Case 5:19-cv-00036-RWS Document 389-9 Filed 07/02/20 Page 1 of 6 PageID #: 19148

EXHIBIT 4

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Page 1 1 2 UNITED STATES DISTRICT COURT 3 EASTERN DISTRICT OF TEXAS 4 TEXARKANA DIVISION 5 -----X 6 MAXELL, LTD., : 7 Plaintiff, : Case No. 8 : 5:19-cv-00036-RWS v. : 9 APPLE INC., 10 Defendant. : 11 -----X 12 Videotaped deposition of VIJAY MADISETTI Ph.D. 13 Tuesday, October 22, 2019 14 Atlanta, GA 15 8:57 a.m. 16 17 18 19 20 21 Job No.: 170439 22 Pages: 1 - 186 23 Reported by: Giselle Mitchell-Margerum, RPR, CRI, 24 CCR 25

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1	V. MADISETTI	1	V. MADISETTI
2	different aspects of image and video processing.	2	video processing.
3	Do you consider any of those topics more relevant	3	Q. So you would consider someone of ordinary
4	to the technology at issue in this case?	4	skill in the art, as a bare minimum requirement, to
5	A. I would generally say that they are all	5	have some experience in both the hardware and the
6	generally relevant. The whole area was in the area	6	software aspects of video image I'm sorry
7	of image and video processing.	7	video/image processing.
8	Q. Got it. So, around the same section of	8	Is that right?
9	your expert report around paragraphs 28 through	9	MR. NESE: Object to the form.
10	31, you provide an opinion on the level of ordinary	10	A. No. The way I've said that in paragraph
11	skill in the art. Do you see that?	11	30 I mean, I think that two years of experience
12	A. I do.	12	in the field of image/video processing is what I
13	Q. And it's your opinion that a person of	13	consider as the definition of a "POSITA" here.
14	ordinary skill in the art would be a person with a	14	THE COURT REPORTER: Of a what?
15	bachelor's of science degree in electrical or	15	THE WITNESS: Of a person of ordinary
16	computer engineering, computer science, or an	16	skill in the art. P-O-S-I-T-A.
17	equivalent degree; and at least two years of	17	BY MR. ZHOU:
18	experience working in the field of image/video	18	Q. So, during this deposition, if I use the
19	processing.	19	phrase, "POSITA" P-O-S-I-T-A to refer to a
20	Is that correct?	20	person of ordinary skill in the art, around the
21	A. That's right.	21	time of the 493 Patent's filing, would you
22	Q. And what do you mean by "working in the	22	understand that?
23	field of image/video processing?"	23	A. Yes, I would. It would refer to what I
~ 1			describe in paragraphs 28 through 31 of my
24	A. They would be dealing with both the	24	describe in paragraphs 28 through 31 of my
24 25	A. They would be dealing with both the hardware and the software aspects of image and	25	declaration.
		1	
	hardware and the software aspects of image and	1	declaration.
25	hardware and the software aspects of image and Page 40	25	declaration. Page 41
25	hardware and the software aspects of image and Page 40 V. MADISETTI	25	declaration. Page 41 V. MADISETTI
25 1 2	hardware and the software aspects of image and Page 40 V. MADISETTI Q. So, as part of working in the field of image/video processing, what knowledge must a person know to qualify as a POSITA?	25 1 2	declaration. Page 41 V. MADISETTI sensors, like CCD sensors, and CMOS image sensors,
25 1 2 3	hardware and the software aspects of image and Page 40 V. MADISETTI Q. So, as part of working in the field of image/video processing, what knowledge must a person know to qualify as a POSITA? A. Generally, familiarity with the types of	25 1 2 3	declaration. Page 41 V. MADISETTI sensors, like CCD sensors, and CMOS image sensors, and so forth? A. Yes. Q. Would you expect that person to know the
25 1 2 3 4 5 6	hardware and the software aspects of image and Page 40 V. MADISETTI Q. So, as part of working in the field of image/video processing, what knowledge must a person know to qualify as a POSITA? A. Generally, familiarity with the types of processing that occurs with image and video	25 1 2 3 4	declaration. Page 41 V. MADISETTI sensors, like CCD sensors, and CMOS image sensors, and so forth? A. Yes.
