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GENTEX CORPORATION

	)	
META PLATFORMS, INC,	)	Patent Trial and
	)	Appeals Board
Plaintiff,	)	Case Nos.
	)	IPR2022-01294,
vs.	)	IPR2022-01298,
	)	IPR2022-01301,
THALES VISIONIX, INC.	)	IPR2022-01302,
	)	IPR2022-01303,
Defendants.	)	IPR2022-01304,
	)	IPR2022-01305,
	)	IPR2022-01308
	)	

DEPOSITION OF Dr. Ulrich Neumann

Los Angeles, California

Thursday, June 1, 2023

Volume I

Reported by:  
LORI M. BARKLEY  
CSR No. 6426  
Job No. PA 5916379  
PAGES 1 - 193

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1 Gentex Corporation  
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4 )  
5 META PLATFORMS, INC. ) Patent Trial and  
6 ) Appeals Board  
7 Plaintiff, ) Case Nos.  
8 ) IPR2022-01294,  
9 vs. ) IPR2022-01298,  
10 ) IPR2022-01301,  
11 THALES VISIONIX, INC. ) IPR2022-01302,  
12 ) IPR2022-01303,  
13 Defendants. ) IPR2022-01304,  
14 ) IPR2022-01305,  
15 ) IPR2022-01308  
16  
17 Deposition of Dr. Ulrich Neumann, Volume I,  
18 taken on behalf of Defendants, at Los Angeles,  
19 California, beginning at 9:05 a.m. and ending at 4:34  
20 p.m. on Thursday, June 1st, 2023, before LORI M.  
21 BARKLEY, Certified Shorthand Reporter No. 6426.  
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5 Examination by Ms. Collins 6  
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7 EXHIBITS  
8 NUMBER DESCRIPTION PAGE  
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10 Exhibit 2 '253 Neumann Declaration 11  
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15 Exhibit 1003 9  
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17 Exhibit 1007 46  
18 Exhibit 1010 121  
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1 Los Angeles, California; Thursday, June 1, 2023  
2 9:05 a.m.  
3  
4 Dr. Ulrich Neumann,  
5 having been administered an oath, was examined and  
6 testified as follows:  
7  
8 EXAMINATION  
9  
10 MS. COLLINS: Good morning. I'm Melissa  
11 Collins from Williams and Connolly on behalf of  
12 patent owner Thales and real party of interest  
13 Gentex.  
14 With me on this video also from Williams and  
15 Connolly is Shayon Ghosh on behalf of Thales and  
16 Gentex.  
17 And then also on the line, I think, we've  
18 got Greg Gulliver and Brandon Helms of the Addyhart  
19 firm on behalf of Thales.  
20 I think -- go ahead. I think. You've got  
21 your own counsel there as well?  
22 MR. GLUCOFT: Sorry, was someone else  
23 speaking?  
24 MS. COLLINS: Can you hear me.  
25 MR. GLUCOFT: We can hear you. Josh Glucoft

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1 of Kirkland and Ellis on behalf of petitioner Meta.  
2 And I'm here with the witness Dr. Ulrich Neumann.  
3 BY MS. COLLINS:  
4 Q. Good morning, Dr. Neumann. Thank you for  
5 joining us today?  
6 A. Good morning.  
7 Q. I believe you have just discussed some of  
8 this with the court reporter but I'll go over it a  
9 little bit myself as well.  
10 I understand you have been deposed before?  
11 A. That's correct.  
12 Q. And you were deposed by my colleague just  
13 last week; is that right? With respect to a  
14 different patent?  
15 A. If you say so, yes.  
16 Q. Okay. Have you ever participated in a  
17 remote deposition?  
18 A. No.  
19 Q. Okay, so it should hopefully work the same  
20 way as if I were there in person. There's a camera  
21 on me, a camera on you. You've got a court reporter  
22 there in the room with you and your counsel.  
23 I understand you have hard copies of a  
24 number of documents in front of you; is that correct?  
25 A. That's correct. I prefer to work from those

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1 if possible.  
2 Q. So I think we're going to try to do that and  
3 refer to exhibits that have been previously marked in  
4 the IPR proceeding that this deposition relates to.  
5 But if you any confusion over what I'm  
6 referring to let me know and we can share a screen.  
7 A. Okay, thank you.  
8 Q. Okay, you understand you're under oath  
9 today?  
10 A. Yes, I understand that.  
11 Q. Is there anything preventing you from  
12 testifying fully and truthfully today?  
13 A. No.  
14 Q. Okay. And it's important in this deposition  
15 as if I were there as well that we not speak over  
16 each other so that the court reporter can take down  
17 what we're both saying.  
18 So please give spoken answers rather than a  
19 gesture like nodding your head. And also, if you can  
20 do your best to let me finish my questions before you  
21 begin to answer, I will do my best to let you finish  
22 your answer before starting my next question.  
23 Does that make sense?  
24 A. Okay, I understand that.  
25 Q. Great. And you're here today as an expert

