

1 UNITED STATES PATENT AND TRADEMARK OFFICE
2 BEFORE THE PATENT TRIAL AND APPEALS BOARD
3
4 SILICON LABORATORIES, INC.,)
5)
6 Petitioner,)
7) Case No.
8 vs.) IPR2015-00615
9) IPR2015-00626
10 CRESTA TECHNOLOGY CORPORATION,) Pages 1 to 163
11)
12 Patent Owner.)
13)
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16
17 DEPOSITION OF ION E. OPRIS, Ph.D.
18 TAKEN ON
19 WEDNESDAY, JANUARY 13, 2016
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22
23
24 Reported by: PHILIP D. NORRIS
25 CSR NO. 4980

1	I N D E X	
2		
3	WITNESS	EXAMINATION
4	ION E. OPRIS, Ph.D.	PAGE
5	(By Mr. Ayers)	4, 161
6	(By Mr. Haber)	150
7		
8	No Exhibits Entered	
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1 LOS ANGELES, CALIFORNIA; WEDNESDAY, JANUARY 13, 2016

2 9:00 A.M.

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4

5 ION E. OPRIS, Ph.D.,

6 having been first duly sworn, was

7 examined and testified as follows:

8

9 EXAMINATION

10

11 BY MR. AYERS:

12 Q. Good morning, Dr. Opris.

13 A. Good morning.

14 Q. As you know, my name's Peter Ayers. I

15 represent Silicon Labs in this matter.

16 Can you state your full name for the record?

17 A. First name is I-o-n, middle name is Elinor,

18 E-l-i-n-o-r, last name is Opris, O-p-r-i-s.

19 Q. And you've been retained by Cresta Tech to

20 render certain opinions in this matter we're here today

21 to discuss; is that right?

22 A. That's correct.

23 Q. And before we get into the substance of your

24 opinions, I see that you brought with you today a

25 notebook.

1 A. Correct.

2 Q. And what is contained within that notebook?

3 A. The notebook contains matters related to my
4 declaration for the '585 patent and the '792 patent.

5 Q. Would you mind if I look at that for a moment?

6 A. Absolutely.

7 Q. Very orderly notebook. Did you make this up?

8 A. No.

9 Q. It was provided to you by Cresta Tech's
10 counsel?

11 A. Correct.

12 Q. Thank you.

13 What did you do in preparation for your
14 deposition here today?

15 A. I reviewed the material, basically, in this
16 binder, my declaration and the patents that are referred
17 in my declaration.

18 Q. Okay. And did you meet with Cresta Tech's
19 counsel?

20 A. Yes.

21 Q. And when did you meet with them?

22 A. Yesterday and also a few days ago.

23 Q. And in total how much time did you spend with
24 them preparing for your deposition?

25 A. You referring how much time I spent with the

1 counsel?

2 Q. Yes.

3 A. Ten hours.

4 Q. Over the course of those two days?

5 A. Yes.

6 Q. Did you do anything else in preparation for
7 your deposition?

8 A. Yes.

9 Q. And that's to study the materials that you
10 mentioned?

11 A. That's correct.

12 Q. Okay. And in total, do you have an idea about
13 how much time you've billed Cresta Tech to this matter?

14 A. I don't have an exact figure.

15 Q. Would it be over a hundred thousand dollars?

16 A. No.

17 Q. Would it be over \$10,000?

18 A. Yes.

19 Q. Okay. And remind me, what is your billing
20 arrangement with Cresta Tech in these matters?

21 A. It's an hourly billing. My regular rate
22 consulting.

23 Q. Which is what?

24 A. \$250. \$250 an hour.

25 Q. Okay. All right. I've handed you a notebook

1 which has some of the exhibits, many of which are
2 contained in your own notebook, that we'll be referring
3 to throughout the day.

4 I also have a copy for you, counselor. Tried
5 to put them in an orderly fashion; not as well organized
6 as the job that your counsel did, but many of the same
7 exhibits are in there, so I'll be referring to those
8 throughout this deposition.

