

SILICON LABORATORIES,
INC.,

Petitioner,

VS.

CRESTA TECHNOLOGY
CORPORATION,

Patent Owner.

CASE IPR2015-00615
Patent 7,075,585

CASE IPR2015-00626
Patent 7,265,792

ORAL DEPOSITION OF
DOUGLAS HOLBERG, Ph.D.

VOLUME 1

November 4, 2015

WRIGHT WATSON & ASSOCIATES

1250 South Capital of Texas Highway, Building 3, Suite 400 Austin, Texas 78746 (512) 474-4363

Cresta Ex 2033-1
Silicon v Cresta
IPR2015-00626

Douglas Holberg, Ph.D. - 11/4/2015

1 ORAL DEPOSITION of DOUGLAS HOLBERG, Ph.D.,
2 produced as a witness at the instance of the PATENT
3 OWNER CRESTA TECHNOLOGY CORPORATION, and duly sworn,
4 was taken in the above-styled and numbered cause on
5 November 4, 2015, from 9:00 a.m. to 6:00 p.m., before
6 Brenda J. Wright, CSR, RPR, in and for the State of
7 Texas, reported by machine shorthand, at the Law
8 Offices of Lee & Hayes, 11501 Alterra Parkway, Suite
9 450, Austin, Texas, pursuant to 37 C.F.R. Section
10 42.53 provisions stated on the record or attached
11 hereto.

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IPR2015-00626

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INDEX

Appearances.....	3
DOUGLAS HOLBERG, Ph.D.	
Examination by Mr. Haber.....	6
Examination by Mr. Ayers.....	123
Further Examination by Mr. Haber.....	129
Changes and Corrections.....	132
Signature Page.....	133
Reporter's Certificate.....	134

EXHIBITS

NO.	DESCRIPTION	PAGE MARKED
2020.....	Case IPR Unassigned Patent 7,075,585 Declaration of Douglas Holberg in Support of Petition for Inter Partes Review of U.S. Patent No. 7,075,585	10
2021.....	Case IPR Unassigned Patent 7,265,792 Declaration of Douglas Holberg in Support of Petition for Inter Partes Review of U.S. Patent No. 7,265,792	10
2022.....	United States Patent No. 7,075,585 Favrat et al.	20
2023.....	United States Patent No. 7,265,792 Favrat et al.	20
2024.....	United States Patent No. 6,377,316 Mycynek et al.	33
2025.....	A Digital Tuner for Wideband Receivers	59
2026.....	United States Patent No. 6,725,463 Birleson	66

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DOUGLAS HOLBERG, Ph.D.

EXHIBITS - CONTINUED

NO.	DESCRIPTION	PAGE MARKED
2027.....	United States Patent No. 5,381,357 Wedgwood et al.	74
2028.....	United States Patent Application Publication - Pub. No. 2002/0057366 Oku et al.	80
2029.....	United States Patent No. 6,411,136 Nianxiong et al.	81
2030.....	United States Patent No. 6,400,598 Nguyen et al.	93
2031.....	Civil Action No. 14-CV-03227-PSG Silicon Laboratories, Inc., a Delaware Corporation v. Cresta Technology Corporation, a Delaware Corporation Rebuttal Expert Report of Douglas Holberg, Ph.D. Regarding Validity	120

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1 DOUGLAS HOLBERG, Ph.D.,
2 having been first duly sworn, testified as follows:

3 EXAMINATION

4 BY MR. HABER:

5 Q. Good morning, Doctor Holberg. Thank you for
6 coming in today. My name is Benjamin Haber. I'm with
7 Irell & Manella. I represent patent owner Cresta.
8 With me is Mike Fleming, also with Irell, and Mihai
9 Murgulescu.

10 I know that you've been deposed in this
11 matter several other times before, so I'm just going
12 to go over some of the basics. Again, repetition is
13 key.

14 You understand that you're testifying
15 under oath subject to the same obligations to testify
16 truthfully as if you were testifying in court. Is
17 that right?

18 A. Correct.

19 Q. And there is no reason today that you can't
20 give your honest, best testimony. Right?

21 A. Correct.

22 Q. You're not under any drugs or medications
23 that would impair your ability to testify truthfully?

24 A. Correct.

25 Q. I'm going to ask you a series of questions.

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1 If you don't understand any of the questions that I
2 ask you, I'll ask you to ask me for clarification.
3 I'll do my best to clarify. If you don't ask for
4 clarification, I will just assume that you understand
5 the question. Is that fair?

6 A. Yes.

7 Q. I don't want you to guess or speculate. I
8 want you to testify based on what you know and the
9 research that you have done, so is that something you
10 can do today?

11 A. Yes.

12 Q. We have a court reporter here who is going
13 to be transcribing our discussion, so I'll ask you to
14 let me finish my question before you start to answer,
15 and then if you answer verbally, that would be
16 appreciated, I'm sure, by the court reporter. And I
17 will wait until you finish to begin my next question.

18 If you need to, we'll take a break.
19 Just let me know if you need a break. If there is a
20 question pending, I'll just ask you to answer the
21 question before we go on break and then we can do
22 that.

23 Once cross examination begins, I'll ask
24 you to not confer with counsel regarding the subject
25 matter of your testimony. Is that something you can

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Douglas Holberg, Ph.D. - 11/4/2015

1 do today?

2 A. Yes.

3 Q. Can you tell me everything that you did to
4 prepare for your deposition today?

5 A. I just reviewed my declarations and final
6 written decision and a few other document -- I don't
7 remember what other documents, but I looked at a
8 couple of patents.

9 Q. Did you meet with counsel to prepare for
10 your deposition?

11 A. Yes.

12 Q. How long did you meet with counsel for?

13 A. Probably between six and eight hours.

14 Q. Was that all in one day?

15 A. No.

16 Q. How many days would you say?

17 A. Two.

18 Q. Did you meet with anyone besides counsel to
19 prepare for your deposition?

20 A. No.

21 Q. You mentioned reviewing final written
22 decisions. What final written decisions did you
23 review?

24 A. The case IPR 2014-00809 on patent 7,265,792,
25 the United States Patent and Trademark Office before

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1 the Patent Trial and Appeal Board, Silicon
2 Laboratories versus Cresta Technology Corporation.
3 And then, similarly, IPR 2015-00728, that would be
4 patent 7,075,585.

5 Q. These are previous IPRs in which you
6 provided a written declaration. Correct?

7 A. Correct.

8 Q. I see you have some documents there in front
9 of you. Two of them are the final written decisions?

10 A. Correct.

11 Q. What are the other documents that you have
12 there in front of you?

13 A. This is my declaration on case IPR
14 unassigned patent 7,075,585, and case IPR unassigned,
15 patent 7,265,792.

16 Q. Those are your declarations in this
17 current -- two IPRs. Right?

18 A. Correct.

19 Q. Do you have any notes or annotations on
20 those documents?

21 A. Yes, there are a few notes.

22 Q. Would you mind if I take a look at them.

23 Are these notes that you made yourself?

24 A. Yes.

25 Q. I notice it looks like on the cover there a

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1 series of numbers. What are those numbers?

2 A. Those are the -- I think they're the -- the
3 claims that would were resolved on the final written
4 decision on that particular patent. I think. I'm not
5 sure what they are now. That was probably a few days
6 ago.

7 Q. All right. So I have clean copies of these
8 declarations to give you, but you can use these if you
9 would like. I will want to mark them as exhibits just
10 since they have some reference of what you did at the
11 deposition. So if we can, I'll hand these back to you
12 in just a second.

13 (Deposition Exhibit Nos. 2020-2021 marked.)

14 Q. (BY MR. HABER) We're marking Exhibit 2020,
15 which is Doctor Holberg's declaration on U.S. patent
16 7,265,792, that will be Exhibit 2021.

17 A. To correct. I was just looking at these
18 numbers. These are the claims for these declarations,
19 not the previous one ruled on by the board.

20 Q. Regarding Exhibit 2021, there were some
21 annotations made on page 50 and 51 just that I saw.
22 And you made those annotations?

23 A. Yes, I did.

24 Q. What was the purpose of those annotations?

25 A. Well, I see there was a typographical error

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1 on one of the things, so I noted that. And the other
2 one, I think indicates the difference between this
3 claim and a similar claim that was ruled on by the --
4 by the PTAB.

5 Q. What is the typographical error that you're
6 referring to?

7 A. DAC 16 is -- should be, I think, DAC 21.

8 Q. Is that in paragraph 78?

9 A. Correct.

10 Q. And then what was the -- the other
11 annotation that you referenced, what page was that on
12 and what paragraph?

13 A. I don't know what you're referring to.

14 Q. You said --

15 A. What was the question?

16 Q. You said that there was an annotation that
17 you made related to one of the claims?

18 A. Oh, that was on page 51. Also paragraph 78.

19 Q. Okay. And what exactly was the annotation
20 that you made?

21 A. I underlined, beginning with the first
22 differential output through second output terminal.

23 Q. Why did you underline that again?

24 A. As I recall, I think that there is a similar
25 claim in the patent, one that was ruled on, and as I

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1 recall, I think the difference in those claims is what
2 I underlined. That's my -- that's my best
3 recollection.

4 Q. So based on your recollection, what you
5 underlined there is additional language in this claim
6 as compared to the claim that was ruled on?

7 A. Or different. I don't remember if it's
8 additional or different.

9 Q. Do you remember what claim it was in
10 particular?

11 A. No, I do not.

12 Q. When did you make these annotations?

13 A. Probably last week maybe. It's been in the
14 last seven days.

15 Q. Are there any other corrections or changes
16 to your declaration that you wanted to -- wanted to
17 make right now?

18 A. I noticed on page 52, paragraph 82, there is
19 an error in the recitation of the claim, a second
20 analog-to-digital. It should be a digital-to-analog.

21 Q. Anything else?

22 A. What was the question?

23 Q. Are there any other changes or errors?

24 A. None that I saw.

25 Q. That was in your declaration regarding the

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Cresta Ex 2033-12

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1 '792 patent. Did you have any errors or corrections
2 to the '585 patent declaration?

3 A. I don't see any annotations.

4 Q. The other two documents that you have in
5 front of you, do you have any notes or annotations on
6 those?

7 A. Yes. On the front of IPR 2014-00809,
8 regarding patent number 7,265,792, I have the number 1
9 through 17 on the front.

10 Q. And what does that signify?

11 A. Those were -- I believe those were the
12 claims that were ruled on. I don't see any other
13 annotations in here. I'm not going to say there
14 aren't, but I don't see any. I don't recall making
15 any.

16 On IPR 2015-00728, regarding patent
17 number 7,075,585, the annotation on the front is 1-3,
18 comma, 5, comma, 10, and then 16-19.

19 Q. And that, again, is the set of claims that
20 was ruled on?

21 A. I believe so, yes. I don't see any other
22 annotations.

23 Q. Okay. Do you have any other notes or
24 documents with you?

25 A. No.

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1 Q. In preparing for your deposition today --
2 strike that.

3 You understand that there are a set of
4 IPRs that were filed by MaxLinear, do you understand
5 that?

6 A. Yes.

7 Q. In preparing for your deposition today, did
8 you review any of the IPR material that related to the
9 MaxLinear IPRs?

10 A. No, I did not review any of the IPR
11 material. You mean, like the declarations and --

12 Q. Declarations, exhibits, papers, et cetera.

13 A. I didn't -- I looked at the Vandepdash
14 patent.

15 Q. Did you look at any of the other patents?

16 A. No.

17 Q. Did you review the -- any of the
18 declarations that were filed in that IPR?

19 A. No.

20 Q. There was a declaration filed by a
21 Doctor Hashemi. Have you ever spoken with
22 Doctor Hashemi?

23 A. No, I have not.

24 Q. Have you ever spoken with or met with
25 counsel for MaxLinear?

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1 A. No, I have not.

2 Q. Have you ever met with or spoken with any
3 employees of MaxLinear?

4 A. No.

5 Q. In preparing for your deposition today, did
6 you review any material in addition to -- or in excess
7 of the exhibits that were filed in the IPR, any
8 additional patents or any other documents?

9 A. No.

10 Q. Can you tell me, in general, the process of
11 how your declarations were drafted?

12 A. Yeah. In general, it was a collaborative
13 effort between myself and outside counsel for Silicon
14 Labs.

15 Q. Was there anyone else besides yourself and
16 counsel for Silicon Labs involved in the process?

17 A. No.

18 Q. Can you tell me who specifically as counsel
19 to Silicon Labs collaborated with you on your report?

20 A. The team at Lee & Hayes.

21 Q. Do you recall who specifically?

22 A. It was various members of the team.

23 Q. How many members would you say?

24 A. Three, maybe.

25 Q. Regarding the material that you reviewed in

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1 your analysis, was that material provided to you by
2 the team at Lee & Hayes?

3 A. No. The majority of that I found myself.

4 Q. How did you find it?

5 A. That is pretty broad. Do you have a more --
6 patent searching, reviewing material in the IEEE
7 database. Looking at books, looking at data sheets,
8 looking at data books. Google searching.

9 Q. When it came time to physically write the
10 report, was the report written by the team at Lee &
11 Hayes?

12 A. They drafted it, yes.

13 Q. When -- when you were initially asked to
14 provide analysis in these IPRs, you asked to offer an
15 opinion that the claims are unpatentable. Is that
16 right?

17 MR. AYERS: Objection. Form.

18 A. I don't recall what I was asked.

19 Q. (BY MR. HABER) If you will look to page one
20 of your '585 declaration, in paragraph two. Does that
21 refresh your recollection as to what you were asked to
22 do?

23 A. Yes. It says I was asked to give my opinion
24 on whether claims 11 through 15 and 20 of the '585
25 patent are unpatentable, in view of prior references.

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1 Yes, that refreshes my recollection.

2 Q. And you are being paid to provide your
3 opinion that the claims are unpatentable at a rate of
4 \$275 per hour. Right?

5 MR. AYERS: Objection. Form.

6 A. For the analysis. For the deposition, I'm
7 being paid \$400 an hour while I'm here with you guys.

8 Q. (BY MR. HABER) So you are being provided
9 one rate to provide your unpatentability analysis and
10 you are being paid an additional rate to provide your
11 unpatentability deposition testimony. Is that right?

12 A. Correct.

13 Q. You say that -- in paragraph five of your
14 declaration, you say you're being compensated at your
15 normal rate of \$275 per hour. Is that the same rate
16 that you were being compensated in some of the other
17 ongoing matters between Cresta and Silicon Labs?

18 A. Restate the question, please.

19 Q. Is the \$275 per hour that you were being
20 paid in connection with your unpatentability opinions
21 in the IPR, is that the same rate that you are being
22 paid in other matters that are currently pending
23 between Cresta and Silicon Labs?

24 A. Which matters are you referring?

25 Q. I'm thinking of the ITC matter, for example.

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1 MR. AYERS: Objection. Form.

2 A. My rate at Silicon Labs is \$275 an hour for
3 everything I've been doing for them for a number of
4 years. So it would include that, yes.

5 Q. (BY MR. HABER) Are there any other matters
6 that you work on for Silicon Labs where you're paid a
7 different rate than \$275 an hour?

8 A. No.

9 Q. This inter partes review relates to -- there
10 is two inter partes reviews relating to U.S. Patent
11 7,075,585 -- for shorthand, I'll just refer to that as
12 the '585 patent. Will you understand what I'm
13 referring to if I use that shorthand?

14 A. Yes.

15 Q. And also the shorthand for the 7,265,792
16 patent, I'll refer to as the '792 patent. You'll
17 understand what I'm referring to when I call it the
18 '792 patent?

19 A. Yes.

20 Q. You've read the '792 patent. Right?

21 A. Yes.

22 Q. Do you understand the '792 patent?

23 A. Yes.

24 Q. You've read the claims in the '792 patent?

25 A. Yes.

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1 Q. And you understand the claims of the '792
2 patent?

