of them.**  
 19 Q. Well it's easy to say that if you put the  
 20 touchscreen on the back, you won't have fingers  
 21 obscuring the detail on the screen; right?  
 22 Isn't that issue one where you've got a  
 23 finger between your eyes and the screen?  
 24 **A. That's true. Your physical finger,  
 25 absolutely, would not be in front of the screen. If**

1 **there's a screen on the front of the device and your  
 2 hands are on the back of the device, then obviously  
 3 your fingers would not be obscuring anything on the  
 4 display. If the display is opaque that is; you know,  
 5 for example, is not transparent.**  
 6 Q. But that step of taking a touchscreen and  
 7 putting it on the back instead of the front, you can't  
 8 say that by itself that would do anything to deal with  
 9 the other problems that Preece identified: lack of  
 10 precision, high error rates, and arm fatigue.  
 11 **A. It's -- it's hard to say. I wouldn't say  
 12 that it can't. It might play a role. What I mean to  
 13 say is that there's nothing here that I can think of  
 14 sitting here right now, aside from the potential point  
 15 that you just mentioned, that would exclusively or by  
 16 itself address those problems, that the mitigation of  
 17 any of those problems is usually done by a combination  
 18 of a lot of different design factors.**  
 19 Q. The Preece exhibit, 00533 IPR Exhibit 1011  
 20 at intrinsic page 218, also notes that there was a  
 21 survey that implied that of various cursor control  
 22 devices studied, touchscreen was the fastest but least  
 23 accurate; is that right?  
 24 **A. I'm sorry, can you point me to that on that  
 25 page?**

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