25 1 2 3 4 5 6 7	hardware and the software aspects of image and Page 40 V. MADISETTI Q. So, as part of working in the field of image/video processing, what knowledge must a person know to qualify as a POSITA? A. Generally, familiarity with the types of processing that occurs with image and video acquisition; with post-processing with the	25 1 2 3 4 5	declaration. Page 41 V. MADISETTI sensors, like CCD sensors, and CMOS image sensors, and so forth? A. Yes. Q. Would you expect that person to know the
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25 1 2 3 4 5 6 7 8 9	hardware and the software aspects of image and Page 40 V. MADISETTI Q. So, as part of working in the field of image/video processing, what knowledge must a person know to qualify as a POSITA? A. Generally, familiarity with the types of processing that occurs with image and video acquisition; with post-processing with the different types of with the different types of improvement of the quality of the image;	25 1 2 3 4 5 6 7	declaration. Page 41 V. MADISETTI sensors, like CCD sensors, and CMOS image sensors, and so forth? A. Yes. Q. Would you expect that person to know the differences between how a CCD sensor would work versus how a CMOS sensor would work? A. Yes. Q. Would you expect a person skilled in the
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	Page 42	Page 43
1	V. MADISETTI	¹ V. MADISETTI
2	A. Yes.	² Q. And "decimation;" one example of a use
3	Q. What would you expect a person skilled in	³ for "decimation" would be to take a higher
4	the art to know in those aspects?	⁴ resolution image and reduce the resolution of that
5	A. Things like topics like interpolation,	⁵ image. Is that right?
6	decimation. Topics like noise removal; pixel	⁶ A. That's one again one example of
7	collection; various types of compression; storage	7 "decimation."
8	types of techniques.	⁸ Q. In your CV earlier in your CV, around
9	Q. Right. So, I think the first thing you	 paragraph 13, you had mentioned that you worked on
10	mentioned was "interpolation." Right?	¹⁰ image processing chipsets, like the Intel and
11	A. Yes. Interpolation, decimation and	¹¹ MXP5800 family of image processing chipsets.
12	others.	12 Do you see that?
13	Q. So, interpolation refers to taking an	¹³ A. Yes.
14	image and trying to kind of increase the	¹⁴ Q. So, would you expect a person of ordinary
15	resolution pixel resolution of the image by	¹⁵ skill in the art, as relevant to the 493 Patent, to
16	interpolating between pixels. Is that, generally,	 ¹⁶ know about different types of image signal
17	correct?	¹⁷ processors available on the market, around the time
18	A. Now, as I said, I mean, one of it	¹⁸ of the patent's filing?
19	could be one of the uses. That's not a definition.	¹⁹ A. At a high level, yes.
20	"Interpolation" can be used in many, many ways.	20 Q. The product that you worked on the
21	Q. So one example of a use for	²¹ Intel MXP chipset was it capable of performing
22	"interpolation" would be to take a low resolution	²² the general types of image/video processing you
23	image and try to increase the resolution by	²³ discussed earlier? Like interpolation, and
24	interpolating between pixels. Is that right?	decimation, and noise removal, and so forth?
25	A. That's one example, yes.	²⁵ A. Yes. It was used in photocopiers.
	Page 44	Page 45
1	Page 44 V. MADISETTI	Page 45
1 2		
	V. MADISETTI	¹ V. MADISETTI
2	V. MADISETTI Q. And what years did you work on this Intel	1V. MADISETTI2Q. But you expect them to know, at least,
2 3	V. MADISETTI Q. And what years did you work on this Intel chipset?	 V. MADISETTI Q. But you expect them to know, at least, the general concept of, for example, NTSC display.