3 A. Yes.

4 Q. You've read the specification, reviewed the
5 figures of the '792 patent?

6 A. Yes.

7 Q. And you understand the specification and
8 figures?

9 A. Yes.

10 Q. I have the same questions with regard to the
11 '585 patent. You've read the '585 patent. You
12 understand it?

13 A. Yes.

14 Q. You've read the claims of the '585 patent.
15 Do you understand them?

16 A. Yes.

17 Q. You've read the specification and figures of
18 the '585 patent. Did you understand them?

19 A. Yes.

20 Q. Can you explain to me, just generally, the
21 difference at a high level between the claims of the
22 '792 patent and the claims of the '585 patent?

23 MR. AYERS: Objection. Form.

24 A. I don't have the claims in front of me.

25 Q. (BY MR. HABER) Can you just on a high level

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1 tell me --

2 A. No.

3 Q. -- without reviewing the patents?

4 A. No, I can't.

5 Q. I'm going to hand you a two documents. They
6 are both labeled Exhibit 1001, so I think we should
7 probably relabel them. I'm going to hand you the copy
8 of the '585 patent. It was Exhibit 1001 in the '585
9 patent IPR. I'm going to relabel it 2022.

10 (Deposition Exhibit No. 2022 marked.)

11 Q. (BY MR. HABER) And I'm going to hand you
12 Exhibit 1001 to the '792 patent IPR. We're going to
13 relabel it Exhibit 2023.

14 MR. HABER: Counsel, I have copies for
15 you if you would like them.

16 (Deposition Exhibit No. 2023 marked.)

17 Q. (BY MR. HABER) So you've asked for copies
18 of the '792 and the '585 patent and I've handed them
19 to you.

20 MR. AYERS: Objection. Form.

21 Q. (BY MR. HABER) And the question was, at a
22 high level, can you tell me the difference between the
23 claims of the '792 patent and the '585 patent?

24 MR. AYERS: Objection. Form.

25 A. One difference is the '585 patent claims

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1 a -- some details of the GMC filter for the
2 anti-aliasing function. It doesn't appear that the
3 '792 claims are similar.

4 Q. (BY MR. HABER) Anything else?

5 A. Pardon me?

6 Q. Anything else?

7 A. I'm looking.

8 Q. Oh.

9 A. So mapping from the '792 back to the ' '585,
10 the '792 recites the -- the Mpeg format data stream
11 which is not cited -- or not claimed in the '585.
12 There are some details relating to the output
13 circuitry that is claimed in the '792 that's not
14 claimed in the '585.

15 Q. Is it details related to the output
16 circuitry?

17 A. Yes.

18 Q. What output, what claim is that that you're
19 referring to?

20 A. Claim 11 says, the television receiver claim
21 one wherein the signal output circuit provides output
22 signals to an analog or digital signal format.

23 MR. AYERS: Objection. Form.

24 In an analog.

25 A. Claim 12 says, the television receiver claim

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Cresta Ex 2033-21

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1 one wherein the signal output comprises one or more
2 output terminals, each of the one or more output
3 terminals of the signal output circuit comprises a
4 single ended output terminal or a differential output
5 terminal. I don't believe that is claimed in the
6 '585.

7 Q. (BY MR. HABER) The claims that are
8 challenged in your declaration regarding the '792
9 patent, do all of those claims include limitations
10 related to output circuitry?

11 A. Ground one is claim 11. And claim 11 is
12 related to output circuitry.

13 Q. I don't mean to interrupt you, but I'm not
14 sure you're looking at the right declaration. I think
15 ground one of the '585 is claim 11.

16 A. Oh, I'm sorry. You're correct.

17 MR. AYERS: Thank you for clarifying
18 that.

19 A. Keep these separate.

20 Q. (BY MR. HABER) You can look -- feel free to
21 look wherever you like, but if you look at the table
22 of contents, I believe you've see that claims 18, 19,
23 24, 25, 26, 27, 28 and 29 are challenged in the '792
24 patent.

25 A. Yes. Okay. 18 is related to signal output

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1 circuitry. Claim 19 is related to signal output
2 circuitry. Claim 24 is not related to signal output
3 circuitry.

4 Q. What is claim 24 related to?

5 A. Claim four says, the television receiver of
6 claim one wherein the plurality of finite impulse
7 response filters are stored in a memory and the signal
8 processor indexes the memory to retrieve one of the
9 plurality of finite impulse response filters. So it
10 relates to a finite input response filter.

11 Claim 25, wherein the signal processor
12 comprises a first computing unit and a second
13 computing -- of claim one, computing unit, the first
14 computing unit processing a real part of the finite
15 impulse response filter operation, while the second
16 computing unit processing an imaginary part of the
17 finite impulse response filter. So claim 25 relates
18 to the finite impulse response filter.

19 Q. And claim 26?

20 A. Are we still comparing? Or are you just
21 wanting me to --

22 Q. I just wanted to know if claims 24 through
23 29 are related to output circuitry as well?

24 A. Okay. So 26, then, is further comprising a
25 format selection circuit coupled to the signal

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1 processor, et cetera. That's not related to output
2 circuitry.

3 Q. Okay.

4 A. Let's see. 27. Wherein the format
5 selection signal generates a select signal. That is
6 not related to the output circuitry drivers either.

7 And then 28. Format selection
8 circuit -- format slash standard selection circuit
9 generates the select signal by detecting carrier
10 signals, identifying one of the formats of the input
11 RF signals. That's not related to the output driver
12 circuitry.

13 Q. And the last one is 29.

14 A. Wherein the input RF signal comprises an RF
15 signal received from terrestrial broadcast, an RF
16 signal received from satellite broadcast, and an RF
17 signal received from cable transmission. That is not
18 related to the output driver circuitry.

19 Q. So then it's fair to say that claims 18 and
20 19 are related to the output circuitry. Right?

21 A. Correct.

22 Q. And claims 24 through 29 are not?

23 A. Correct. Specifically, output driver
24 circuitry.

25 Q. You put emphasis on the word "driver." What

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1 did you mean by that? The driver circuitry?

2 A. Well, that's what -- it recites first driver
3 circuit in claim 18, first driver circuit, second
4 driver circuit. They're driver circuits. Claim 19.

5 Q. When you say output driver circuit as
6 opposed to output circuit, does the output -- does the
7 driver part of that have some particular meaning?

8 MR. AYERS: Objection. Form.

9 A. Maybe you could read back the question --
10 the earlier question about -- relating to the output.

11 Q. (BY MR. HABER) I'm not sure -- well, what
12 additional information do you think you need to answer
13 the question?

14 A. Well, if I change from watching an analog
15 broadcast to a digital broadcast, the output might
16 change. You're not referring to that, are you?

17 Q. No. So you mentioned, when you were talking
18 about claims 18 and 19, an output driver circuit. And
19 you added the word "driver" before. And I was just
20 wondering what that particular word means when you are
21 talking about claims 18 and 19?

22 MR. AYERS: Objection. Form.

23 A. It's what it means as the claim recites it.
24 That's -- it describes it in the claim.

25 Q. (BY MR. HABER) And what does it mean?

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1 A. A first driver circuit for driving the
2 analog output signals. The second driver circuit for
3 driving -- so that's what the driver does. So when I
4 say a driver circuit, I mean the driver that is
5 described here in the claim.

6 Q. Which particular part of the claim are you
7 looking at? And are you looking at claim 18?

8 A. Claim 18. A first driver is line 50 at
9 column 12. The second driver is line 50, 53.

10 Q. Your opinions in the '585 patent are
11 contained in your declaration. Right?

12 A. Correct.

13 Q. And we discussed this earlier, but sitting
14 here today there is no changes that you want to make
15 to your '585 declaration?

16 A. No.

17 Q. You believe that the statements made in your
18 '585 declaration are accurate?

19 A. Correct.

20 Q. And is it fair to say that your validity
21 opinions depend on the accuracy of the statements that
22 are described in your declaration?

23 A. I don't understand that question.

24 Q. You've reached some conclusions regarding
25 the '585 patent. Right?

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1 A. Yes.

2 Q. Those conclusions are based on the
3 statements that are made in your declaration. Right?

4 A. Yes.

5 Q. So then is it fair to say that your validity
6 conclusions are -- you know, rely on the accuracy of
7 the statements that you made in your '585 declaration?

8 A. Everything that I said in -- I stand by
9 everything I said in this declaration.

10 Q. Okay. And the same with regard to the '792
11 patent, other than the two typographical corrections
12 that we made earlier, sitting here today, is there
13 anything that you want to change about your
14 declaration?

15 A. No.

16 Q. And you believe that the statements made in
17 your '792 declaration are accurate?

18 A. Yes.

19 Q. And is it fair to say that your validity
20 conclusions regarding the '792 patent depend on the
21 accuracy of statements made in the '792 declaration?

22 MR. AYERS: Objection. Form.

23 A. The structure of your question is odd to me.
24 I stand by what I said in this declaration. My
25 opinion is consistent with everything and hasn't

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1 changed.

2 Q. (BY MR. HABER) And what you said in that
3 declaration is -- your conclusion is that the '792
4 patent is unpatentable?

5 A. Yes.

6 Q. And that conclusion rests on those specific
7 statements?

8 A. The claims that were recited in -- I'm only
9 covering these claims.

10 Q. Fair enough. So your conclusion regarding
11 the unpatentability of the challenged claims in the
12 '792 patent rests on the statements made in your
13 declaration?

14 A. Correct.

15 Q. I want to ask you -- so in your analysis,
16 you applied certain meanings to particular claim
17 terms. Right?

18 A. Yes.

19 Q. You're familiar with the term claim
20 construction? That you applied particular
21 construction to patent claim terms?

22 A. I'm familiar with that, yes.

23 Q. And the particular claim constructions that
24 you applied, are those listed in your declaration?

25 A. They are.

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1 Q. And in reaching your conclusions, you didn't
2 apply any other claim constructions that are not
3 listed in your declaration. Right?

4 A. Every word has to be interpreted, so I'm --
5 I don't understand what you mean.

6 Q. When you were conducting your analysis, if
7 you assigned a particular meaning to a claim term, you
8 described that meaning in your -- in your declaration.
9 Right?

10 I'm just trying to understand if -- if
11 your -- any particular definitions for the claim terms
12 that you analyzed are contained in your declaration or
13 if there are some other claim meanings that are not
14 contained in your declaration --

15 A. I don't recall that would have been. A
16 first digital analog converter, I didn't provide a
17 construction for digital analog converter, but in my
18 mind I have one.

19 Q. And what is that meaning you have in your
20 mind?

21 A. Converts digital signals to analog signals.
22 It's the plain and ordinary meaning.

23 Q. So is it fair to say, then, that if you
24 didn't provide a particular claim construction, you
25 applied the plain and ordinary meaning of the claim

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1 terms in your analysis?

2 A. That's fair.

3 Q. In -- I'm looking at your '585 declaration.
4 There is a particular section called Claim
5 Construction. When you did apply a particular meaning
6 to the claim terms, is that where your claim meanings
7 are contained?

8 A. Can you direct me to that page?

9 Q. Sure. It begins on page 18 of the '585
10 declaration.

11 A. Okay. Now that I'm there, now restate the
12 question, please.

13 Q. When you applied a particular meaning to the
14 claim term, that particular meaning is contained in
15 Section D of your declaration?

16 A. Yes. In fact, I said it right here, I agree
17 that each of the constructions adopted by the board
18 for those on page 19, is appropriate to the present
19 proceeding.

20 Q. Towards the end of that section, on page 20,
21 there is a section called Patent Owner Constructions.
22 Do you see that?

23 A. Yes, I do.

24 Q. I believe it's your opinion that the patent
25 owner constructions are not correct. Is that right?

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1 A. That's what I said. In its patent owner
2 response, IPR 2014-00728, patent owner offers
3 construction for several terms. As discussed below,
4 in detail, I do not agree with the patent owner's
5 proposed constructions because they do not reflect the
6 plain and ordinary meaning of those terms to a POSITA.

7 Q. So you don't agree with the patent owner
8 constructions because they don't apply the plain and
9 ordinary meaning. Is that right?

10 A. I'll restate what I wrote. As discussed
11 below in detail, I do not agree with the patent
12 owner's proposed constructions because they do not
13 reflect the plain and ordinary meaning of those terms
14 to a POSITA.

15 Q. So that's a yes. Right?

16 A. I think it is.

17 Q. Okay. There is a construction discussed on
18 paragraph 37 of your declaration.

19 MR. AYERS: Do you have an extra copy
20 for me of his declarations? I can get one if I need
21 to.

22 MR. HABER: Yeah.

23 Q. (BY MR. HABER) There is a portion of
24 Cresta's construction that says that the signal
25 processing processes -- I'm sorry. I'll start my

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1 question again.

2 MR. HABER: But before I do, it seems
3 like Counsel was whispering to the witness, and I'll
4 ask you not to do that.

5 MR. AYERS: Oh, I was just asking what
6 page he was on. 20?

7 MR. HABER: I'll ask you to --

8 MR. AYERS: I don't know that I
9 whispered at all, but I think he indicated the page
10 number.

11 Certainly I would not be whispering to
12 the witness relating to his testimony, but thank you.

13 Q. (BY MR. HABER) So let me ask my question
14 again. So discussed in paragraph 30 is a specific
15 meaning proposed for the signal processor, wherein the
16 signal processor processes only one format of RF
17 signal and does not process a plurality of formats in
18 parallel.

19 A. I'm on paragraph 30 and it says --

20 Q. 37.

21 A. Oh, okay. All right. So you'll have to say
22 that again.

23 Q. Paragraph 37, there is statement, patent
24 owner construes these terms to mean, signal processing
25 processes only one format, RF signal, and does not

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1 process a plurality of formats in parallel.

2 Is it your opinion that that is not the
3 correct construction?

4 A. As I said in paragraph 31, as discussed
5 below in detail, I do not agree with the patent
6 owner's proposed constructions.

7 Q. So that would conclude the constructions in
8 paragraph 32, 35, 36, 37, 38, 39. Right?

9 A. If those are the patent owner's
10 constructions then, yes.

11 Q. I would like to hand you another document.
12 It is Exhibit 1011 of the '585 IPR, but I would like
13 to re-mark it as Exhibit 2024.

14 (Deposition Exhibit No. 2024 marked.)

15 Q. (BY MR. HABER) This is a U.S. patent
16 6,377,316. The assignee is listed as Zenith. And I
17 believe in your declaration you refer to it as Zenith.
18 So if I refer to the patent as Zenith, you'll
19 understand?

20 A. Yes.

21 Q. And the Zenith patent is one of the patents
22 that you reviewed in forming your unpatentability
23 opinion. Correct?

24 A. Correct.

25 Q. Can you tell me how the Zenith patent fits

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1 into your analysis?

2 MR. AYERS: Objection. Form.

3 A. Paragraph 62 of my '792 declaration, ground
4 three, claim 26 is obvious over Thomson and Harris in
5 view of Zenith. The claim says, the television
6 receiver of claim one further comprising a format
7 slash standard selection circuit coupled to the
8 digital signal processor, the format slash standard
9 selection circuit generating a select signal
10 indicative of a format of the input RF signal and.
11 Thomson discloses a signal processor that is a
12 standard selection -- has a standard selection input.
13 It is my opinion that the standard selection signal
14 provides an explicit suggested to a POSITA that a
15 format slash standard selection circuit should be used
16 to generate this signal. Because --

17 Q. It appears that you're just reading from
18 your report?

19 A. It is.

20 Q. So nothing that you have read yet mentions
21 Zenith.

22 MR. AYERS: Objection. Form.

23 Q. (BY MR. HABER) Just tell me how Zenith
24 relates to your opinion.

25 A. Will you give me another minute?

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1 Q. Okay.

2 A. Thank you.

3 Because the construction of such a
4 circuit is well-known to those skilled in the art,
5 however, Thomson did not explicitly teach how to
6 construct that. Nonetheless, it is my opinion that
7 Zenith provides an exemplary embodiment of a format
8 slash standard selection circuit that a POSITA would
9 have been motivated to use to generate the select
10 signal in Thomson.