9 As you'll see, there are two sections to it, an
10 A section and a B section. The A are exhibits related
11 to IPR 2015-00615, which relates to the '585 patent. Do
12 you know what I mean by '585 patent?

13 A. Yes.

14 Q. Okay. And then there's a second tab, tab B,
15 that has some additional exhibits that relate to IPR
16 2015-00626 relating to the '792 patent; do you see that?

17 A. Yes.

18 Q. So when I refer to B1 you'll understand it's
19 the first -- the one tab in the --

20 Did I say A or B? I'm sorry?

21 THE REPORTER: You said B.

22 MR. AYERS: In the B section. Okay. Great.

23 THE WITNESS: That's correct.

24 BY MR. AYERS:

25 Q. So if I can have you turn to B14. Excuse me,

1 A14. Do you see there a copy of Cresta Exhibit 2032,
2 Declaration of Ion E. Opris, Ph.D.?

3 A. Yes.

4 Q. And that's a copy of the declaration that you
5 submitted in the 615 case?

6 A. Without review of the material, I'm not sure,
7 but I'll have to take your word for it.

8 Q. Did you write the declaration, Exhibit 2032?

9 A. I wrote a declaration, Exhibit 2032. I'm not
10 sure what I have before me is the same declaration or
11 not.

12 Q. Okay. Well, that's -- I'll ask you, then, to
13 confirm that. Would you please review that?

14 A. Yes, that seems to be my declaration.

15 Q. Okay. So if I can have you turn to page 1 of
16 your declaration. In paragraph 1 you say you've been
17 retained by Cresta Technology for this inter partes
18 review proceeding; correct?

19 A. Correct.

20 Q. Have you been retained by Cresta Tech in any
21 other matter?

22 A. Yes.

23 Q. And what are those matters?

24 A. More than a year ago there were three other
25 IPRs that I've been retained by Cresta Tech and also

1 been retained by Cresta Tech for this proceeding, which
2 contains two IPRs, and another proceeding for another
3 IPR.

4 Q. And which other proceeding is that?

5 A. I don't have the exact case number with me.

6 Q. Okay. Is that the one involving MaxLinear?

7 A. Yes.

8 Q. Okay. Have you done any other consulting
9 projects that are not related to litigation?

10 MR. HABER: Objection. Scope.

11 BY MR. AYERS:

12 Q. For Cresta Technology. I'm sorry.

13 A. I did a project for Cresta Tech many years ago.

14 Q. But currently you're not doing any other
15 non-litigation related projects for Cresta Tech?

16 A. No.

17 Q. And how are you paid by Cresta Tech?

18 A. I'm paid based on monthly invoices.

19 Q. Okay. And who is the payor on -- I mean, do
20 you receive it by check?

21 A. By check.

22 Q. Okay. And is it under -- the payor's Cresta
23 Technology?

24 A. That's correct.

25 Q. Have you turn to paragraph 27 of your

1 declaration. This is in Section V, Relevant Legal
2 Standards; correct?

3 A. I see that.

4 Q. Yeah. And you say you're not a lawyer. Were
5 these legal standards provided to you by a lawyer?

6 MR. HABER: Objection to the extent that calls
7 for privileged communication. I'll instruct you not to
8 answer. You can answer to the extent that you don't
9 reveal privileged communications.

10 MR. AYERS: Well, I guess this witness is --
11 your communications with this witness are not
12 privileged, so --

13 MR. HABER: I disagree.

14 MR. AYERS: -- you can answer.

15 MR. HABER: I disagree and I would instruct you
16 not to reveal privileged communications.

17 BY MR. AYERS:

18 Q. You can't answer that question without
19 revealing privileged information?

20 A. I don't think I can answer that question
21 without revealing privileged information.

22 Q. So who -- are you represented here today?

23 A. Excuse me?

24 Q. Are you represented here today?

25 A. I'm represented?

1 Q. Yes.

2 A. What do you mean? I don't understand your
3 question.

4 Q. Are you, you as an individual, are you
5 represented by a lawyer in this case?

6 A. No.

7 MR. AYERS: So you maintain your objection that
8 your communications with this witness are privileged?

9 MR. HABER: We are. Not to contradict the
10 witness, we are representing the witness for purposes of
11 this deposition today.