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1 witness on behalf of Meta Technology?  
2 A. That's correct.  
3 Q. And you understand your deposition today is  
4 about your opinions regarding the '632 patent and the  
5 '253 patent?  
6 A. Yes, that's my understanding.  
7 Q. Do you understand what I'm referring to with  
8 the '632 patent and the '253 patent using the  
9 shorthand?  
10 A. Yes, I do.  
11 Q. So the '632 patent was Meta Exhibit 1001 in  
12 the related IPR proceedings. And the '253 patent is  
13 Meta Exhibit 1003.  
14 Do you see that, do you have those exhibits?  
15 A. Yes, I do.  
16 Q. And you're offering opinions about those two  
17 patents in connection with three different IPR  
18 proceedings; is that correct?  
19 You don't need to know the numbers. It's  
20 the 1304, the 1305, and the 1308. I just want to  
21 make sure it's clear on the record.  
22 A. Yes, I believe that's correct.  
23 Q. And you understand this deposition is going  
24 to address all three of those proceedings in one  
25 consolidated deposition, correct?

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1 A. That's my understanding.  
2 Q. Great. And you provided one declaration  
3 regarding your opinions on the '632 patent, correct?  
4 A. Correct, that's the Exhibit 1005.  
5 MR. GLUCOFT: One second, the declaration is  
6 here.  
7 BY MS. COLLINS:  
8 Q. So that was I think you were saying Exhibit  
9 1005 to the 1304 and 1305 IPR proceedings?  
10 A. That's correct. That's what's written on  
11 the sheet that I'm looking at.  
12 Q. So I have marked that as Exhibit 1 to the  
13 deposition, to differentiate it from the declaration  
14 I'm about to ask you about, which is also has a  
15 similar exhibit number.  
16 So that -- I'll refer to that as the '632  
17 declaration, if there's any confusion. But it's  
18 marked as Exhibit 1 for this deposition.  
19 (Exhibit 1 was marked for identification by  
20 the court reporter and is attached hereto.)  
21 BY MS. COLLINS:  
22 Q. You also provided a declaration regarding  
23 your opinions on the '253 patent; is that correct?  
24 A. That's correct.  
25 Q. And that is marked as Exhibit 1005 to IPR

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1 proceeding ending in 1308; is that right?  
2 A. That's correct.  
3 Q. Okay, and I've marked that as Exhibit 2 to  
4 this deposition.  
5 (Exhibit 2 was marked for identification by  
6 the court reporter and is attached hereto.)  
7 BY MS. COLLINS:  
8 Q. And you have hard copies of both of those  
9 declarations now in front of you?  
10 A. Yes.  
11 Q. And you don't have any notes or markings or  
12 anything on those declarations, correct?  
13 A. I didn't print them. But I don't see any  
14 markings on them.  
15 Q. Okay, great. So the '632 declaration states  
16 all of the opinions you offer with respect to the  
17 '632 patent and its claims; is that right?  
18 A. That's correct.  
19 Q. And the '253 declaration states all of the  
20 opinions you offer with respect to the '253 patent  
21 and its claims, correct?  
22 A. That's correct.  
23 Q. Great. In the course of developing and  
24 providing your opinions, you reviewed both patents,  
25 the '632 and the '253, right?

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1 A. That's right.  
2 Q. Do you agree that the specifications of  
3 those patents are substantively identical?  
4 A. My recollection is that there was a lot of  
5 similarity, yes.  
6 Q. Are you aware of any differences?  
7 A. I haven't made special note of differences  
8 since I made the declarations so I can't speak to  
9 that right now.  
10 Q. Okay, I'm just trying to make sure the  
11 record is clear so that I don't have to, you know,  
12 refer to both patents.  
13 Or that I understand your opinions regarding  
14 one patent will sort of apply to the other one as  
15 well.  
16 So for that purpose, if you could take a  
17 look at paragraph 32 of your '253 declaration.  
18 A. '253.  
19 Q. That paragraph 32 starts the background  
20 section of the shared '632/'253 specification  
21 provides; is that right?  
22 A. I see that, yes.  
23 Q. So do you understand that the patents  
24 substantively share a specification?  
25 A. Yes, they're very similar.