11 Q. So is it fair to say that you point to
12 Zenith as disclosing the format standard selection
13 circuit?

14 A. Yes.

15 Q. Can you show me in the Zenith patent where
16 the format standard selection circuit is?

17 A. So on paragraph 65, Zenith discloses the
18 actual details of the format standard selection
19 circuit for generating a select signal based upon the
20 format of the incoming RF signal, as shown in
21 Figure 2. If, in quotes, the presence of syncs
22 corresponding to a demodulated analog type signal,
23 unquote, is detected by sync detector 20,
24 microprocessor 22 routes the IF signal from ten to 12
25 to analog demodulator 16. Otherwise, the absence of

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1 syncs corresponding to demodulated analog type signal
2 microprocessor follows the switch 14 to couple the IF
3 signal to the digital modulator 18.

4 It is my opinion that the detecting
5 syncs in the demodulated analog television signal
6 would include detecting one or more of the horizontal
7 sync signals, since these sync signals are uniquely
8 tied to a specific television standard. Sync
9 detection results in an identification of this
10 television standard.

11 Q. So my question is, can you identify for me
12 in Zenith which component is the standard selection
13 circuit?

14 MR. AYERS: Objection. Form.

15 A. Signal or circuit?

16 Q. (BY MR. HABER) Circuit.

17 A. Accordingly in my opinion, the Zenith
18 microprocessor is a format selection circuit that
19 generates a select signal, which is the output of the
20 microprocessor.

21 Q. Do you have the Zenith patent in front of
22 you?

23 A. Yes.

24 Q. Could you maybe circle or identify on one of
25 those figures or somewhere in the patent where the

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1 signal selection circuit is?

2 I can hand you a pen if you need that.

3 MR. HABER: I'm handing a pen to the
4 witness.

5 Q. (BY MR. HABER) Maybe you could just state
6 for the record what it is that you did there?

7 A. I circled block 22. As stated in paragraph
8 66, in my opinion, the Zenith microprocessor is a
9 format selection circuit. And that's what I've
10 circled.

11 Q. Block 22 in which particular --

12 A. Figure 2.

13 Q. And maybe you could just identify signal
14 selection circuit or something on the figure so that
15 we can keep the record clear.

16 A. You want me to write it down?

17 Q. Yes. So we can go back and look.

18 A. What words do you want me to use?

19 Q. Is it your opinion that's the standard
20 selection circuit?

21 A. Okay.

22 Q. So how did you annotate that?

23 A. Format slash standard selection circuit.

24 Q. Now, I think you annotated Figure 2. So I
25 think, sticking with Figure 2, can you identify for me

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1 the select signal, 2.2, in Figure 2?

2 A. That would be the output of the
3 microprocessor.

4 Q. Can you just identify that on the figure?

5 And what did you identify?

6 A. The output of the microprocessor block 22.

7 Q. And where does that output go?

8 A. It goes -- it's an arrow pointing downward
9 on the page. It is controlling switch 42.

10 Q. So the standard selection circuit has an
11 output that goes to switch 42. And as a result of
12 that output, it's fair to say that switch 40 -- that
13 the pole of switch 42 is changed. Is that right?

14 MR. AYERS: Objection. Form.

15 A. I'm going to read from the patent, starting
16 on column three, line 13. As in Figure 1
17 embodiment -- well, let me change that. Because
18 that's do -- we want to do Figure 2 because that's
19 what we're talking about.

20 Q. (BY MR. HABER) Of course, you could feel
21 free to look anywhere, but if you look at the bottom
22 of column two, that discusses Figure 2, starting
23 around line 59.

24 A. So I've reviewed it. What was the question
25 again?

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1 MR. HABER: Could you read the question
2 one more time.

3 (The requested text was read back.)

4 A. Yeah. So that's -- the output, which is one
5 of the poles of the switch, which is not labeled in
6 the figure, is the junction of inductor 30 and
7 capacitor 28, that point either switches to node A or
8 to node D based upon the output driven from the
9 microprocessor. Because that's a single pulse double
10 throw switch.

11 Q. Back up a little bit. What is a pole on a
12 switch? Can you explain what a pole is?

13 A. I haven't prepared -- you brought the term
14 up. Maybe you should explain it to me.

15 Q. It's mentioned in the patent here. It
16 mentions a --

17 A. Where is it mentioned, and I'll give --

18 Q. I think what you just read. And also, you
19 mentioned a single pole double throw switch?

20 A. Yeah, okay. So pole is a -- the way a
21 switch is constructed -- one of the ways, is to have
22 electrical contact to a circuit with a movable arm of
23 some sort. And that first contact would be a pole.
24 And the connections that the arm might make to other
25 circuitry would be another pole or more than --

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1 additional poles. So they're really the contacts to
2 the -- to the control -- or the -- I don't know the
3 definition of a pole. I mean, that's a term we just
4 use and we know what it means. I know what it means.
5 I can't write you a definition of it. But it's a
6 contact point.

7 Q. Okay.

8 A. Of the switch.

9 Q. So contact points of the switch?

10 A. Yes.

11 Q. So then, it's fair to say that the
12 microprocessor sends a signal to switch 42, which will
13 change the contact points between A or D. Right?

14 A. Yes. It switches the output of the tuner
15 circuitry to either A or D.

16 Q. And so it's your opinion, then, that the --
17 that the output of the switch is flipped in response
18 to whether or not the incoming signal is analog format
19 or digital format. Correct?

20 A. I think what the patent recites is what I
21 read a while ago. If the presence of syncs -- I'm
22 reading from paragraph 65 -- corresponding to a
23 demodulated analog type signal is detected by sync
24 detector 20, microprocessor 22 routes the IF signal
25 from tuner 12 to analog demodulator 16.

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1 Q. Where are you reading from?

2 A. Paragraph 65. Continuing. Otherwise, in
3 the absence of syncs corresponding to a demodulated
4 analog type signal, microprocessor calls the switch 14
5 to couple the IF signal to digital demodulator 18.

6 Q. And so I understand, the result of that
7 process is that, you know, kind of in response to
8 whether or not the incoming signal is analog format or
9 digital format, the microprocessor sends a signal that
10 switches the pole of the switch. Right?

11 A. I think what you said is consistent with
12 what the patent reads, yes.

13 Q. Other than flipping the pole of that switch,
14 does Zenith describe any other information that is
15 sent by the microprocessor in response to the analog
16 digital format?

17 A. I don't recall.

18 Q. You said you don't recall?

19 A. I don't recall.

20 Q. Sitting here right now, you don't know one
21 way or the other?

22 A. I don't recall.

23 Q. Looking at Figure 2, which is what we've
24 been talking about, I'm trying to understand here
25 exactly how this selection works. If an analog signal

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1 is sent in to the input tuner, what happens with
2 regard to the switch?

3 A. Let's see what the patent says. So your
4 question was, does the microprocessor do anything
5 else?

6 Q. My question is kind of directed to more or
7 less the data path. So an RFN includes an analog
8 formatted data, goes through a tuner, hits the switch,
9 and so the switch has to be in some setting initially.
10 So if you look at the figure, it's in the setting to
11 close the analog circuit. Right?

12 A. Correct.

13 Q. So the analog format comes in, then what
14 ultimately would hop in with the state of the switch?

15 A. Well, if it detected the sync signal
16 indicating an analog signal, it remains in that
17 position.

18 Q. So the microprocessor will -- you're not
19 sending any signal or sending something to -- a stay
20 signal? Stay in the same state?

21 MR. AYERS: Objection. Form.

22 A. Stay in the same state.

23 Q. (BY MR. HABER) Now, assume that same
24 configuration, we have a digital signal coming in in
25 the RFN. It goes through the tuner. Right? Hits the

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1 switch, and then what happens?

2 A. In the absence of syncs corresponding to a
3 demodulated analog type signal switch, it calls us to
4 switch 14. Is that in this print -- let me...

5 So in referring to Figure 1, in column
6 two, line 38, specifically, in the presence of syncs
7 corresponding to a demodulated analog type signal,
8 microprocessor 22 calls on switch 14 to connect its
9 pole 14 A to terminal A, which routes the IF signal
10 from tuner 12 to analog demodulator 16. And in the
11 absence of the syncs corresponding to modulated
12 analogy type signal, microprocessor calls on switch 14
13 to connect its pole, 14 A, to terminal D, to couple
14 the IF signal to digital demodulator 18.

15 Q. So that's with regard to the embodiment in
16 Figure 1. Right?

17 A. Correct.

18 Q. It talks about switch 14, which appears to
19 be just a different type of switch. Right?

20 A. Yeah. I think it's analogous to switch 42,
21 in Figure 2.

22 Q. So what would happen, then, is -- just stick
23 with Figure 2, because that's the one we've been
24 marking on -- the digital signal would go through the
25 analog demodulator, right? Because that's the pole

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1 that's connected?

2 A. Uh-huh.

3 Q. And then output from the analog demodulator,
4 if it was a digital formulated signal, that would just
5 be junk data. Correct?

6 A. State that again?

7 Q. If a digital formatted signal went through
8 the analog demodulator, that would just -- the result
9 would just be some sort of junk data?

10 A. The microprocessor -- you wouldn't get a
11 sync detect.

12 Q. So the sync detect would return zero or
13 something, and then the -- a signal would go to the
14 microprocessor, and the microprocessor would send, you
15 know, a switch signal and flip the switch to D.

16 Right?

17 A. I believe so.

18 Q. And then as the rest of the RF digital
19 signal came, it would be sent to the digital
20 demodulator and be properly demodulated?

21 A. Correct.

22 Q. Now, what would happen if that digital
23 signal was coming in and all of a sudden the RF input
24 was switched to analog?

25 A. How is it switched?

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1 Q. The channel change, switch to an analog
2 channel.

3 A. I suspect what happens is, the
4 microprocessor detects the channel change, switches to
5 analog, switches the switch to pole A. A test to see
6 if the sync is there, and if it's there, then it's an
7 analog signal and it stays there. If it's not, it
8 would switch back to D.

9 Q. You say that you suspect that's what
10 happens. Is there any specific teaching in Zenith as
11 to what would happen?

12 A. I don't recall them teaching that, no.

13 Q. Assuming that the switch was set properly so
14 that analog formatted data flowed through the analog
15 demodulator, would the output of the demodulator be
16 baseband signal?

17 MR. AYERS: Objection. Form.

18 A. I think the board construed baseband, and
19 I'll defer to their construction on baseband, which
20 is -- I'll read from the final written decision on IPR
21 2015-00728 for the 7,075,585.

22 Q. (BY MR. HABER) Before you begin, I'm not
23 sure that question came across right. I'm not asking
24 for the definition of baseband signal, I'm just
25 wondering if -- as the board construed it, or under

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1 any definition, if the output of the analog
2 demodulator is a baseband signal?

3 MR. AYERS: Objection. Form.

4 A. Well, I'm just refreshing my memory on
5 baseband construction.

6 Q. (BY MR. HABER) Okay. Why don't we take a
7 quick break and then you can look at it and we can
8 come back to it.

9 MR. AYERS: Are you going to withdraw
10 that question, then? Because -- is there a question
11 pending or --

12 MR. HABER: No. So the witness said he
13 wanted to refresh his recollection, so I'll come back
14 to the question after the break.

15 THE WITNESS: Okay.

16 (RECESS.)

17 MR. HABER: All right. We're back on
18 the record. I do have a couple of housekeeping
19 matters to take care of before we start.

20 We're proceeding in two IPRs
21 concurrently, which will be on a single transcript.
22 That is IPR -- it's IPR 2015-00615 and IPR 2015-00626.

23 Q. (BY MR. HABER) Also, I just wanted to
24 repeat some of the instructions I mentioned earlier.
25 During our last session you were nodding at times. It

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1 would be helpful if you could answer verbally, yes,
2 no, and proceed to expand if you need to. It's a
3 habit that lot of people have.

4 A. Okay.

5 Q. Also, I wanted to remind you again that you
6 are under oath and when we go on break you're still
7 under oath and you are not to speak with your attorney
8 during the breaks regarding the substance of your
9 deposition or the case generally. Is that right?

10 A. Okay.

11 Q. During the last break did you speak with
12 counsel regarding anything that was discussed?

13 A. No.

14 Q. And you understand that when you're under
15 oath, counsel can't coach you, act as an intermediary,
16 direct you to answer the questions a certain way,
17 interpret the questions for you. We're here to get
18 your testimony. Do you understand?

19 A. Yes.

20 Q. And also, unless it's to protect a
21 privilege, counsel cannot instruct you not to answer.
22 Unless you receive an instruction not to answer,
23 you're to answer the questions that are asked to you.
24 Right?

25 MR. AYERS: Objection. Form.

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1 A. Yes.

2 Q. (BY MR. HABER) Co-counsel has pointed out
3 to me that I asked you a question and you nodded
4 again. If you could answer yes or no, that would be
5 helpful.

6 MR. AYERS: Objection. Form.

7 A. I think I answered with the nod.

8 Q. (BY MR. HABER) So a verbal answer is what
9 we need so the court reporter can take that down.

10 A. Yes, I understand.

11 Q. Okay.

12 A. So am I instructed not to nod?

13 Q. To the extent that you catch yourself doing
14 it, please answer yes or no. Certainly, not -- a
15 verbal answer is what we need to keep an accurate
16 record.

17 A. Okay.

18 Q. Before we went on the break, I had asked you
19 a question. You said you wanted to review some
20 additional documents.

21 MR. HABER: Could we have the last
22 question read back.

23 (The requested text was read back.)

24 A. Okay. The board construction of baseband,
25 as I'm reading from the seven -- the '585 final

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1 decision, make -- correspond to a single signal that
2 encodes both video and audio information without
3 transmission modulation. So I think the operative
4 term is without transmission modulation. So that's
5 the -- that's the construction now. And the context
6 of the question?

7 Q. So the question is, under that construction,
8 is the output of the analog demodulator baseband
9 signal?

10 A. Yeah. Uh-huh.

11 Q. And you said the operative part of the
12 construction is transmission modulation. What is
13 transmission modulation?

14 MR. AYERS: Objection. Form.

15 A. I don't recall if there was specific
16 construction made of that portion of the term.

17 Q. (BY MR. HABER) Well, just --

18 A. But I think it's -- may I finish?

19 Q. Yeah, go ahead.

20 A. But I think it's -- the transmission
21 modulation would be the modulation occurring when the
22 signal is being transmitted.

23 Q. What generally does that entail? What
24 modulation is -- occurs when the signal is
25 transmitted?

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1 MR. AYERS: Objection. Form.

2 A. There are all forms of modulation. I didn't
3 prepare to go through that in my -- today.

4 Q. (BY MR. HABER) As part of transmission
5 modulation -- strike that.

6 Are you familiar with the term carrier
7 signal?

8 A. I am.

9 Q. What is a carrier signal?

10 A. It would be, by way of example, a local
11 radio station is KLBJ, 590 AM band, and it's
12 transmitted on a carrier signal of 590 kilohertz, I
13 believe. So that is a -- the carrier is the signal
14 that is used to carry the modulation.

15 Q. So the carrier signal is part of the
16 transmission modulation?

17 MR. AYERS: Objection. Form.

18 A. Yes.

19 Q. (BY MR. HABER) The output of the digital
20 demodulator, is that also a baseband signal?

21 MR. AYERS: Objection. Form.

22 A. Yes.

23 Q. (BY MR. HABER) And so the output of the
24 analog demodulator and the digital demodulator, they
25 do not include transmission modulation. Right?

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1 A. Correct.

2 Q. So output from analog demodulator 16 in
3 Figure 2, there is a line that goes to a Box 20, sync
4 debt. Do you see that?

5 A. Is that a question?

6 Q. I just want to make sure we're looking at
7 the same portion.

8 A. I'm looking at Figure 2. And there is a
9 block 16 analog demodulator and there is a block 20,
10 so I see those two blocks.

11 Q. And block 20 operates on the demodulated
12 signal from the analog demodulator. Right?

13 A. Well, let me refer to the patent and see
14 what it says just to be sure.

15 Q. Sure.

16 A. I would like to direct you to column two,
17 line 35. It simply says that the analog demodulator
18 16 supplies a sync separator 20 for separating sync
19 signals in the demodulated analog signal.

20 Q. So the question that I had was, the block 20
21 sync debt operates on the analog demodulated signal.
22 Right?

23 A. It does, yes. Because it says that right
24 here.

25 Q. And the function of sync debt 20 is to find

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1 analog sync signals in the transmitted analog
2 information. Right?