12 BY MR. AYERS:

13 Q. Let me ask you this: Did your -- was your
14 understanding of the relevant legal standards informed
15 by your communications with Cresta Tech's lawyers?

16 A. Yes.

17 Q. And does your report/declaration reflect your
18 understanding of the law as it was revealed to you by
19 the lawyers?

20 A. Yes.

21 Q. Okay. And in paragraph 27 you state that you
22 understand that "the terms of the claims in the '585
23 patent are to be given their broadest reasonable
24 interpretation in light of the specification of the '585
25 patent as understood by one of ordinary skill in the art

1 as of the earliest possible priority date of the '585
2 patent"; correct?

3 A. That's correct.

4 Q. And that was based on instructions that you
5 were given by Cresta Tech's counsel; true?

6 A. That's correct.

7 Q. Okay. And did you apply the broadest
8 reasonable construction to all of the terms of the '585
9 patent in forming your opinions in this case?

10 A. I did.

11 Q. Okay. So let's turn to paragraph 73. Before
12 we turn to that, let me see. If I can have you turn
13 to -- back to page 1, and there's a section there
14 entitled "Resources Consulted."

15 A. I see that section.

16 Q. And are these the resources, that are listed in
17 Section 2, that you considered in forming your opinions
18 that are reflected in this declaration?

19 A. Yes.

20 Q. Anything that you consulted and relied upon
21 that's not listed in this section?

22 MR. HABER: Objection. Form.

23 THE WITNESS: No.

24 BY MR. AYERS:

25 Q. Okay. Now let's turn to paragraph 73 in your

1 declaration.

2 A. Okay.

3 Q. And it's a section, subsection E, titled "A
4 Select Signal Indicative of a Format of Said Input RF
5 Signal"; correct?

6 A. That's correct.

7 Q. And in paragraph 73 through 75 you provide your
8 opinion on what that phrase means; true?

9 A. That's correct.

10 Q. And is it your testimony here today that --
11 that your definition reflects the broadest reasonable
12 construction of that phrase in light of the
13 specification to a person skilled in the art?

14 A. Yes.

15 Q. And is it your opinion that this term should be
16 construed consistently in both the '585 patent and the
17 '792 patent?

18 A. Yes.

19 Q. Let's look at the '585 patent, which is A1. So
20 that phrase "a select signal indicative of a format of
21 said RF signal" is contained in claim 13 of the '585
22 patent; is that right?

23 A. That is correct.

24 Q. And this select signal is generated by a
25 standard selection circuit, according to claim 13?

1 MR. HABER: Objection. Form.

2 THE WITNESS: Yes.

3 BY MR. AYERS:

4 Q. And it's also true that the signal processor
5 selects a finite impulse response filter in response to
6 said select signal, according to claim 13?

7 MR. HABER: Objection. Form.

8 THE WITNESS: That is correct.

9 BY MR. AYERS:

10 Q. Could I have you turn to Figure 2 of the '585
11 patent? Are you there?

12 A. Yes.

13 Q. Okay. So this standard selection circuit
14 that's referred to in claim 13 is shown as block 68 in
15 Figure 2; is that correct?

16 MR. HABER: Objection. Form.

17 THE WITNESS: That's correct.

18 BY MR. AYERS:

19 Q. Okay. And the select signal that it generates
20 is shown as the signal line that's connected between
21 standard selection circuit 68 and DSP 64; correct?

22 MR. HABER: Objection. Form.

23 THE WITNESS: That's correct.

24 BY MR. AYERS:

25 Q. In response to that signal, the DSP retrieves a

1 set of filter coefficients from memory 70; correct?