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1 Q. And sitting here right now, you're not aware  
2 of any substantive differences?  
3 A. I cannot recall any at this time.  
4 Q. Okay. I'll note the '253 specification has  
5 a few extra sentences or extra sentence at the top  
6 saying it's a continuation of the prior patent and  
7 that throws the line numbers off.  
8 But beyond that, you're not aware right now  
9 of any differences?  
10 A. That's correct, I don't recall any.  
11 Q. Do you understand that the patents claim  
12 priority to a provisional application filed on August  
13 9th, 2002?  
14 A. I'm sorry, repeat the question.  
15 Q. Do you understand that the patents claim  
16 priority to a provisional application filed on August  
17 9th, 2002?  
18 A. You're saying they both do that?  
19 Q. Yes.  
20 A. I see that for the '632. And I see that for  
21 the '253.  
22 Q. So is that the date you used when you were  
23 evaluating whether a reference was in the prior art?  
24 A. Yes.  
25 Q. And I'm not asking to you to take a legal

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1 position on the priority date. I'm not taking a  
2 legal position on the priority date.  
3 But if I use the shorthand before the  
4 priority date or in the prior art today, do you  
5 understand that that means before August 9th, 2002?  
6 A. Yes, that's my understanding.  
7 Q. Okay, great. There were many different  
8 types of sensors that existed in the prior art,  
9 correct?  
10 A. If you're speaking relating to tracking  
11 sensors, yes, yes.  
12 Q. Can you give some examples?  
13 A. The documents speak of many. But off the  
14 top of my head I would recall magnetic, ultrasonic,  
15 optical, inertial -- those were main ones.  
16 There may have been others.  
17 Q. If you can take a look at the '632 patent,  
18 column one. And when you're there, I'll give you the  
19 line number.  
20 A. Okay.  
21 Q. Line number 31 -- arguably 30 or 31, it says  
22 (as read):  
23  
24 Different sensors may have  
25 different measurement

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1 characteristics that affect the  
2 mapping between the relative pose of  
3 the sensor and the target and the  
4 measurement value provided by the  
5 sensor.  
6  
7 Do you see that?  
8 A. Yes, I see that.  
9 Q. What do you understand that to mean?  
10 A. Well, it's a broad statement. It's  
11 basically sort of suggesting and making sure that the  
12 reader understands that not all sensors are alike.  
13 There's some differences between them.  
14 Q. What sorts of differences?  
15 A. Well, specifically it's suggesting or  
16 telling us that they measure different aspects of the  
17 relative pose of the sensor and a target, and those  
18 aspects are arranged direction or orientation.  
19 Q. You're looking at the sentence above? What  
20 I just read for that?  
21 A. Yes, that's right, there's a sentence above,  
22 okay.  
23 Q. So that sentence is saying, "different  
24 sensors may measure different things."  
25 But then the sentence I read talks about

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1 different sensors have different measurement  
2 characteristics.  
3 I guess what do you understand a measurement  
4 characteristic to be?  
5 MR. GLUCOFT: Objection, scope.  
6 THE WITNESS: Well, its from one single  
7 sentence without further context it could mean a lot.  
8 I would look to the text for further clarification of  
9 that.  
10 Are you asking me to do that or do you want  
11 me just to -- what are you asking me to do here?  
12 BY MS. COLLINS:  
13 Q. I'm asking for your understanding of this  
14 sentence that says (as read):  
15  
16 Different sensors may have  
17 different measurement  
18 characteristics that affect the  
19 mapping between the relative pose of  
20 a sensor and a target and the  
21 measurement values provided by the  
22 sensor.  
23  
24 And what you understand based on your  
25 experience that this is referring to with respect to

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1 measurement characteristics.  
2 A. So for example, an optical sensor -- I'll  
3 give you some examples.  
4 Q. Great.  
5 A. An optical sensor would look at a target for  
6 something that is observed and a location on the  
7 sensor would be the type of measurement it would  
8 produce.  
9 Location isn't an image, it's two  
10 dimensional so the nature of the measurement has to  
11 do with a projection.  
12 An acoustic sensor might just produce a  
13 range value without a particular location associated  
14 with it.  
15 A magnetic sensor might do all of those.  
16 This is a very broad question so that's why  
17 I initially wasn't sure what you were asking me.  
18 Q. Okay. If you look a little further down on  
19 column 1, about line 39 or 40. You can read the full  
20 paragraph for the context.  
21 The sentence I'm looking at is says (as  
22 read):  
23  
24 The implementation of such common  
25 filtering techniques is often

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