3 A. Yes.

4 MR. AYERS: Objection. Form.

5 Q. (BY MR. HABER) And so sync debt operates on
6 the transmitted information after it has been
7 demodulated?

8 A. You say the transmitted information.

9 Q. The -- an analog format --

10 A. We haven't talked about the transmitter
11 here. The received information.

12 Q. Received information.

13 A. Okay.

14 Q. So the RFN is a received analog modulated
15 signal, it goes through the system, it goes through
16 the demodulator, the information is demodulated, there
17 is some underlying television content information in
18 the signal, and the sync debt operates on that
19 demodulated underlying analog information?

20 A. Yes.

21 Q. What exactly does sync debt do?

22 A. It says it separates the sync signals in the
23 demodulated analog signal.

24 Q. Is it easier to operate on the analog data
25 to find the sync signals after it has been

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1 demodulated?

2 MR. AYERS: Objection. Form.

3 A. I didn't try to figure that out.

4 Q. (BY MR. HABER) So you don't have an opinion
5 one way or the other?

6 A. No.

7 Q. You mentioned that the output from the sync
8 debt was essentially a state signal. Right?

9 A. I think I said the output from the
10 microprocessor was a state signal, but I have -- you
11 know, that's what I recall.

12 Q. So you say the output from the
13 microprocessor is a state signal?

14 A. Right.

15 Q. It's essentially like a bit, like a one or a
16 zero?

17 A. Probably. Yeah.

18 Q. And that -- that bit or state will tell the
19 switch to flip poles. Right?

20 A. Yeah. The patent doesn't go into the
21 details of -- down to component level. This is
22 somewhat symbolic. It could be a bit that flips a
23 switch, yes.

24 Q. So in your opinion, there is nothing else
25 described in Zenith about what that signal is other

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1 than perhaps a state?

2 MR. AYERS: Objection. Form.

3 A. Well, I'll have to look back, since you
4 asked it that way. I know at least it provides that.

5 Q. (BY MR. HABER) So at least it provides some
6 state, and there is nothing else that you -- there is
7 nothing else in Zenith that it provides that you know
8 of?

9 A. In Figure 2, it shows the microprocessor
10 controlling the state of switch 42. The
11 microprocessor probably does a lot of other things. I
12 don't -- I didn't offer an opinion on that.

13 Q. But so as far as controlling the switch, all
14 that it would need to do is provide some state signal?

15 A. I would think so, yes.

16 Q. And, again, as far as controlling the
17 switch -- strike that.

18 Looking again at Figure 2. Is there a
19 signal processor taught by Zenith?

20 MR. AYERS: Objection. Form.

21 A. As construed by the PTAB, just to be clear,
22 and I am reading from 7,075,585 patent, IPR 2014-0078.
23 A digital module that processes signals in the digital
24 domain. So, yes, there is a signal processor at least
25 in block 16.

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1 Q. (BY MR. HABER) Is there anywhere else?

2 A. Do what? What was the question?

3 Q. Is there a signal processor anywhere else in
4 Figure 2?

5 A. There is no detail on the analog demodulator
6 so I don't know.

7 Q. What about in block 18?

8 A. Okay. Pardon me. Can you -- I may need to
9 correct my testimony because I didn't -- my copy is
10 fuzzy. What was the original block I identified with
11 the digital demodulator? With the signal processor?

12 MR. HABER: Can you identify that?

13 (The requested text was read back.)

14 A. That's incorrect. It's 18. Sorry. That's
15 why I brought this.

16 Q. (BY MR. HABER) Fair enough. So there is a
17 signal processor in block 18, the digital demodulator?

18 A. Correct.

19 Q. And going back, there a signal processor in
20 block 16?

21 A. I don't know.

22 Q. So you can't tell by looking at Zenith or
23 block 16 whether it includes signal processor?

24 A. Correct. Because the board's construction
25 requires a digital module that processes signals in

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1 the digital domain, and I don't have any indication in
2 this diagram whether it's done in the digital domain
3 or not.

4 Q. Are you familiar with the term channel
5 filter?

6 A. Yes.

7 Q. Do either of these blocks 16 or 18 include a
8 channel filter?

9 MR. AYERS: Objection. Form.

10 A. Yeah. I'll have to recall how I used that
11 term.

12 Q. (BY MR. HABER) Is there something that you
13 need to review?

14 A. Yeah. I'd review everything in front of me.
15 I'm trying to remember channel filter.

16 Okay. So now that I've reviewed the
17 patents, what was the question? You asked me what --
18 where is the channel filter?

19 Q. So what was the -- let me just ask the
20 question again. The question I asked is, is there a
21 channel filter in block 16 or block 18?

22 MR. AYERS: Objection. Form.

23 A. Well, the way -- I don't have the details of
24 what is inside of those, but I suspect they would at
25 least comprise -- on the digital side, which is block

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1 18 -- let me just make sure the -- the patent doesn't
2 speak to the question before I answer.

3 Yes.

4 Q. (BY MR. HABER) It's been a while since we
5 asked the question, so I'll just ask it again. So is
6 there a channel filter in block 16 and block 18? I
7 think you just said the answer was, yes?

8 A. Yes, I believe there is.

9 Q. So we'll just break this down. There is a
10 channel filter in block 18. Correct?

11 A. Yes.

12 Q. And is there a channel filter in block 16?

13 A. Yes. Well, let me say it this way. To be
14 clear, they don't really say what they do, but I
15 believe it -- it could very well be implemented with
16 the channel filter, as I understand a channel filter
17 from the two patents that -- the '585 and '792, so it
18 would be in both, yes.

19 Q. So as you understand channel filter, the
20 analog demodulator block 16 would include an analog
21 channel filter. Right?

22 A. Yes.

23 Q. And the digital demodulator, block 18, would
24 include a digital channel filter. Right?

25 MR. AYERS: Objection. Form.

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1 A. Well, I don't know that I distinguish
2 between analog or digital channel filter when I used
3 the term channel filter. But maybe I do. Let me just
4 look.

5 Yes.

6 Q. (BY MR. HABER) All right. So just for
7 clarification. The digital demodulator 18 would
8 include a digital channel filter. Right?

9 A. Yes.

10 Q. If you look at -- we can look at Figure 2,
11 but these two -- these two blocks, block 16 and block
12 18, they are separate demodulators. Right?

13 A. Correct.

14 Q. The -- having these separate demodulators,
15 that was one of the goals of the patent. Correct?
16 The Zenith patent?

17 MR. AYERS: Objection. Form.

18 Q. (BY MR. HABER) And you can feel free to
19 look anywhere, but I'm looking at column one starting
20 around -- line 40.

21 A. Line 14?

22 Q. 40. 40.

23 A. Yeah, the question -- the goal was to feed
24 the tuner output to separate demodulators. I don't
25 think that's the way you asked the question, but...

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1 Q. Okay. So what you said is that the goal is
2 to feed the tuner output to separate demodulators.
3 Right?

4 A. Yes. Or the goal was to have a low cost
5 switching system to do that.

6 Q. I want to hand you another exhibit,
7 previously marked Exhibit 1005, referred to as Harris.
8 For clarity, I'm going to re-mark it 2025.

9 (Deposition Exhibit No. 2025 marked.)

10 Q. (BY MR. HABER) You're familiar with this
11 particular document. Right?

12 A. Yes.

13 Q. The document is referred to as Harris in
14 your declaration. So if I refer to Harris, you'll
15 understand I'm referring to Exhibit 2025?

16 A. Yes.

17 Q. Is it your opinion that the -- strike that.
18 So there is a component discussed in
19 Harris called a DDF. Do you recall that?

20 A. Yes.

21 Q. What is a DDF?

22 A. I recall but I'm going to refer to the
23 document.

24 Digital -- he called them digital
25 decimating filters. I would have said digital

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1 decimation filters, but essentially, they're the same.

2 Q. And Harris discusses using DDFs in a
3 wideband receiver. Right?

4 A. Correct.

5 Q. Is it your opinion that the DDF used in the
6 Harris wideband receiver is reconfigurable?

7 MR. AYERS: Objection. Form.

8 A. Yes.

9 Q. (BY MR. HABER) What is the basis for that
10 opinion?

11 A. In my declaration for the '792, paragraph
12 49, Harris further teaches that if this filter is used
13 in systems where the second IF filter state consists
14 of a bank of filters to support various operational
15 modes, cost and work space can be saved by -- or be --
16 an error in the actual text, [sic] -- by reconfiguring
17 a single DDF to implement the filter required by each
18 operational mode.

19 Q. I'm sorry. What page were you reading from?

20 A. Paragraph 49.

21 Q. How specifically is the Harris DDF
22 reconfigured?

23 A. The DDF can be rapidly reconfigured via a
24 standard microprocessor interface.

25 Q. How is that standard microprocessor

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1 interface used to reconfigure the Harris DDF?

2 A. In other words, this filter combined with
3 the microprocessor can retrieve the FIR filter
4 coefficients from memory and store those in
5 coefficient RAM.

6 Q. So just so I understand, the microprocessor
7 inputs updates or provides some filter coefficients to
8 the Harris DDF?

9 MR. AYERS: Objection. Form.

10 A. The microprocessor is involved in updating
11 the coefficient RAM in the Harris DDF.

12 Q. (BY MR. HABER) When you say it's involved
13 in updating the coefficient RAM, what do you mean
14 "involved in"?

15 A. Well, it may select the coefficients from
16 memory and then provide it to the coefficient RAM of
17 the DDF.

18 Q. Is there a memory in Harris' DDF?

19 A. It says, Harris -- the Harris digital
20 decimation filter DDF includes a 512 tap FIR filter
21 coupled to a coefficient RAM that stores the FIR
22 filter coefficients. RAM is memory.

23 Q. How many FIR filter coefficients can be
24 stored in the coefficient RAM?

25 MR. AYERS: Objection. Form.

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1 A. In the Harris application or in general?

2 Q. (BY MR. HABER) In the Harris DDF.

3 A. I don't recall. Let me reread it again and
4 I'll see if I can give you an answer.

5 Q. So you've reviewed Harris for several
6 minutes now. Do you still have --

7 A. So it doesn't say, but it's a 512 tap FIR
8 filter. And I believe it's a low-pass. I think I
9 read that somewhere. So the coefficients are probably
10 not symmetric. So the coefficient RAM has to at least
11 have 512 coefficients for each tap. It may have a lot
12 more, but at least that much.

13 Q. I'm not sure that was actually the question
14 I asked. The question I was trying to ask was, how
15 many sets of coefficients will be stored in
16 coefficient RAM?

17 A. Oh. All right. Let me --

18 MR. AYERS: Objection. Form.

19 A. I was trying to resolve a different
20 question.

21 MR. HABER: And, again, I'll ask you to
22 refrain from whispering or speaking under your breath.

23 MR. AYERS: I said, objection, form.

24 MR. HABER: There was a little bit of a
25 whisper before that.

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1 MR. AYERS: I'm not sure what you're
2 referring to.

3 A. So I don't think it states how many in the
4 text, how many coefficients or how many sets.

5 Q. (BY MR. HABER) So then, at least as to that
6 issue, how many sets of coefficients are in the RAM,
7 the Harris reference is somewhat vague?

8 A. Yeah. But it says it could reconfigure, so
9 there must be at least another set.

10 Q. When you say, it says it can reconfigure, so
11 there must be at least another set, what is the basis
12 of that opinion?

13 A. Well, let me find the phrase.

14 In my declaration, I said, on page 29,
15 the paragraph 49, the DDF can be rapidly reconfigured
16 via a standard microprocessor interface. And I didn't
17 make that up, I got that from the reference.

18 Q. Is it fair to say that one way to
19 reconfigure the DDF in Harris would be to load a new
20 set of coefficients into the coefficient RAM?

21 A. Yes, that would be one way.

22 Q. Is there any other way described in the
23 Harris reference?

24 A. I don't think so.

25 Q. If you'll look at Figure 6 of the Harris

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1 reference, it's somewhat small and hard to read. It
2 appears that there is a -- a bank of parallel DDFs
3 there. Is that right?

4 A. I can't read this copy. It's just blurry.
5 I can read a few words, but the rest of it's blurry.
6 Let me see if there is maybe a description of the...

7 Q. Okay.

8 A. I believe that's the case, yes.

9 Q. Just so we're clear. You believe that those
10 items in the center of Figure 6 are a parallel bank of
11 DDFs. Right?

12 A. Well, what the text says is, as shown in
13 Figure 6, the channelized receiver is constructed of
14 multiple sets of similar hardware that tune to the
15 center frequencies.

16 Now, I believe -- I can't really tell
17 from the diagram and I don't recall, you know -- maybe
18 I offered an opinion on this before, but I don't
19 recall. I believe that those are the items described
20 in the -- in the general architecture and that they do
21 include a DDF.

22 Q. So looking at the --

23 A. Because the DDF includes an HSP 43220.

24 Yes, I believe they do contain the
25 DDFs.

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1 Q. And looking at Figure 6, there appear to be
2 several of them in parallel. Right?

3 A. What do you mean by parallel?

4 Q. Do you have an understanding of the term
5 parallel?

6 A. Yes, I do. And, yes, they are.

7 Q. Also in Harris, there is a -- if you look on
8 page five, the second column, there is reference to a
9 standard microprocessor interface. It's towards the
10 middle.

11 A. Where on page five?

12 Q. The second column.

13 A. Halfway down?

14 Q. Halfway down towards the middle, the end of
15 the first full paragraph.

16 A. Yes. Okay.

17 Q. So there is a reference to a standard
18 microprocessor interface. Is that microprocessor
19 interface what is used to update the coefficients in
20 the coefficient RAM?

21 A. Yes.

22 Q. I'm going to hand you another document.
23 It's a document previously marked 1015. I'm going to
24 re-mark it Exhibit 2026. It's U.S. Patent number
25 6,725,463 to Vince Birleson, referred to in your

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1 declaration as Birleson.

2 (Deposition Exhibit No. 2026 marked.)

3 Q. (BY MR. HABER) So you'll understand when I
4 refer to Birleson, you'll understand I'm referring to
5 2026?

6 A. Yes.

7 Q. So in your declaration you offer an opinion
8 that claim 14 is unpatentable over a number of
9 references, including Birleson. Right?

10 A. What page is that in my declaration?

11 Q. I'm looking page 52 of the '585 declaration.

12 Page 52 of the declaration '585 patent
13 which is the --

14 A. I have it.

15 Q. Okay.

16 A. So, yes, Birleson is one of my references.

17 Q. Other than claim 14, none of your other
18 unpatentability conclusions rests on Birleson. Is
19 that right?

20 A. Let me check.

21 I believe, for the '585, that is
22 correct.

23 Q. On claim 14 you point to Birleson as
24 disclosing the user selection feature of claim 14. Is
25 that right?

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1 A. Correct.

2 Q. How does that user selection in Birleson
3 work?

4 A. Paragraph 80, Birleson discloses an
5 automatic carry detect, ACD, circuit, that determines
6 whether the signal being processed is in the digital
7 or analog format. The signal is tested by the ACD
8 when the channel is changed or, alternatively, the ACD
9 testing can be initiated by a user causing the
10 selection circuit to generate the select signal. ACD
11 can be automatic or user initiated. For example, a
12 television system may provide a function on a remote
13 control which allows the user to select the test mode.
14 In other cases, the input format may have to be
15 manually selected by the viewer.

16 Birleson provides several examples, a
17 user-initiated generation of a standard select signal.
18 For example, when the ACD is operating in a test mode,
19 it either switches SIFF B -- and that's S-I-F-F B --
20 109, out or leaves it in the signal path, depending on
21 whether an analog or digital signal is detected.

22 Q. So from what you just read, is it that the
23 user somehow tells the ACD to try to determine that
24 there is a new format?

25 MR. AYERS: Objection. Form.

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1 A. Well, it says, the signal is tested by the
2 ACD when the channel is changed, so that's my
3 position. That's one way.