2 MR. HABER: Objection. Form.

3 THE WITNESS: Yes.

4 BY MR. AYERS:

5 Q. Okay. And that memory could contain a
6 plurality of sets of filter coefficients; true?

7 A. Yes.

8 Q. Okay. And it selects -- the DSP selects the
9 one that corresponds to the state of the select signal;
10 correct?

11 MR. HABER: Objection. Form.

12 THE WITNESS: Correct.

13 BY MR. AYERS:

14 Q. Now, at paragraph 73, again referring back to
15 your declaration, you say that "the broadest reasonable
16 interpretation of this term," "a select signal
17 indicative of a format of said input RF signal" is,
18 quote, "a signal that performs a selection and that
19 comprises information about the format of said input RF
20 signal"; correct?

21 A. That's correct.

22 Q. And you cite, it appears, to two portions of
23 the specification of the '585 in support of that
24 construction; is that right?

25 MR. HABER: Objection. Form.

1 THE WITNESS: I didn't understand your
2 question.

3 BY MR. AYERS:

4 Q. In looking at paragraph 74, you cite to two
5 portions of the '585 specification to support your
6 opinion; correct?

7 A. That's correct.

8 Q. The first column 5, lines 8 and 9, and the
9 second column 5, lines 12 through 14; correct?

10 A. That's correct.

11 Q. In the first section you say -- and it's your
12 opinion that these portions support your opinion that
13 this is -- yours is the correct interpretation of this
14 phrase?

15 MR. HABER: Objection. Form.

16 THE WITNESS: Yes.

17 BY MR. AYERS:

18 Q. Okay. So let's look at those, the first column
19 5, line 8 through 9. Are you there?

20 A. Yes.

21 Q. Okay. It says -- first of all, starting at
22 line 7, "the standard selection circuit 68 can be
23 implemented in one of many ways"; correct?

24 A. Yes.

25 Q. And the last sentence, beginning at line 20 of

1 that paragraph, it says:

2 "In other embodiments other's means for
3 selecting between the different standards can be
4 used."

5 Correct?

6 A. Correct.

7 Q. So would you agree with me that paragraph --
8 this paragraph in column 5 does not describe the only
9 ways in which the standard selection circuit can be
10 implemented to a person of ordinary skill in the art?

11 MR. HABER: Objection. Form.

12 THE WITNESS: That's correct.

13 BY MR. AYERS:

14 Q. So they provide some examples but they're not
15 meant to be exclusive; correct?

16 MR. HABER: Objection. Form.

17 THE WITNESS: Correct.

18 BY MR. AYERS:

19 Q. But you would agree that it describes two
20 different embodiments, if you will, of the standard
21 selection circuit; correct?

22 MR. HABER: Objection. Form.

23 THE WITNESS: Yes, this paragraph.

24 MR. AYERS: Yes.

25 Q. The first is where the user selects the

1 standard; correct?

2 A. That's correct.

3 Q. And you say that that's described at lines 8
4 and 9; is that right?

5 A. Correct.

6 Q. And that says:

7 "The selection of the correct standard can be
8 made manually by the user of the television system,
9 such as by activating a switch."

10 Correct?

11 A. That's correct.

12 Q. And that's what you refer to or sometimes is
13 referred to as a manual selection; correct?

14 A. Correct.

15 Q. That's not actually shown in any of the
16 drawings, is it?

17 A. No.

18 Q. Okay. So a person of ordinary skill in the art
19 would understand, in your opinion, how to implement that
20 circuit based on that one sentence description?

21 MR. HABER: Objection. Form.

22 THE WITNESS: Yes.

23 BY MR. AYERS:

24 Q. Okay. And you go -- you go on to say:

25 "Clearly, when doing so, when the user selects

1 the standard, the select signal that the standard
2 selection circuit generates comprises information
3 about the standard."

4 True?

5 A. Yes.

6 Q. Now, that -- you're not quoting from the '585
7 patent specification there, are you?

8 MR. HABER: Objection. Form.

9 THE WITNESS: When I'm quoting what?

10 BY MR. AYERS:

11 Q. In paragraph 74, when you say: "Clearly, when
12 doing so the select signal that the standard selection
13 circuit generates comprises information about the
14 standard," that's not from the specification, is it?

15 MR. HABER: Objection. Form.

16 THE WITNESS: Yes, it does.

17 BY MR. AYERS:

18 Q. And where does it say that?

19 A. Because in claim 13, for example, the selection
20 circuit does more than identifying the standard for the
21 format. Also selects a certain finite impulse response
22 filter in response to that select signal. So that means
23 that signal already has information about what filter to
24 select.