2 3 4	V. MADISETTI Q. And what years did you work on this Intel chipset? A. In the early 2000 time frame.	 V. MADISETTI Q. But you expect them to know, at least, the general concept of, for example, NTSC display. Is that right?
2 3 4 5	V. MADISETTI Q. And what years did you work on this Intel chipset? A. In the early 2000 time frame. Q. Early 2000, after the filing of the 493	 V. MADISETTI Q. But you expect them to know, at least, the general concept of, for example, NTSC display. Is that right? A. I would expect them to know the general
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1	V. MADISETTI	1	V. MADISETTI
2	for interlacing. So where, I think, your expert	2	whether it is a CMOS. It can have different types.
3	has errored, or erred, is that he seems to state	3	Again, the examples are describing
4	that vertical blanking period field vertical	4	certain embodiments, but one of ordinary skill in
5	blanking period only applies to master scanning,	5	the art would understand that this applies to CMOS;
6	which only applied to interlacing, and he is wrong.	6	CCDs. It would have also applied to progressive
7	So you can have vertical blanking period	7	and interlacing.
8	in for the sake of progressing scanning and	8	Q. So, the horizontal scanning period, is it
9	displays as well. And a simple book, for example,	9	correct to understand that the horizontal
10	by Charles Poynton. The book is called "HD Video,"	10	scanning strike that.
11	has, in chapter eight, a full description of how	11	Is it correct to understand that the
12	vertical blanking period is present in progressive	12	horizontal blanking period has a time gap between
13	displays and scanning.	13	scanning of individual horizontal lines? Is that
14	Q. Dr. Madisetti, what I asked you to	14	correct?
15	explain is what a vertical blanking period is.	15	A. Roughly, yes. Again, I'm not exactly
16		16	
17	Right? And your answer was, "it traces back to the first line." So what I'm asking you is, what is	17	sure how what additional qualification is needed
18	being traced back to the first line?	18	there, but it's generally right. Q. And the vertical
19	A. The scan position.	19	
20	1	20	A. And it doesn't matter. It applies to
21	Q. The scan position of what? The electronic gun that's shooting at the CRT? Or what	21	both interlacing and progressive.
22		22	Q. And the vertical blanking period is the
23	is being	23	time gap between the last pixel on one field, or
23	A. It could be anything. For a digital	24	frame, and the first pixel in the next field, or frame. Is that correct?
25	sensor, or for a digital display. It could be the	25	A. It's the time between successive frame
23	position. Depending on whether it's a CCD, or	23	A. It's the time between successive frame
	Page 140		Page 141
1	Page 140 V. MADISETTI	1	Page 141 V. MADISETTI
1 2		1	V. MADISETTI
	V. MADISETTI		V. MADISETTI scanned on to the display. And vertical would be
2	V. MADISETTI reads and successive line reads. Successive line reads is the horizontal blanking. Successive frame	2	V. MADISETTI
2 3	V. MADISETTI reads and successive line reads. Successive line	2 3	V. MADISETTI scanned on to the display. And vertical would be the direction perpendicular to that? Is that your
2 3 4	V. MADISETTI reads and successive line reads. Successive line reads is the horizontal blanking. Successive frame reads is the vertical blanking.	2 3 4	V. MADISETTI scanned on to the display. And vertical would be the direction perpendicular to that? Is that your understanding?
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2 3 4 5 6	V. MADISETTI reads and successive line reads. Successive line reads is the horizontal blanking. Successive frame reads is the vertical blanking. Q. But in the context of interlace, it would be successful field? Or is it still successive	2 3 4 5 6	V. MADISETTI scanned on to the display. And vertical would be the direction perpendicular to that? Is that your understanding? A. Again, those are, again, very loose terms. Some people say it depends on the type of
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