4 Q. (BY MR. HABER) So a user changes the
5 channel?

6 A. The user changes the channel.

7 Q. And then that causes the ACD --

8 A. To do the test.

9 Q. To do the test. And then the result of that
10 test, then, will be what?

11 A. Well, I state in my declaration, when the
12 ACD is operating in test mode, it either switches
13 SIFF B 109 out or leaves it in the signal path
14 depending on whether an analog or digital signal is
15 detected.

16 Q. So I think I understand. So a user takes
17 some action, changes the channel, for example, and
18 that causes the ACD to enter a test mode, to test the
19 incoming format. Right?

20 A. Well, I read what I said. The signal is
21 tested by the ACD when the channel is changed or,
22 alternatively, the ACD testing can be initiated by a
23 user, causing the selection circuit to generate the
24 test signal. That's what it does.

25 Q. Okay. I think that's what I asked you. So

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1 the user does some action, changes the channel or
2 initiates a test mode, which signals the ACD to enter
3 its test and determine format. Right?

4 A. I'm going to stick with what I said. I
5 don't need it to be rephrased.

6 Q. I'm not trying to rephrase, I'm just trying
7 to understand what you said here.

8 A. Okay.

9 Q. So to get the -- the user takes some action,
10 and as a result of that action, the ACD will enter a
11 test mode and, essentially, sends a -- determine the
12 underlying format and send some signal. Right?

13 A. Let me just read the whole paragraph. There
14 are several paragraphs in the spec that address this.

15 So to understand the ACD, column three,
16 lines 18, 19, 20-ish, the IF signal path then passes
17 through the SIFFs while the ACD circuit monitors the
18 output of the SIFFs to determine whether the signal is
19 in analog or digital format. So that is what the ACD
20 is doing.

21 Q. So it's determining whether the incoming
22 signal is analog or digital?

23 A. I just read it. Let's read it again.

24 The ACD circuit monitors the outputs of
25 the SIFF to determine whether the signal is in an

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1 analog or digital format.

2 Q. Yes. So I think that is what I said.
3 Right?

4 A. Well, why -- I would only ask, why am I
5 having to qualify your response --

6 Q. I'm just trying to --

7 A. Okay. Fine.

8 Q. -- get your opinion, based on --

9 A. Then I have to process every word you say to
10 make that you haven't changed something.

11 Q. I'm not trying to be tricky. I'm just
12 trying to get your opinion on what is disclosed here
13 on Birleson.

14 A. So what is the next question?

15 Q. The question that I have is, I'm trying to
16 understand, what is it is your opinion is with regard
17 to the ACD. What it does is sense the underlying
18 format, whether analog or digital, and send an output
19 signal, a selection signal?

20 A. All right. Well, I just described the SIFFs
21 part. Let me find the paragraph that describes the
22 selection part.

23 Q. Well, so just breaking it up. It does sense
24 the underlying data format?

25 A. Yes.

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1 Q. And then the second part was, the output.

2 A. Correct. So let me see if I can't find that
3 paragraph that talks about that.

4 Q. Okay.

5 A. So the response of the ACD detection, column
6 11, starting at 12, when ACD 30 analyzes the outputs
7 of filters 106 and 109, the signal path of tuner 10 is
8 configured for analog television. That is, SIFF B 109
9 will be selected into the signal path by switch 108.
10 Following the comparison, if the signal is determined
11 to be digital television format -- signal, SIFF B 109
12 will then be switched out of the signal path and
13 attenuator 110 will be selected by switch 108.

14 So that's what -- that's one thing the
15 ACD does.

16 Q. Where are you reading from?

17 A. Column 11, starting at line 12.

18 Q. Are there -- if you look at, for example,
19 Figure 1 of Birleson, are there any channel filters?

20 A. I don't know. I didn't --

21 Q. Disclosed here?

22 MR. AYERS: Objection. Form.

23 A. I wasn't using Birleson for channel filters.
24 There may be.

25 Q. (BY MR. HABER) Can you look at Figure 1 and

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1 identify any channel filters?

2 MR. AYERS: Objection. Form.

3 A. I don't know how to draw -- I wouldn't -- I
4 would have to spend some time to draw the box. There
5 are certainly components of the channel filters in the
6 ACD converters.

7 Q. (BY MR. HABER) Well, I mean, do you have a
8 pen? If you want to just draw a box around the
9 channel filters?

10 A. No, I don't -- you know, I would have to
11 spend some time, some quality time to figure out the
12 work through to make sure I got everything just right.
13 So, no.

14 Q. So can you -- could you right now circle for
15 me channel filters on Figure 1?

16 A. Maybe.

17 Q. What do you mean "maybe"?

18 A. Well, let me think about it. Let me do some
19 analysis of this block diagram.

20 No, it does not contain a channel
21 filter.

22 Q. So after reviewing Birleson for several
23 minutes, the question was, is there a channel filter
24 in Figure 1. And you said, Figure 1 does not include
25 a channel filter?

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1 A. Correct. Figure 1 does not include the
2 channel filter.

3 MR. AYERS: Is this a good time to
4 break for lunch?

5 MR. HABER: Could we go off the record.

6 (LUNCH RECESS)

7 Q. (BY MR. HABER) We're back from lunch.

8 A. Very good.

9 Q. I want to turn to a page in your '585
10 declaration. I'll get there.

11 A. Okay.

12 Q. And it will be page 38.

13 Go to page 40, starting at paragraph
14 63. So this paragraph 63 is addressing a portion of
15 claim 11 recited immediately above paragraph 63.
16 Right?

17 A. I see that, yes.

18 Q. And so is it your opinion that reference
19 referred to as Grumman discloses the claim element
20 listed above paragraph 33 -- or paragraph 63?

21 A. Yes.

22 Q. There is a claim element, signal processor
23 indexes said memory. Can you tell me what
24 specifically -- which component in Grumman corresponds
25 to that claim element?

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1 A. Yeah. So there is coefficient memory in
2 bank zero and bank one, and the swap control swaps in
3 a set of coefficients -- or swaps in another set of
4 coefficients. So that is the indexing.

5 Q. Okay. And I'm asking about, said signal
6 processor. What in Grumman corresponds to said signal
7 processor?

8 MR. AYERS: Objection. Form.

9 A. Well, Grumman discloses the signal
10 processor. You see in -- can I have back -- by the
11 way, did y'all give me Grumman?

12 Q. (BY MR. HABER) I'll give that you right
13 now.

14 I'm going to hand you a document that
15 was previously marked Exhibit 1008. We'll mark it
16 again as Exhibit 2027, which is U.S. patent 5,381,357.
17 The assignee is the Grumman Corporation, the patent
18 that you referred to as Grumman. I'll hand that to
19 you.

20 (Deposition Exhibit No. 2027 marked.)

21 Q. (BY MR. HABER) The question that I asked
22 was, the signal processor recited in the claim element
23 of claim 11, what is the signal processor of Grumman
24 that you identify?

25 A. The Grumman describes a complex adaptive FIR

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1 filter, and so a FIR filter is a signal processor. So
2 I would say that Grumman describes the signal
3 processor.

4 Q. Okay. So just for clarification, the
5 complex adaptive filter described by the Grumman
6 patent is the said signal processor of claim 11?

7 A. Well, I'll just read all of claim 11 just to
8 make sure.

9 I am relying on Grumman just for the
10 finite impulse response filters.

11 Q. So the said signal processor here in claim
12 11, you don't find that claim element in Grumman. Is
13 that right?

14 A. I didn't --

15 MR. AYERS: Objection. Form.

16 A. I didn't need it in Grumman, because it was
17 in ten and that -- ten has been ruled by the PTAB. So
18 I believe -- and I believe that that's based on
19 Thomson and Harris.

20 Q. (BY MR. HABER) Okay. So then, you rely on
21 Grumman for the finite impulse response filters of
22 claim 11. Is that right?

23 A. Yes.

24 Q. I want to switch over to your declaration on
25 the '792 patent, specifically, with regard to claim

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1 18.

2 It's your opinion that claim 18 of the
3 '792 patent is unpatentable over a number of
4 references. Is that correct?

5 A. Correct.

6 Q. Can you tell me exactly what references it
7 is that you base your unpatentability conclusion on
8 claim 18 on?

9 A. I list Thomson -- claim 18 is obvious over
10 Thomson and Harris in view of Oku, Ericsson and
11 Nguyen.

12 Q. Earlier you testified that claim 18 of the
13 '792 patent is directed to output driver circuitry.
14 Do you recall that?

15 A. Yeah, I do recall that.

16 Q. Would you --

17 A. Well, let me correct that. I think the
18 question to me was how is this different -- how is
19 these claims different from the '585, and I noted that
20 one of the differences was the drivers. Maybe I
21 should ask for my complete transcription on that so
22 that I know what I said. I'm not sure I said what you
23 just said I said.

24 Q. Well, so that's fine. I just wanted to --
25 if you want to have it read back, that's fine.

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1 A. Well, I mean it's -- certainly, drivers are
2 an important element of claim 18.

3 Q. I think that's fair.

4 Would you agree that one of the
5 characteristics of the output driver circuit of claim
6 18 is that it provides output on two physical pins?

7 MR. AYERS: Can I have that read back.

8 (The requested text was read back.)

9 MR. AYERS: Objection. Form.

10 A. So strictly speaking, I don't think the '792
11 uses the term "pin." I think it uses the term
12 "terminal." But let me -- so it certainly provides
13 output to two terminals. What was the specific
14 question again? Two pins you said?

15 Q. (BY MR. HABER) I asked about pins, but you
16 say that it uses the word terminal, so let me just
17 reformat the question.

18 Does the output driver circuit of claim
19 18 provide output to two physical terminals?

20 MR. AYERS: Objection. Form.

21 A. Yes. It says, the second driver -- it says,
22 the second driver for driving the analog output
23 signals from the first digital analog converter to the
24 second driver, comprising a differential output driver
25 having a first differential output terminal and a

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1 second differential output terminal. So that, yes,
2 certainly the second one does. And the first driver
3 provides an output on a first terminal.

4 Well, it certainly recites a first
5 differential output terminal and a second differential
6 output terminal.

7 Q. Look at the '792 patent, Figure 2. Do you
8 know what is depicted here in Figure 2?

9 A. Yes. I understand all of those elements.

10 Q. Is claim 18 particularly directed to one of
11 the different configurations here in Figure 2?

12 A. I think it is.

13 Q. Which one would that be?

14 A. I don't recall, but I'll look.

15 I think it's described in 740, the
16 block 740. I think it's the claim 18 on 740.

17 Q. And -- I mean, 740 --

18 A. I think so. I mean, I could --

19 Q. No. I was actually asking another question.
20 In 740, there are two physical terminals. Right?

21 A. Correct. Well, they're terminals. It
22 doesn't describe them as physical, but, you know, if
23 you want to call them physical, I guess that could --
24 it's certainly possible.

25 Q. So 740 has two terminals?

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1 A. Two terminals, certainly.

2 Q. Can you identify the two terminals in 740?

3 A. So claim 18 uses terminals two different
4 ways, I think. A differential output terminal, which
5 would be the output of, say, 744, and then a first
6 output terminal and a second output terminal. So
7 those first and second output terminals would be 708
8 and 709.

9 Q. What is the purpose of the first and second
10 output terminals?

11 MR. AYERS: Objection. Form.

12 A. Well, the first driver, 743, drives the
13 CVBS signal, which I think is -- the patent calls that
14 composite video based band signal. I think that's
15 what it is. That's what the patent says it is. And
16 the other two signal -- the other -- so that's
17 terminal 708 in one mode. Or it's one terminal of
18 DTV, low-IF signal, and then the other one is sound-IF
19 in one mode, or the other is differential output of
20 DTV in another mode.

21 Q. What about terminal 709?

22 A. Yeah, that's what I said. That's the other
23 signal that I just mentioned. It's sound-IF or DT --
24 DTV low-IF.

25 Q. So is it fair so say that the purpose of

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1 these two terminals is to carry either the two analog
2 baseband signals or a differential signal
3 corresponding to the digital signal?

4 A. The DTV low-IF, yes.

5 Q. If you will go to paragraph 77 of your
6 report. You mentioned a reference, Oku. I'll hand
7 that to you. I'm going to hand you what has
8 previously been marked Exhibit 1018. I'll mark it
9 again as Exhibit 2028, which is a patent publication,
10 U.S. 2002-0057366, the first named inventor is
11 Mr. Oku.

12 (Deposition Exhibit No. 2028 marked.)

13 Q. (BY MR. HABER) And this is what you refer
14 to here as Oku. Correct?

15 A. Correct.

16 Q. Is there any teaching in Oku of using
17 differential signaling for output?

18 MR. AYERS: Objection. Form.

19 A. I don't recall differential outputs in Oku.

20 Q. (BY MR. HABER) So if you look at the claim
21 element in the bullet above paragraph 79, there is
22 a -- it recites the first differential output terminal
23 being coupled with a first output terminal and a
24 second differential output terminal being coupled to a
25 second output terminal. That claim element is not

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1 disclosed by Oku. Right?

2 A. I relied on a person of ordinary skill in
3 the art would know how to implement differential
4 outputs as well as Kurth's reference, Exhibit 1021.

5 Q. So you don't rely on Oku for that claim
6 element?

7 MR. AYERS: Objection. Form.

8 A. So restate the question.

9 Q. (BY MR. HABER) You don't rely on Oku to
10 teach the first differential output terminal being
11 coupled to the first output terminal and the second
12 differential output terminal being coupled to the
13 second output terminal?

14 A. No, I do not.

15 Q. Is it your opinion that differential
16 signaling, generally, is taught by Ericsson?

17 A. Did you give me that reference?

18 Q. I'm sorry. I'll do that. We have
19 previously marked Exhibit 1024. I'm going to mark it
20 again as Exhibit 2029, U.S. patent 6,411,136,
21 assignee, a long German name that ends in Ericsson.
22 Which is the patent you refer to as Ericsson, I
23 believe.

24 (Deposition Exhibit No. 2029 marked.)

25 Q. (BY MR. HABER) So my question is, in your

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Douglas Holberg, Ph.D. - 11/4/2015

1 opinion, differential signaling is generally disclosed
2 in Ericsson. Right?

3 A. Yes. That's what is being disclosed there.
4 I was confused with the name, why we used the name
5 Ericsson and not the patent inventor, but anyway.

6 Q. Okay. So it's your opinion that this
7 particular claim element, the first differential
8 output terminal being coupled to the first output
9 terminal and the second differential output terminal
10 being coupled to the second output terminal, that is a
11 well-known design choice. Is that your opinion?

12 A. Yes.

13 Q. Can you identify -- point to me where
14 specifically in Ericsson this claim element is found,
15 the first differential output terminal being coupled
16 to the first output terminal and the second
17 differential output terminal being coupled to the
18 second output terminal?

19 MR. AYERS: I'm going to have to take a
20 break to get on that 3:00 call. Is there a question
21 pending?

22 THE WITNESS: Yeah, there is.

23 Can we revisit it when we come back?

24 MR. HABER: I think that's fair.

25 (RECESS.)

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Douglas Holberg, Ph.D. - 11/4/2015

1 MR. HABER: Would you mind reading back
2 the last question that was pending when we took a
3 break.

4 (The requested text was read back.)

5 A. So the majority of this claim 18 has been
6 ruled on by the board. I'm just throwing that out.
7 The terminal elements here -- basically, what I'm
8 relying on, as I say here, I said, a person of
9 ordinary skill in the art would have been motivated to
10 use signaling, a well-known design choice, see Kerth,
11 for example. Such a choice would provide numerous
12 advantages, including reduced interference effects or
13 noise within a circuit, increased output voltage
14 swing, ideal for low-voltage systems, integrated
15 circuits is easier to use, and reduced even-order
16 harmonics. See Karki.

17 And an example, one such example of one
18 such differential driver is disclosed in Figure 2 of
19 Ericsson. So I'm presenting Ericsson as an example of
20 a differential driver which could be used to meet the
21 claim limitations -- claim 18 of this section.
22 Different drivers were ubiquitous since I first
23 started designing circuits in 1978, so it's nothing
24 unique here.

25 Q. So this specific connection, where you have

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1 a first differential output terminal being coupled to
2 a first output terminal and a second differential
3 output terminal being coupled to a second output
4 terminal, that specific connection is not in Ericsson?