25 Q. Well, isn't it true that in claim 13 that it's

1 the signal processor that selects a finite response,
2 impulse response filter, in response to said select
3 signal?

4 A. Yes, that's correct.

5 Q. And so what information are you referring to
6 that's contained in the select signal that's described
7 in the specification?

8 MR. HABER: Objection. Form.

9 THE WITNESS: So the information is about the
10 format or the standard, because that is a standard
11 selection circuit. The information can say, for
12 example, what standard I'm trying to receive. For
13 example, analog FM or analog AM.

14 BY MR. AYERS:

15 Q. And so that select signal could be a -- could
16 indicate in one state that it's a analog format and in
17 another state it could represent a digital format; is
18 that correct?

19 MR. HABER: Objection. Form.

20 THE WITNESS: No.

21 BY MR. AYERS:

22 Q. Why not?

23 A. Because the signal doesn't have only two
24 states. It is not a single signal. By signal we mean a
25 signal that has information about multiple standards and

1 multiple formats.

2 Q. Let's look back at claim -- so claim 13 --
3 well, you'd agree with me that a plurality can be only
4 two; correct?

5 MR. HABER: Objection. Form.

6 THE WITNESS: Yes.

7 BY MR. AYERS:

8 Q. Okay. And so when -- when claim 1 refers to
9 "said input RF signals encoding information in one of a
10 plurality of formats," that includes one of two formats;
11 correct?

12 MR. HABER: Objection. Form.

13 THE WITNESS: It may include one of the formats
14 or more formats.

15 MR. AYERS: Right.

16 Q. But it may only include two formats; correct?

17 MR. HABER: Objection. Form.

18 THE WITNESS: What format are you referring to?

19 BY MR. AYERS:

20 Q. A plurality of formats in claim 1.

21 A. Yes. But the plurality of formats could be,
22 for example, two analog formats, analog FM format and
23 analog AM format.

24 Q. Okay.

25 A. So by --

1 Q. So let's -- so an analog AM format and an
2 analog FM format?

3 A. Correct.

4 Q. Okay. Let's assume that this -- the television
5 receiver of claim 1 only receives those two formats.
6 Okay? So would you agree with me that the select signal
7 would only have two states or would only need two states
8 in that instance to represent those two formats?

9 MR. HABER: Objection. Form.

10 THE WITNESS: Not unless we have the
11 information, but what formats are we going to receive?
12 There are dozens of analog formats and dozens of
13 different formats, so unless you have the information
14 about the format, a single bit is not indicative of
15 format.

16 BY MR. AYERS:

17 Q. Okay. So in your opinion, how many bits does
18 this select signal need to be?

19 MR. HABER: Objection. Form.

20 THE WITNESS: Depends on the quantity of
21 information needed for the DSP.

22 BY MR. AYERS:

23 Q. Okay. And in the '585 how many bits would that
24 be?

25 MR. HABER: Objection. Form.

1 THE WITNESS: That information is not disclosed
2 in the '585 patent.

3 BY MR. AYERS:

4 Q. So in this, in this manual selection mode
5 that's described in claim -- or in column 5, you would
6 agree with me, wouldn't you, that the actual signal
7 received by the television receiver may or may not
8 actually correspond with that selection; true?

9 MR. HABER: Objection. Form.

10 THE WITNESS: I don't understand your question.

11 BY MR. AYERS:

12 Q. Okay. Let's assume, for example, that you
13 select the analog FM mode/format that you describe.
14 Okay?

15 A. Okay.

16 Q. So the user select -- you know, set the switch
17 to the analog FM format.

18 A. Okay.

19 Q. That doesn't guarantee that that signal is
20 actually received by the television receiver, does it?

21 MR. HABER: Objection. Form.

22 THE WITNESS: It doesn't.

23 BY MR. AYERS:

24 Q. Okay. Now, in -- further in column 5 there's a
25 second mode or embodiment of the standard selection

1 circuit 68 that's described; true?