5 A. I didn't plug Ericsson into the '792
6 circuit.

7 Q. Okay. And the '792 circuit, those specific
8 connections are not in Ericsson. Right?

9 A. They have terminals. They have first and
10 second terminals, there is drivers, there is DAC,
11 there's differential, but we didn't wire this
12 specific -- I didn't wire this specific implementation
13 into block 740. I relied on POSITA, this is a
14 no-brainer. A person of ordinary skill in the art
15 could look at Ericsson and easily have implemented
16 what is described in that claim.

17 Q. Okay. I think I'm asking kind of the
18 reverse of that. This specific connection in this
19 claim, is that in Ericsson?

20 A. Two terminals?

21 Q. The specific connection here in claim 18?

22 MR. AYERS: Objection. Form.

23 A. That specific connection being a
24 differential output terminal coupled to a first output
25 terminal and a differential output terminal coupled to

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1 a second output terminal? There is a differential
2 output and there is two terminals that I can identify
3 in Ericsson.

4 Q. Okay. And I'm asking specifically about
5 this language, the first differential output terminal
6 being coupled to the first output terminal and the
7 second differential output terminals being coupled to
8 the second output terminal. That specific
9 configuration, is that in Ericsson?

10 A. Well, as you see, the antecedent of first
11 output terminal is -- is -- comes from the earlier
12 part of the claim, a first driver circuit for driving
13 the analog output signals from the first digital
14 analog driver to a first output terminal. That's the
15 antecedent of the first output terminal.

16 The second output terminal is a second
17 output -- a second output terminal being coupled to a
18 second output terminal. So you're asking me to say
19 that this is connected when I don't have all of the
20 elements in this claim to meet the antecedent basis.
21 So I'm confused.

22 Q. So is it then --

23 A. Because your question stated -- and you can
24 read it back to confirm -- that you said, is it the
25 first output terminal and the second differential

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1 output terminal being coupled to the second output
2 terminal, and there is no "the second output terminal"
3 in that claim.

4 Q. Maybe I said a poor question. Let me read
5 it again.

6 So it I'm looking at the last part of
7 the claim element discussed above paragraph 79. It
8 says, the first different output terminal being
9 coupled to the first output terminal and the second
10 differential output terminal being coupled to the
11 second output terminal -- to a second output terminal.

12 A. Thank you.

13 Q. Is that specific configuration in Ericsson?

14 A. Yeah. If you look at Figure 1 of Ericsson,
15 it shows a differential output amplifier. And the
16 differential outputs on the left side of R sub T would
17 be differential output terminals. And you could -- I
18 could call the right side of R sub T a first output
19 terminal of the upper R sub T, and the lower R sub T a
20 second output terminal.

21 Q. So what you've identified here in Figure 1
22 is -- on the left side of R sub T, is a first
23 differential output terminal?

24 A. It's a -- inverting output with a negative.

25 Q. And what you identified on the right side of

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Douglas Holberg, Ph.D. - 11/4/2015

1 R sub T is the first output terminal?

2 A. Correct.

3 Q. What makes what is on the right side of R
4 sub T an output terminal?

5 A. Because it's the input terminals to the
6 transformer, or input terminal to the transformer, one
7 of the input terminals to the transformer.

8 Q. So it's an output terminal because it's an
9 input terminal through some other component in the
10 system?

11 A. It's an output terminal because it's an
12 output, and it's a terminal just because it's a
13 terminal connection.

14 Q. What do you mean, a terminal connection?

15 A. It's a connection.

16 Q. So is any connection a terminal?

17 A. You can pretty much say that, I think.
18 That's a very broad term. I think you were calling
19 them pins earlier.

20 Q. When you combine Oku and Ericsson, are you
21 relying on this Figure 1 for the combination?

22 A. Oku illustrates a number of -- a number of
23 things. What I showed you there is prior art. What I
24 relied on -- the differential line driver in Ericsson
25 receives input from digital analog converter and

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1 outputs a pair of current outputs. In 2:23 through
2 24, the general concept of invention may be
3 understood, Figure 2.

4 A line driver is providing with a pair
5 of current inputs, INP and INN. The line driver
6 inside the dash has a pair of current outputs which
7 are provided with termination resistors RT connected
8 to drive voltages, DDDA, and connected to transformer
9 winding with another winding, connected to a twisted
10 copper pair. As is apparent, there is, inside the
11 dashed rectangle, a set of two output current
12 amplifiers, AP and ace again.

13 So in my declaration that is the
14 specific reference within Ericsson that I pointed out.
15 I just, in my comments, added the fact that it's
16 easier to understand Figure 1 than it is to understand
17 the -- it would probably be easier for you to
18 understand, so that's why I described it. And it is
19 prior art too, so...

20 Q. Okay. And going on to paragraph 83, there
21 is another claim element there. Is it your opinion
22 that this claim element is also the product of a
23 design choice?

24 A. It's a product of a what?

25 Q. Of a design choice. Rather than some

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1 specific --

2 A. Yeah. This claim element is in claim 13
3 which, again, was ruled on by the PTAB. Let me review
4 this section.

5 All right. So, 83. Oku discloses a
6 second digital analog converter, DAC 16, which
7 receives processed digital output signals from the
8 signal processor. Although the output DAC 16 is
9 coupled to driving circuit 17 to drive a monitor, in
10 my opinion, it would have been a mere design choice to
11 input digital signals encoding audio information into
12 a digital-to-analog converter when audio signals are
13 desired. Accordingly, it is my opinion that is
14 element is met by Oku.

15 Q. What you're saying there is that this claim
16 element is mere design choice, it's not specifically
17 disclosed by Oku?

18 A. Yes.

19 Q. The next claim element above paragraph 64 --
20 actually, in paragraph 64, you mention that the first
21 and second output terminals are multiplexed or coupled
22 together or -- to either one or two. What do you
23 mean, multiplexed or coupled to?

24 A. I think you're on the wrong paragraph.

25 Q. I'm looking at paragraph 84.

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1 A. Oh, you said 64.

2 Q. I'm sorry.

3 So in paragraph 84, the first and
4 second output terminals are multiplexed or coupled to.
5 What does that mean?

6 A. It's -- you need a -- an explanation of
7 multiplexed?

8 Q. Yes. So I'm asking you, what does it mean
9 when you say here, in which the first and second
10 output terminals are multiplexed or coupled to
11 either -- and then one or two?

12 A. It's -- it explains that in the "or"
13 statement. It's coupled to either one, the first and
14 third driver circuits or the second differential
15 driver circuit. That is what it means.

16 Q. What does multiplexed mean in this sentence?

17 A. It means coupled to either one, the first
18 and third driver circuits or the second differential,
19 one of those sets of signals coupled to the first and
20 second output terminals.

21 Q. Okay. So what you say multiplexed or
22 coupled, you're really saying, multiplexed means the
23 same as coupled?

24 A. Multiplexed does not mean the same as
25 coupled.

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1 Q. That's what I'm trying to get to, when you
2 say multiplexed or coupled, are you saying --

3 A. No, you need the entire phrase. The entire
4 phrase. Multiplexed or coupled to either, one, the
5 first and third driver circuits or the second
6 differential driver circuits.

7 Q. So multiplexed or -- and then what you're --
8 this -- what you have after the "or" is kind of
9 defining what you mean by multiplexed?

10 A. Yes. Sorry. I shook my head.

11 Q. Is there a specific reference in Oku that
12 shows the third driver circuit for driving the analog
13 output signals from the second digital analog
14 converter onto the second output terminal? Is that
15 specific claim element in Oku?

16 A. So as I said, Oku discloses a third driver
17 circuit driving circuit 17, in Figure 4, for driving
18 the analog output signals from a second
19 digital-to-analog converter, DAC 16, onto the second
20 output terminal. Does that answer your question?

21 Q. I'm not -- I don't think that did. I'm
22 trying to understand if this specific configuration
23 described in this claim element, the third driver
24 circuit for driving the analog output signal from the
25 second digital analog converter onto the second output

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1 terminal, that specific configuration is present in
2 Oku?

3 A. That's what I say here. What I just read.
4 Seven -- driver 17 being driven by DAC 16.

5 Q. And the multiplexing that you describe in
6 the preceding paragraph, is that multiplexing in Oku?

7 A. Well, I try to address that as follows: Oku
8 discloses many different embodiments of output
9 circuitry, including multiple driver circuits. Look
10 at Figures 1, 5, 6, 7, 9 through 11. The specific
11 configuration of output circuitry is dependent upon
12 the desired design factors. In the case of claim 18,
13 the receiver can be connected to a component that
14 receives an analog signal corresponding to an input RF
15 signal that is either analog or digital television
16 format, but not both.

17 In my opinion, a person of ordinary
18 skill in the art would naturally choose to design a
19 circuit that multiplexes the output lines connected to
20 the differential and the -- and to signal ended
21 drivers to reduce the pin count. Such multiplexing
22 architecture is shown elsewhere.

23 We haven't gotten to the next
24 reference, but this is all -- this is design choice.
25 This is all trivial.

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1 Q. So in your opinion, these are design
2 choices, but that specific choice is not in Oku?

3 A. Correct.

4 Q. You mentioned another reference. I assume
5 you're referring to the Nguyen reference?

6 A. Nguyen.

7 Q. And I'll hand that to you.

8 So your opinion generally is that the
9 Nguyen reference discloses the general idea of
10 multiplexing. Let hand you what has previously been
11 marked Exhibit 1031, U.S. patent 6,400,598 to Khai
12 Nguyen. That will be remarked as Exhibit 2030.

13 (Deposition Exhibit No. 2030 marked.)

14 Q. (BY MR. HABER) So the question is, it's
15 your opinion that Nguyen generally discloses the idea
16 of multiplexing?

17 A. Yeah. Such multiplexing architecture is
18 shown in Nguyen, which discloses driving -- a driving
19 circuit architecture that is selectively controlled by
20 control logic so that two input-output I/O pins are
21 coupled to either, one, a differential driver, element
22 600 or, two, two single-ended drivers, element 60.

23 Thus, it's my opinion that it would
24 have been obvious to a POSITA to combine the analog
25 differential driver as disclosed in Ericsson with the

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1 driver disclosed in Oku, using the multiplexing
2 architecture of Nguyen.

3 Q. Okay. Just so I understand. Is it your
4 opinion that Nguyen actually specifically discloses
5 this claim element? Or that a POSITA designing the
6 product would -- would -- that's a poorly phrased
7 question. I'll withdraw that and try again.

8 Is it your opinion that Nguyen
9 specifically discloses a third driver circuit for
10 driving the analog output signals from the second
11 digital-to-analog converter onto the second output
12 terminal, or is it that a POSITA would kind of use
13 this information in the background while it's making
14 its design choices?

15 A. Well, my position is exactly what I said
16 here, which I can read again.

17 Q. Okay. So from what you said here, it's just
18 not clear to me if it's your opinion that Nguyen
19 specifically discloses a third driver circuit for
20 driving the analog output signals from a second
21 digital-to-analog converter onto the second output
22 terminal?

23 A. Nguyen is not showing the digital out --
24 analog converter. It's showing -- and I said,
25 combining Nguyen, Ericsson, with Oku, is what we're

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1 doing here.

2 Q. Okay. So Nguyen itself does not
3 specifically disclose all of this claim element, a
4 third driver circuit for driving the analog output
5 signals from the second digital-to-analog converter
6 onto the second output terminal?

7 A. Nguyen does not describe a digital-to-analog
8 converter.

9 Q. Okay. The next claim element is on top of
10 paragraph 86. It begins, wherein -- it's a long -- do
11 you understand this wherein clause to describe the two
12 output terminals that we discussed earlier, for
13 example, in item 740 of Figure 2?

14 A. Yes.

15 Q. And so is it fair to say that the purpose of
16 this wherein clause is to describe the feature of the
17 two output terminals where those two output terminals
18 are both used for audio signals and digital signals?

19 MR. AYERS: Objection. Form.

20 A. Could you repeat the question?

21 (The requested text was read back.)

22 MR. AYERS: Objection. Form.

23 A. Well, I read it exactly as it's written in
24 the claim. Wherein the first and second output
25 terminals, which has antecedent basis from the earlier

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1 part of the claim, provide differential output signals
2 indicative of video and audio information encoded in
3 the input RF signal. So the "wherein" is telling me
4 something more about the output terminals.

5 Q. Now, after the semicolon there, and the
6 first output terminal provides video information
7 encoded in the input RF signal, and the second output
8 terminal provides signals indicative of audio
9 information encoded in the input RF signal when the
10 input RF signal has an analog television format.
11 Right?

12 A. Where did you -- you started after the
13 semicolon?

14 Q. After the semicolon, discussing the digital
15 signal format.

16 A. Okay. I find it -- I thought you were
17 somewhere else here. So after the semicolon, it says,
18 and the first output terminal provides video
19 information encoded, dot, dot, dot. Is that where you
20 want to talk? Okay. So...

21 Q. Yeah.

22 A. So I know where you are in the claim, what
23 was the question again?

24 Q. So the question is, looking at what you have
25 here, above paragraph 86, is that describing kind of a

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1 high level purpose where you have two output terminals
2 and those two output terminals will either be used for
3 analog video format or digital video format?

4 MR. AYERS: Objection. Form.

5 A. It's saying that the output terminals --
6 it's so clear to -- it's saying exactly what it's
7 saying. The first and second output terminals provide
8 differential output signals indicative of video and
9 audio information encoded in the input RF signal when
10 the input RF signal has a digital signal format, and
11 the first output terminal provides video information
12 encoded in the RF signal and the second output
13 terminal provides signals indicative of audio
14 information encoded in the input RF signal when the
15 input RF signal is analog television format. That's
16 so clear to me.

17 Q. Okay.

18 A. It says -- it does exactly what this is
19 saying. I understand it. So what is the question?

20 Q. Okay. So what I'm trying to understand is
21 the -- I think earlier you testified that what is
22 depicted here in Figure 2, 740, is an embodiment of
23 claim 18. Right?

24 A. Figure 2 of what?

25 Q. Figure 2 of the '792 patent.

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1 A. Okay. Yeah, I think I identified block --
2 the -- it's got block 740 in it.

3 Q. And then block 740 has these two output
4 terminals, 708 and 709?

5 A. Correct.

6 Q. And so what I'm trying to understand is,
7 what we're getting at here, the purpose of this
8 wherein clause is to cover this feature where you have
9 these two output terminals that will either contain
10 the analog formatted data or the digital formatted
11 data?

12 A. I agree.

13 Q. The -- is there -- strike that.

14 Does Oku disclose that underlying
15 purpose anywhere?

16 A. If you're asking me, does Oku teach the
17 multiplexing of the output signals for analog and
18 digital, I think I already answered that question,
19 didn't I?

20 Q. What was the answer?

21 A. Well, let's see what it was. You asked
22 somewhere back about, does Oku teach multiplexing or
23 something, so let's find that and see what I said.

24 Q. I'm not sure I asked that exact question, so
25 I'll just -- I'll ask it again.

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1 Does Oku teach the -- the two terminal
2 purpose that we discussed for -- or this wherein
3 clause of claim 18?

4 A. Oku does not teach the multiplexing of the
5 digital TV differential output on the same terminals
6 as the analog video and audio outputs.

7 Q. Okay.

8 A. That multiplexing is covered by the other
9 references.

10 Q. Okay.

11 A. And taught and understood by a POSITA. It's
12 trivial.

13 Q. Does Ericsson teach the underlying purpose
14 of the wherein clause here where we have two output
15 terminals, digital and analog, on the same terminal?

16 A. Pardon me while I find Ericsson.

17 Q. I think it should say 1024 on the cover.

18 A. Oh, okay. This is Ericsson. It's right in
19 front of me. My wife informs me of that problem
20 regularly. Anyway, what is the question?

21 Q. So the question is, does Ericsson teach
22 the -- the purpose of the wherein clause here, where
23 you have two output terminals that have analog or
24 digital on the same terminal?

25 MR. AYERS: Objection. Form.

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1 A. Ericsson teaches a differential line driver.
2 It doesn't teach multiplexing. A POSITA would combine
3 Ericsson, as I earlier stated.