2 MR. HABER: Objection. Form.

3 THE WITNESS: That's correct.

4 BY MR. AYERS:

5 Q. And that's referred to as the auto detection
6 capability?

7 A. That's correct.

8 Q. And that's described beginning at line 10;
9 correct?

10 MR. HABER: Objection. Form.

11 THE WITNESS: No. I think it's described in --
12 starting line 13, 14.

13 MR. AYERS: Okay.

14 Q. "In the present embodiment," is that what
15 you're referring to?

16 A. Yes.

17 Q. And that says that:

18 "In the present embodiment, auto detection is
19 implemented by detecting in the baseband signals the
20 presence or absence of carrier signals which
21 uniquely identify the television standard."

22 Correct?

23 A. That's correct.

24 Q. But that circuit, that embodiment of that
25 circuit, is not explicitly shown in the '585 patent;

1 correct?

2 MR. HABER: Objection. Form.

3 THE WITNESS: Is not described in detail, no.

4 MR. AYERS: Okay.

5 Q. And that's because, in your opinion, or is it
6 your opinion that a person of ordinary skill in the art
7 would know how to implement that based on that one
8 sentence description there?

9 MR. HABER: Objection. Form.

10 THE WITNESS: Yes.

11 MR. AYERS: Okay.

12 Q. And so this auto detection capability can
13 detect in the baseband signals either the presence or
14 the absence of carrier signals; correct?

15 MR. HABER: Objection. Form.

16 THE WITNESS: Yes.

17 BY MR. AYERS:

18 Q. So it can detect whether certain carrier
19 signals are present in the baseband signals or not
20 present in the baseband signals; true?

21 MR. HABER: Objection. Form.

22 THE WITNESS: The carrier is not in the
23 baseband signal, is detected by the demodulators that
24 generates the baseband signals. So by reading the
25 specification of '585 and by looking at Figure 2, it is

1 clear that the standard selection circuit receives a
2 signal from the demodulators.

3 MR. AYERS: We'll get into that later. Just
4 referring to what this passage says.

5 Q. You would agree with me that the statement in
6 column 5, beginning in line, looks like, 12, says:
7 "Auto detection is implemented by detecting in the
8 baseband signals the presence or absence of carrier
9 signals"; correct?

10 MR. HABER: Objection. Form.

11 Please allow the witness to finish his answer
12 before moving to the next question.

13 THE WITNESS: Can you repeat the question,
14 please?

15 MR. AYERS: Sure. And I didn't mean to
16 interrupt you.

17 Q. Were you finished with your previous answer?

18 A. Yes.

19 Q. Okay. You would agree with me that the
20 sentence in column 5, that you rely on in paragraph 74
21 for your construction, states that "auto detection is
22 implemented by detecting in the baseband signals the
23 presence or absence of carrier signals"; correct?

24 MR. HABER: Objection. Form.

25 THE WITNESS: What I rely on in paragraph 64 is

1 basically my reading of the '585 patent, the section
2 that you just said, and the Figure 2. And indeed the
3 auto detect -- auto detect circuit works by detecting
4 the presence or absence of carrier signals.

5 MR. AYERS: Right.

6 Q. And it's described in column 5 as, quote, "auto
7 detection is implemented by detecting in the baseband
8 signals the presence or absence of carrier signals";
9 correct?

10 MR. HABER: Objection. Form.

11 THE WITNESS: That's what the reading of the
12 wording in column 5 is. And, again, my understanding,
13 and any person will understand the same, then the auto
14 detection circuit works by detection (sic) the carrier
15 signals that are uniquely identifying the television
16 standard.

17 MR. AYERS: Right.

18 Q. And in column 5 that's described as "the auto
19 detection is implemented by detecting in the baseband
20 signals the presence or absence of carrier signals which
21 uniquely identify the television standards"; correct?

22 MR. HABER: Objection. Form.

23 THE WITNESS: I think I already answer your
24 question.

25 MR. AYERS: Well, I'd like a yes or no answer.

1 I don't think you have answered it.

2 Q. Am I correct that in column 5, beginning at
3 line 12, the '585 patent says "auto detection is
4 implemented by detecting in the baseband signals the
5 presence or absence of carrier signals which uniquely
6 identify the television standards"?