4 Q. (BY MR. HABER) And does the Nguyen
5 reference teach this basic purpose of the wherein
6 clause, where you have two output terminals, the same
7 two output terminals that contain analog or digital?

8 A. Analog or digital television signals?

9 Q. Yes.

10 A. Nguyen doesn't teach television signals, I
11 don't think, but let me check.

12 Since it's Alterra, and Alterra makes
13 FPGAs, they very well could be used in televisions,
14 and most likely are.

15 So Ericsson -- or sorry -- Nguyen,
16 teaches the multiplexing, but it doesn't teach analog
17 or digital television, as far as I can -- I did a
18 quick search. I didn't see it.

19 Q. I wanted to talk about claim 19 for a
20 second. Page 57, you start talking about claim 19.
21 Claim 19 recites a low-pass filter coupled between the
22 first digital-to-analog converter and the first and
23 second driver circuits, the low-pass filter -- the
24 low-pass filter providing a low-pass filtering
25 function. Is the low-pass filter configuration of

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1 claim 19 disclosed in Oku?

2 A. So first of all, claim 19 depends on 18.
3 And it appears to be identical to claim 16, depending
4 on 13, both which were ruled on by the patent board.
5 What I said here in my report, simply including a
6 low-pass filter at the output of a digital-to-analog
7 converter is a mere design choice based upon the
8 properties of the DAC and downstream circuitry. A
9 low-pass filter smooths out waveforms, reduces and
10 eliminates high frequency noise which may be
11 introduced by the electronic circuitry, including the
12 DAC. Such high frequency noise may result in unwanted
13 EM radiation. Because EM radiation of consumer
14 electronics is highly regulated, a POSITA would be
15 motivated to use a low-pass filter at the output and
16 reduce this possibility. The design choice is within
17 the skill of a POSITA and would lead to predictable
18 results. It's in my opinion that it would be obvious
19 to anyone of ordinary skill in the art to provide
20 low-pass filtering of a baseband signal for
21 attenuation of unwanted frequencies being output by
22 baseband audio and video.

23 I relied upon POSITA for that claim
24 element that was ruled on previously by the patent
25 board.

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Douglas Holberg, Ph.D. - 11/4/2015

1 Q. So when you say --

2 MR. HABER: Why don't we take a -- a
3 break. We've been going for about an hour.

4 (RECESS.)

5 Q. (BY MR. HABER) I want to talk a little bit
6 more about claim 18 of the '792 patent. And you offer
7 opinions regarding, essentially, reasons for
8 combinability of the prior art references. Right?

9 A. Yes.

10 Q. And those reasons are integrated here in
11 your discussion of claim 18; they're not found
12 elsewhere in the report?

13 A. I don't think so. So you're asking me the
14 reasons for -- that I used for combining Thomson,
15 Harris, in view of Oku, Ericsson and Nguyen are
16 contained in paragraphs 76 and follows? Yes. The way
17 I wrote this, I wouldn't have put my arguments for
18 those elsewhere, I don't think.

19 Q. Okay. So what I want to do is discuss those
20 reasons, and I just want to make sure that I'm in the
21 right section of the report.

22 A. Okay.

23 Q. If you go to paragraph 79, at the bottom of
24 that paragraph, there is a sentence, Such a choice
25 would provide numerous advantages. Do you see that?

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Douglas Holberg, Ph.D. - 11/4/2015

1 A. Yeah, I see that.

2 Q. Is that sentence an explanation of the
3 reasons for combinability of Ericsson and Oku
4 regarding this claim element?

5 A. I'm simply saying what the benefits of
6 differential signaling are.

7 Q. And those benefits of differential
8 signaling, that would be the reason why a POSITA would
9 combine the prior art reference as you described?

10 A. That would at least be some of the reasons
11 he might do that, yes.

12 Q. Are there any other reasons described in
13 your declaration regarding this claim element?

14 A. So I don't remember where I said it, but I
15 think I said it, if something you were driving needed
16 a differential input, you would need to provide it.
17 So, I mean, that would be another reason why a POSITA
18 would do that.

19 Q. And if you needed to implement the system
20 described in Oku, for example, with a differential
21 output for these reasons here, would that increase the
22 cost of the Oku system?

23 A. You know, I haven't really considered a cost
24 analysis of the Oku system, so I don't know that I
25 have -- I don't have an answer to that.

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Douglas Holberg, Ph.D. - 11/4/2015

1 Q. Would implementing a differential circuit
2 for the reasons that you describe here in Oku, for
3 example, increase the complexity of that system?

4 A. Complexity in what way?

5 Q. Well, did you consider whether implementing
6 a differential output circuit in Oku, for example,
7 would increase the complexity of the system?

8 A. So you're asking, would adding a
9 differential output circuit to Oku increase its
10 complexity?

11 Q. Yes. Well, first, my initial question was,
12 did you -- in performing your analysis, did you
13 consider that question?

14 A. I don't recall whether I did or not. But
15 the -- I may well have, I just don't recall. Okay.
16 So that's the answer to your first question, I don't
17 know.

18 Q. Okay. And then --

19 A. The second question.

20 Q. -- the second question is, would
21 implementing a differential output circuit in Oku
22 increase its complexity?

23 A. I have implemented differential output
24 circuits on a number of occasions on circuits that
25 I've designed, both ECL -- pseudo ECL output circuits

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Douglas Holberg, Ph.D. - 11/4/2015

1 and analog differential output circuits, and I don't
2 recall that complexity was an issue that determined my
3 choice of doing it or not. It was more driven by the
4 needs of the solution, the overall solution.

5 Q. So the initial question is, does
6 implementing a differential driver circuit increase
7 the complexity of the system in which you're
8 implementing it?

9 A. You mean, more transistors? Is that what
10 you mean by complexity?

11 Q. Do you have a particular meaning for
12 complexity?

13 A. No. I'm trying to answer your question. I
14 need you to tell me how you construe it so I can
15 answer your question.

16 Q. Is an increased number of transistors more
17 complex?

18 A. A differential driver could possibly have a
19 few more transistors, yes.

20 Q. Would implementing such a differential
21 driver, for example, in Oku, would that increase the
22 complexity of the system?

23 A. As I said, if I added a differential driver
24 that was not there, certainly I would be adding
25 transistors. And if you're saying, adding transistors

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1 is adding complexity, then it would add complexity by
2 virtue of adding transistors.

3 Q. I'm not trying to limit the definition to
4 adding transistors. I'm just -- in your opinion,
5 would that make the system more complex?

6 A. Well, complexity can be understood on many
7 different levels. The complexity of the user to use
8 the device, the complexity of the test platform to
9 test the product before it goes out the door.

10 Q. That's fair.

11 A. There are so many -- it's on so many levels.

12 Q. And well, let's consider the level of a
13 POSITA. Would a POSITA consider implementing a
14 differential output circuit in Oku, for example, to --

15 A. He would not look at that and say, that's a
16 complex problem, no. He would just do it and be done
17 in a couple of days. It's trivial.

18 Q. The numerous advantages here that you list
19 at the end of paragraph 79, that sentence doesn't
20 include a citation to Oku or Ericsson or Nguyen, for
21 example. Are you relying on either of those three
22 references to support this sentence?

23 A. All right. The previous sentence says,
24 because digital television circuits frequently use
25 differential inputs, it is my opinion -- yeah, that's

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1 what I had written earlier that I was referring to.
2 Sorry. It is my opinion that a person of ordinary
3 skill in the art would have been motivated to use
4 differential signaling, a well-known choice. Such a
5 choice would provide numerous advantages. So such a
6 choice, that whole -- that whole sentence, an
7 antecedent basis for such a choice is the previous
8 sentence, the well-known design choice, which cites
9 Kerth, for example.

10 And then -- so all this is -- in
11 solving these problems, a POSITA would naturally do
12 this, and it offers many advantages. And here are
13 some of them.

14 Q. Okay. But what you have here, these
15 advantages specifically, you're not getting from Oku
16 or Ericsson or Nguyen?

17 A. I suspect that Ericsson mentions some of
18 these advantages. I don't know that Oku does. But
19 these are -- these are -- POSITA knows these
20 advantages; I know these advantages. Just because
21 these are fundamental principles that you learn in --
22 you know, generally before you get out of college with
23 a E.E. degree.

24 Q. Okay. So fair enough. With the background
25 of a POSITA, in your opinion, you would know these

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1 advantages without --

2 A. Certainly a POSITA in our case is a Master's
3 degree with four years of -- you know, experience
4 doing mixed signal system design, yes, he would know
5 this.

6 Q. And he wouldn't need to get those specific
7 teachings from Oku, Ericsson, Nguyen?

8 A. He knows this is fundamental in the way he,
9 you know, works on a day-to-day basis, yes. Knowing
10 those things are his bread and butter so to speak. In
11 fact, all of these output schemes would be well within
12 POSITA, just because they're all straightforward
13 schemes. It's no -- they're all straightforward.

14 Q. Okay. So it's your opinion, then, that all
15 of the output schemes described in claim 18 are within
16 the level of skill of a POSITA without reference to
17 Oku, Ericsson, or Nguyen?

18 A. I'm simply saying that a -- a person with a
19 Master's degree in electrical engineering with four
20 years experience in mixed signal design, when
21 confronted with needing a differential output, would
22 know how to solve that. When confronted with needing
23 a single signal output, would know how to solve that.
24 When confronted with needing to multiplex those two
25 outputs onto same signals, would know that. This is

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1 what he knows.

2 This is buttressed by the fact that we
3 can use actual art in the -- in terms of Oku, et al,
4 to support that these are demonstrated examples.

5 Q. You know, look on paragraph 85. There is a
6 sentence towards the end of the page, In my opinion, a
7 person of ordinary skill in the art would naturally
8 choose to design a circuit that multiplexes the output
9 lines connected to a differential and two single-ended
10 drivers to reduce pin count. Do you see that?

11 A. Yes, I do.

12 Q. What in Ericsson, Nguyen, or Oku
13 specifically discusses reducing pin count?

14 A. I don't recall them discussing reducing pin
15 count, but let me look at Ericsson just in case.

16 In Nguyen -- let me look at Nguyen for
17 a minute.

18 Okay. So the Nguyen reference that's
19 Exhibit 2030, Exhibit 1031, under Summary of
20 Invention, column one, starting at line 45. It says,
21 these and other objects of the invention are
22 accomplished in accordance with principles of one
23 aspect of the invention by providing PLDs with
24 input/output, I/O, pins that are connected in parallel
25 to several different kinds of input and/or output

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1 buffers, including LVDS input and/or output buffers.
2 The PLD is programmable to allow any of the input
3 and/or output buffers to which an I/O pin is connected
4 to be used. This allows the PLD to provide LVDS
5 capabilities, if that is what is desired, without
6 having to dedicate I/O pins to that particular type of
7 use. Because an LVDS connection requires a pair of
8 I/O pins, while many other signaling protocols require
9 only one I/O pin per connection, the PLD circuitry is
10 programmable to allow I/O pins to be used in pairs for
11 LVDS or individually for other types of signaling.

12 So in that paragraph, one of the
13 sentences I read says, this allows the PLD to provide
14 LVDS capabilities, if that is what is desired, without
15 having to dedicate I/O pins to a particular type of
16 use. While that doesn't say, conserve pins, it does
17 say that if you had to dedicate certain pins to
18 something and you still needed the other
19 functionality, you would need more pins. So the
20 technique does save pins. Or, I guess, the term I
21 used here was to reduce pin count. Because if you had
22 all of that functionality outputted to the pins, you
23 wouldn't -- you would need more pins. So by
24 multiplexing, you save pins.

25 Q. And in your opinion, saving pins is the same

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1 as reducing pin count?

2 A. It's a -- let me just restate that.

3 By doing this technique, you can reduce
4 pin count.

5 Q. Is the Nguyen reference directed to the
6 field of television receivers?

7 A. I believe you already asked that question,
8 and I think I already answered it.

9 Q. I'm not sure that I asked it, so I'll just
10 ask it again --

11 A. And I said something to the effect that this
12 is an FPGA and it could very well have been used for
13 television applications. But I did not notice the
14 mention of television in the patent, so I said -- I
15 think I said something very similar to that.

16 Q. Okay. What you have listed here in
17 paragraph 85, is this paragraph 85 where you list the
18 reasons that you combine Ericsson and Oku and Nguyen
19 to reach the claim element that you list above in
20 paragraph 84?

21 A. Yeah. I think -- also, I mentioned this,
22 the claim -- this element is in claim 13, which was
23 ruled on by the PTAB. So the discussion in 84 and
24 85 -- yeah, paragraph 85 is discussing that claim
25 element above, paragraph 84.

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1 Q. And it's discussing it specifically with
2 regard to reasonings for combinability?

3 A. Yeah. It discloses Oku and Nguyen and
4 POSITA, making the argument also with respect to
5 Ericsson, I believe.

6 Q. And this sentence here at the bottom that
7 discusses multiplexing the output lines connected to
8 the differential and two single-ended drivers to
9 reduce pin count, if that particular approach was
10 taken to implement the systems described by Nguyen and
11 Oku, for example, would that -- did you consider
12 whether that would increase the cost of the Oku
13 system?

14 A. I didn't analyze the cost of the Oku system.

15 Q. And did you consider whether implementing a
16 circuit that multiplexes the output lines in Oku, as
17 you describe here, did you consider whether that would
18 increase the complexity of the Oku system?

19 A. I would say this, back to the cost.
20 Whenever you reduce pin count, you reduce the cost.
21 So whenever you're able to multiplex pins, you're
22 saving money. And so then the complexity question?
23 What was the complexity question? Did it -- well, you
24 state the question.

25 Q. Did you consider whether implementing the

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1 system you describe here that multiplexes the output
2 lines would increase the complexity of the Oku system?

3 A. No. But I don't think it would have any --
4 I don't know what you -- you mean by complexity, but
5 it would be fairly trivial. It wouldn't be a complex
6 problem in any way.

7 Q. I think in your answer to my previous
8 question, you said that any time you reduce pin
9 counts, you reduce costs?

10 A. Pins -- when you calculate the cost of an
11 integrated circuit, part of the cost is the package,
12 and the package cost is, in part, a function of the
13 number of pins. So more pins, more cost.

14 Q. So if you were to take a single -- strike
15 that.

16 If you were to take a driver circuit
17 from Oku that has a single output and include a
18 differential output on that driver circuit, you would
19 increase the number of pins, wouldn't you?

20 A. Not if they're multiplexed.

21 Q. What is described in Oku doesn't describe a
22 multiplexed system. Right?

23 A. You're asking me, if I were to add a
24 differential driver onto Oku, what would POSITA do.
25 You would multiplex the pins.

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1 Q. And in your opinion, then, the system in Oku
2 can be multiplexed, as you've described?

3 A. Yeah. I'm not going to -- I can't redesign
4 Oku on the fly here, so I'm not a hundred percent
5 certain that -- that you can just drop the
6 differential driver multiplexed on the Oku. But in
7 general, to solve this kind of problem, you would
8 consider multiplexing the outputs when they're --
9 they're not used -- when they perform different
10 functions that are not occurring at the same time.
11 It's a very common design technique for system design,
12 and I've done it myself.

13 Q. And the assumption that you're making is
14 that the system is performing different tasks that are
15 not happening at the same time. Right?

16 A. Yes.

17 Q. Would you go to paragraph 86. The last
18 sentence of paragraph 86 discusses outputs -- the
19 outputs are normally mutually exclusive. Do you see
20 that?

21 A. The sentence that starts with, It is my
22 opinion?

23 Q. Yes.

24 A. I'll just read it so we're all on the same
25 page.

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1 It's my opinion that such a
2 multiplexing scheme would have been an obvious design
3 choice to a POSITA because the outputs are mutually
4 exclusive.

5 Q. If the outputs were not mutually exclusive,
6 would the multiplexing scheme that you discuss here,
7 would that have worked differently?

8 A. Yes, they would work differently.

9 For clarification, just to make sure I
10 understand what you meant, because maybe I don't
11 understand what you mean by "work differently." Can
12 you tell me what that means so I can amend my answer
13 in case it means something different than what I
14 thought you meant?