7 MR. HABER: Objection. Argumentative, form.

8 THE WITNESS: That's what the patent '585 says
9 in Section 5, and what it means is that is auto
10 detection -- auto detect the television standard by
11 detecting the presence or absence of carrier signals
12 which uniquely identify that particular standard.

13 MR. AYERS: Okay. I'm going to object and move
14 to strike as nonresponsive.

15 MR. HABER: I obviously disagree. You've asked
16 the question three times and he's answered it three
17 times.

18 BY MR. AYERS:

19 Q. Now, you would agree with me, wouldn't you,
20 that specification other than -- strike that.

21 You would agree with me that the only time that
22 the term "select signal" is used in the '585 patent is
23 in the claims; true?

24 MR. HABER: Objection. Form.

25 THE WITNESS: Can you repeat that question?

1 MR. AYERS: Yeah.

2 Q. Were you aware that the only time that the term
3 "select signal" is used in the '585 patent is in the
4 claims of the patent?

5 MR. HABER: Objection. Form.

6 THE WITNESS: I am not sure.

7 MR. AYERS: Okay.

8 Q. Did you look for the term "select signal" in
9 the patent in forming your opinions about what it means
10 in this case?

11 A. Yes.

12 Q. Did you look in the specification for that
13 term?

14 A. Maybe I did. I don't remember right now.

15 Q. Okay. Well, would you agree with me that the
16 term "select signal" doesn't appear at all in the
17 paragraph in column 5 that you're relying on for your
18 opinion about what that term means?

19 MR. HABER: Objection. Form.

20 THE WITNESS: Yes, the term "select signal"
21 does not appear in that paragraph in Section 5.

22 MR. AYERS: Okay.

23 Q. And are you aware whether it appears anywhere
24 else in the specification?

25 A. I am not aware that it appears somewhere else.

1 Q. Okay. Let me have you turn to column 4 of the
2 '585 patent. The standard selection circuit is also
3 referred to in the paragraph beginning at line 55;
4 correct?

5 MR. HABER: Objection. Form.

6 THE WITNESS: That's correct.

7 BY MR. AYERS:

8 Q. And can you confirm for me that the term
9 "select signal" does not appear in that paragraph
10 either?

11 A. The term "select signal" does not appear in
12 this paragraph.

13 Q. Okay. Beginning at line 58, in column 4 it
14 says:

15 "DSP 64 applies the appropriate filter
16 function, such as an impulse response, to the
17 digital signals depending on the state of standard
18 selection circuit 68."

19 Correct?

20 A. That's correct.

21 Q. And would you agree with me that a person of
22 ordinary skill in the art would interpret that statement
23 to mean that the DSP 64 applies to the appropriate
24 filter function depending on the state of the signal
25 received from the standard selection circuit 68?

1 MR. HABER: Objection. Form.

2 THE WITNESS: That's correct.

3 BY MR. AYERS:

4 Q. And you would agree with me that a single bit
5 can represent two states; correct?

6 A. Yes.

7 Q. Okay.

8 MR. HABER: Objection. Form.

9 BY MR. AYERS:

10 Q. A zero could represent one state; correct?

11 A. Yes.

12 Q. And a one could represent another state?

13 A. Yes.

14 Q. So if we had two television formats, analog and
15 digital, a zero could represent the analog format and a
16 one could represent the digital format; true?

17 MR. HABER: Objection. Form.

18 THE WITNESS: There are many analog formats and
19 there are many digital formats, so I'm not sure what
20 exactly do you mean by one analog format and one digital
21 format. Which one are you referring to?

22 BY MR. AYERS:

23 Q. So in your opinion, the select signal has to
24 represent all possible formats?

25 MR. HABER: Objection. Form.

1 THE WITNESS: No. But it has to have
2 information about which format it represents.

3 MR. AYERS: I guess I'm not following you.

4 Q. If there were only two formats, analog and
5 digital, and we had a single bit, one state which
6 represented one format and another state that
7 represented the other format, wouldn't that contain
8 information about the state of the -- of the format of
9 the television signal?