15 Q. Okay. I think -- I don't mean anything in
16 particular.

17 A. Okay. Well, it'll work differently or it
18 won't work or it'll work better, it will do something.
19 It'll be different, that's for sure.

20 Q. Okay. And what you said is, it'll work
21 differently. It might not work, it'll do something --

22 A. It all depends on the design, what you're
23 trying to achieve.

24 Q. And if we have a system where the outputs
25 are not mutually exclusive, just sitting here right

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1 now, can you predict exactly what would happen?

2 A. My first sense is that if they're not
3 mutually exclusive, they're probably not going to work
4 if you're trying to -- unless you -- you know, there
5 is ways to do it within the time domain, but I'm not
6 going to get into that. You know, for a moment in
7 time they would be mutually exclusive.

8 Q. Okay. If -- if you look at paragraph 88,
9 the last sentence you have there starts with, To
10 reduce the number of input/output pins.

11 A. Okay. I see it.

12 Q. This function you have here, selectively
13 couple either differential drivers or two single-ended
14 drivers to upward lines, would that increase the
15 complexity of the system in which you were taking that
16 approach?

17 A. It's not a complex problem to solve.

18 Q. If you look at paragraph 90, there is a
19 sentence in the middle that talks about, the design
20 choice referenced in paragraph 90 is within the skill
21 of a POSITA and would lead to predictable results.

22 Do you see that sentence?

23 A. Yes. That starts with, The particular
24 configuration?

25 Q. I'm looking at the sentence that starts

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1 with, This design choice is within the skill of a
2 POSITA and would lead to predictable results. In
3 paragraph 90.

4 A. Paragraph which?

5 Q. 90.

6 A. Oh, okay. I found it. And that's in
7 reference to including a low-pass filter?

8 Q. So that was going to be my question. When
9 you say "this design choice," what design choice are
10 you referring to?

11 A. The low-pass filter.

12 Q. What about the low-pass filter?

13 A. I said, This design choice is well within
14 the skill of a POSITA and would lead to predictable
15 results.

16 So I don't -- can you rephrase your
17 question?

18 Q. It's just not clear to me when you say "this
19 design choice." What design choice exactly is it --

20 A. To put a low-pass filter on the output of
21 the digital-analog converter.

22 Q. And the reason that you list here for
23 including a low-pass filter on that output is what?

24 A. I'll just read the whole paragraph.

25 Including a low-pass filter at the

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1 output of a digital-analog converter is a mere design
2 choice based upon the properties of the DAC and
3 downstream circuitry. A low-pass filter smooths out
4 waveforms and reduces or eliminates high frequency
5 noise which may be introduced by the electronic
6 circuitry, including the DAC. Such high frequency
7 noise may result in unwanted EM radiation. Because EM
8 radiation of consumer electronics is highly regulated,
9 a POSITA would be motivated to use a low-pass filter
10 at the output and reduce this possibility. This
11 design choice is well within the skill of a POSITA and
12 would lead to predictable results.

13 Q. And so you're referring to here, adding in a
14 low-pass filter smooths out the waveform and reduces
15 EM, et cetera?

16 A. Yes. The design choice is the including a
17 low-pass filter at the output of a digital-analog
18 converter is a mere design choice. And then that's
19 the antecedent of "this design choice."

20 Q. Are there any reasons discussed in your
21 declaration here for including the low-pass filter as
22 a design choice, in addition to what you list here,
23 two sentences before that?

24 A. Did I say anything about it anywhere else?
25 Is that what you're asking me? I don't recall.

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1 Q. Yes. So that -- I'm asking if you offer any
2 additional reasons besides what you list here in
3 paragraph 90?

4 A. So you asked me if I offered any additional
5 reasons elsewhere in my declaration? Or are you
6 asking me, do I have any new ones that I'll introduce
7 now? What are you asking me?

8 Q. I'm asking you about your declarations.

9 A. Yeah. I don't recall. This is the only
10 ones I recall entering, but there may be something
11 else. We can read it and find out.

12 Q. I think --

13 A. I don't think you want to do that.

14 Q. The -- would adding a low-pass filter, for
15 example, to the system described in Oku, for these
16 reasons here you discuss in paragraph 90, would that
17 increase the cost of the Oku system?

18 A. Yeah. It -- an example of a low-pass filter
19 is a resistor and a capacitor, and so that would
20 increase the cost.

21 Q. And would that increase the complexity of
22 the Oku system?

23 A. It would add two more insertions into the --
24 if it were discrete devices, into the PC board. If it
25 was integrated, it wouldn't even be -- it wouldn't add

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1 any real complexity. It would add another wire, add
2 some area for the capacitor. It's not a complex issue
3 to me.

4 Q. And so the question that I'm asking about
5 complexity, it's not about how easy or difficult it
6 would be to design, it's whether or not the end
7 circuit would be more complex?

8 A. You know, for me, complexity is a -- is a
9 high bar. It's a lot higher bar than adding a
10 resistor and a capacitor. That's not adding
11 complexity. So, no, adding a resistor and a capacitor
12 does not add complexity in the way I think about
13 complexity.

14 Q. I want to introduce another exhibit that's
15 not been previously marked, so we will mark it as
16 Exhibit 2031.

17 (Deposition Exhibit No. 2031 marked.)

18 Q. (BY MR. HABER) Exhibit 2031 is a document
19 entitled, Rebuttal expert report of Douglas Holberg,
20 Ph.D. regarding validity.

21 Are you familiar with this document?

22 A. Yes, I think so. I mean, I don't know if
23 you printed the whole thing out, but...

24 Q. And what is this document?

25 A. This is -- this is a rebuttal to the

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1 validity report submitted from CrestaTech.

2 Q. And you drafted this document?

3 A. Yeah, I did.

4 Q. Just sitting here right now, do you have any
5 reason to believe that this is not an accurate copy?

6 A. No. There is no -- I mean, it's 71 pages.
7 As I recall, that's how long it was.

8 Q. This document contains some of your validity
9 opinions. Correct?

10 A. Yes.

11 Q. And this document contains an explanation
12 for the various validity opinions that you list?

13 A. Yes.

14 Q. Sitting here today, is there anything about
15 the statements that you made in this rebuttal expert
16 report that you would like to change?

17 A. Maybe. Point me to some.

18 Q. I'm just asking, off the top of your head,
19 is there anything --

20 A. No. Offhand, no.

21 Q. So you believe the statements made in this
22 report are accurate?

23 A. I believe they are.

24 Q. And when you were making these statements,
25 you were testifying truthfully?

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1 A. Yes.

2 Q. And the methodology that you used in
3 performing your validity analysis, you believe that's
4 a reliable methodology?

5 A. Yes.

6 MR. HABER: I think at this point we
7 can pass the witness.

8 MR. AYERS: I am going to have some
9 follow-up questions, but can I request a copy of the
10 expert report of Mr. Murgulescu to which this responds
11 since you've introduced this as an exhibit? Do you
12 have a copy of that?

13 MR. HABER: I don't have a copy.

14 MR. AYERS: Well, we'd ask that that be
15 produced to us as -- under optional completeness or
16 possibly as inconsistent with the position you may be
17 taking in this case and --

18 MR. HABER: We'll consider that.

19 MR. AYERS: Thank you.

20 Why don't we go off the record, then,
21 and just give us a few minutes and we'll come back and
22 I'll do my redirect.

23 MR. FLEMING: Peter, are you aware that
24 the board has changed their policy about talking with
25 the witness?

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1 MR. AYERS: On redirect?

2 MR. FLEMING: Yes.

3 MR. AYERS: Okay. Well, you can ask
4 him whatever you want on --

5 MR. FLEMING: Are you aware that
6 you're -- you cannot coach the witness?

7 MR. AYERS: I'm not going to coach him.
8 You can -- you can ask him about whatever we discuss.

9 (RECESS.)

10 EXAMINATION

11 BY MR. AYERS:

12 Q. Doctor Holberg, I just have a few follow-up
13 questions for you.

14 Can I have you turn to the '792 patent,
15 please.

16 A. Okay.

17 Q. And, in particular, have you turn to claim
18 26 of that patent on column 14.

19 A. Okay.

20 Q. And you were asked some questions by patent
21 holder's counsel about the format/standard selection
22 circuit of claim 26?

23 A. Correct.

24 Q. And claim 28 depends from claim 26. Is that
25 right?

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1 A. Correct.

2 Q. And it further clarifies the format/standard
3 selection circuit of claim 26. Correct?

4 MR. HABER: Objection. Leading.

5 Q. (BY MR. AYERS) You may answer.

6 A. Yes, it does.

7 Q. And claim 28, in particular, recites,
8 wherein the format/standard selection circuit
9 generates the select signal by detecting carrier
10 signals, identified one of the formats of the input RF
11 signals?

12 A. Yes.

13 Q. And in your opinion, does the Zenith sync
14 detector satisfy that limitation of claim 28?

15 MR. HABER: Objection. Leading.

16 A. Yes.

17 MR. AYERS: What was your objection?

18 MR. HABER: Leading.

19 Q. (BY MR. AYERS) Could I have you turn to
20 Zenith, which is -- Exhibit 1015. Oh, no, I'm sorry.
21 Exhibit --

22 A. 1011.

23 Q. Yes. Thank you.

24 Do you have that?

25 A. Yeah, I do.

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1 Q. And, in particular, Figure 2 of Zenith?

2 A. I've got it.

3 Q. You've got that? And you were asked some
4 questions about this figure earlier in your
5 deposition. Do you recall that?

6 A. I do.

7 Q. Okay. And I don't want to put words in your
8 mouth, but it seemed like there was some -- some
9 questions around whether or not the sync detector in
10 20 detects -- generates the select signal by detecting
11 carrier signals. Do you recall that?

12 MR. HABER: Objection. Leading.

13 A. I do.

14 Q. (BY MR. AYERS) And is it your opinion that
15 the sync detector 20 of Zenith generates a select
16 signal by detecting carrier signals, identified one of
17 the formats of the input RF signal?

18 A. I do.

19 MR. HABER: Objection. Leading.

20 Q. (BY MR. AYERS) And I think that the
21 implication, at least from the question as I
22 understood it, was that the output of the analog
23 demodulator 16 of Zenith doesn't contain a carrier
24 signal because the transmission modulation has been
25 removed. Okay? Do you -- if that was the

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1 implication, do you agree with that?

2 MR. HABER: Objection.

3 Q. (BY MR. AYERS) That a signal that has had
4 the transmission modulation removed by an analog
5 demodulator doesn't contain carrier signals?

6 MR. HABER: Objection. Leading.
7 Compound.

8 A. I think it's somewhere in one of these.

9 Q. (BY MR. AYERS) And what are you referring
10 to?

11 A. That talks about that particular function in
12 the -- either the '792 or '585.

13 Q. Let me have you turn to column five of the
14 '585 patent. See if this is what you're referring to.

15 A. Okay.

16 Q. Could I have you read the sentence starting
17 at line 12, beginning, In the present embodiment?

18 A. Yeah. In the present embodiment, auto
19 detection is implemented by detecting in the baseband
20 signals the presence or absence of carrier signals,
21 which uniquely identify the television standards.

22 So in this sense, carrier signals
23 take -- is talking about carrying the sync signals,
24 the -- the video signals. It's not referring to
25 transmission carrier.

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1 Q. Okay. And let me have you turn to Figure 2
2 of the '585 patent. Do you -- is there a standard
3 selection circuit shown in Figure 2 of the '585
4 patent?

5 A. Yeah, it's block 68.

6 Q. And where is that standard selection circuit
7 relative to the demodulators 66 in Figure 2?

8 A. It comes out of the -- the demodulator
9 provide an output that goes into the standard
10 selection circuit.

11 Q. So is the standard selection circuit
12 downstream of the demodulators?

13 MR. HABER: Objection. Leading.

14 A. Yes. Essentially.

15 Q. (BY MR. AYERS) And does that standard
16 selection circuit generate the standard selection
17 signal using the baseband signals that have had the
18 transmission modulation removed?

19 MR. HABER: Objection. Leading.

20 A. Yes.

21 Q. (BY MR. AYERS) And did that figure in the
22 corresponding description in column five help inform
23 your opinion that the sync detector 20 of Zenith
24 satisfies the limitation of claim 28 of the '792
25 patent?

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1 A. Yes.

2 Q. Let me ask you one other question about
3 Zenith.

4 You were asked some questions about
5 whether Zenith describes a signal processor. Could I
6 have you take a look at the microprocessor 22 in
7 Zenith.

8 A. Okay.

9 Q. And in your opinion, does -- would that
10 microprocessor satisfy the board's construction of a
11 signal processor?

12 MR. HABER: Objection. Leading.

13 A. Again, let me refer back to the board's
14 construction.

15 It's a digital module that process
16 signals in the digital domain, and that's what a
17 microprocessor does.

18 MR. AYERS: Thank you. I have no
19 further questions.

20 Well, actually I do have one more.

21 Q. (BY MR. AYERS) During the break, did I in
22 any way suggest the answers to you for the questions
23 that I've just posed to you?

24 A. No.

25 MR. AYERS: Thank you.

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1 MR. HABER: I do have just a few
2 follow-up questions.

3 FURTHER EXAMINATION

4 BY MR. HABER:

5 Q. When we went on break after your cross
6 examination, we broke for about ten minutes. Did you
7 speak with counsel regarding the testimony you have
8 given?

9 A. Do what now?

10 Q. Did you speak with counsel --

11 A. When? Just now?

12 Q. When we went on break after your cross
13 examination period ended, we were on break for about
14 ten minutes.

15 A. When we left the room and then came back?

16 Q. Yes.

17 A. No, he didn't talk about my -- what he
18 talked about was the questions that he was going to
19 ask me.

20 Q. So you spoke with counsel about the
21 questions that he was going to ask you?

22 A. Correct.

23 Q. He told you in advance the questions that he
24 would ask you?

25 A. Yeah, he told me the questions.

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1 Q. Did you identify specific answers that you
2 were going to give to those questions?

3 A. No, I did not.

4 Q. Can you tell me everything that you spoke
5 about when you were on break?

6 A. That was it. What you just said.

7 Q. And how long would you say you spoke
8 regarding the questions that counsel was going to ask
9 you for redirect?

10 A. Oh, well, the ten minutes. And he was off
11 trying to get the printer to work and I was in the
12 restroom, so we were only talking for four minutes --
13 three -- three or four minutes.

14 Q. And all of the questions that he said he was
15 going to ask you, did he end up asking you those
16 questions?

17 A. No.

18 Q. What other questions did he say he was going
19 to ask you --

20 A. I don't remember. But I said, you don't
21 need to ask that question.

22 Q. Why not?

23 A. Because I think my -- it was clear -- that
24 part of my testimony was clear and didn't need
25 clarification.

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1 Q. So you -- in determining the questions that
2 you were going to be asked, counsel asked which
3 questions you thought would be appropriate?

4 A. No, he did not. He said, I'm -- here is the
5 questions I'm going to ask. And I said, you don't
6 need to ask that question. I don't need to answer
7 that question.

8 Q. So there were certain questions that he
9 wanted to ask you that you told him not to ask you?

10 A. I said I wasn't going to answer those
11 questions.

12 MR. HABER: I have no further questions
13 at this time.

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CHANGES AND CORRECTIONS

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PAGE/LINE	CHANGE	REASON CODE
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SIGNATURE

I, DOUGLAS HOLBERG, Ph.D., have read the foregoing deposition and hereby affix my signature that same is true and correct, except as noted above.

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

SILICON LABORATORIES,
INC.,

Petitioner,

VS.

CRESTA TECHNOLOGY
CORPORATION,

Patent Owner.

CASE IPR2015-00615
Patent 7,075,585

CASE IPR2015-00626
Patent 7,265,792

REPORTER'S CERTIFICATION
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DOUGLAS HOLBERG, Ph.D.
VOLUME 1
November 4, 2015

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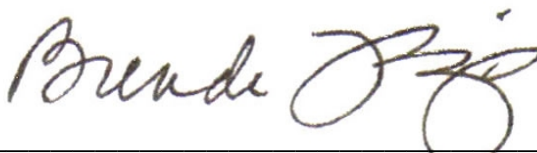
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