10 MR. HABER: Objection. Form.

11 THE WITNESS: Seems to be referring to a system
12 with only two formats. There are multiple formats.
13 That's why we need information about which exact format.
14 You can have exactly two formats in the receiver, but
15 you have to know which two are you referring to.

16 BY MR. AYERS:

17 Q. And where do you see that described in the '585
18 patent?

19 A. I infer that from the fact that based on the
20 state of the selection signal, which is not a binary
21 state, never in this '585 description describes the
22 state as a binary state, the fact that it selects a
23 particular filter. So the fact that the filter is
24 selected based on a particular state, that means I have
25 to have information about which filter to select.

1 Q. So where -- so you'd agree with me that this is
2 not contained in the '585 patent?

3 MR. HABER: Objection. Form.

4 THE WITNESS: Yes, it is.

5 BY MR. AYERS:

6 Q. And can you point me to where you're referring
7 to?

8 A. Yes.

9 Q. Okay.

10 A. The fact that the DSP applies the appropriate
11 filter function depending on the state of standard
12 selection circuit.

13 Q. Okay. And you would agree with me that it
14 doesn't say how many states, does it?

15 A. It doesn't.

16 Q. Okay. Did you rely on a dictionary definition
17 of "indicative" in forming your opinion about what this
18 term "select signal" means?

19 MR. HABER: Objection. Form.

20 THE WITNESS: No.

21 BY MR. AYERS:

22 Q. Did you consult or consider a dictionary
23 definition in forming your opinion?

24 A. No.

25 Q. Have you turn to paragraph 83 of your

1 declaration, and this again relates to your opinion
2 relating to claim 13; is that right?

3 A. That's correct.

4 Q. And let me have you turn to Zenith, which is
5 tab 7. Are you there?

6 A. Yes.

7 Q. Okay. So Zenith obviously describes a
8 television circuit --

9 MR. HABER: Object to form.

10 BY MR. AYERS:

11 Q. -- is that right?

12 A. Zenith describes a tuner with switch analog and
13 digital modulators that relate to television circuits.

14 Q. Right. And would you agree with me that Zenith
15 relates specifically to television receivers that are
16 capable of receiving both analog and digital signals?

17 MR. HABER: Objection. Form.

18 THE WITNESS: I think it relates to a
19 television receiver that is capable of receiving either
20 analog or digital signals.

21 Q. And would that include both?

22 MR. HABER: Objection. Form.

23 THE WITNESS: Both but not at the same time.

24 BY MR. AYERS:

25 Q. I'm referring to column 1, lines 9 and 10.

1 You'd agree it says that "this invention relates to
2 television receivers that are capable of receiving both
3 analog and digital signals"?

4 A. Yes.

5 Q. Okay.

6 MR. HABER: Objection. Form, mischaracterizes
7 the document.

8 BY MR. AYERS:

9 Q. And you understand that "analog and digital
10 signals" refer to two different television formats?

11 A. Yes.

12 Q. Okay. And you'd further agree with me that the
13 principal object of the Zenith invention is to provide
14 an improved, low cost method of processing digital and
15 analog television signals using a single tuner?

16 MR. HABER: Objection. Form.

17 THE WITNESS: Yes.

18 BY MR. AYERS:

19 Q. And Figures 1 through 3 show three different
20 embodiments of the Zenith invention; is that right?

21 MR. HABER: Objection. Form.

22 THE WITNESS: I'm not sure about Figure 1,
23 because Figure 1 seems to depict two analog
24 demodulators, so is not what is claimed in the Zenith
25 patent.

1 BY MR. AYERS:

2 Q. Okay. Well, if we look at -- yeah, we can, I
3 guess, discuss that. But are you saying that these --
4 this is just for a single television format that's shown
5 in Figure 1?

6 MR. HABER: Objection. Form.

7 THE WITNESS: No. I said this is -- they both
8 seem to be for analog formats, but not for analog and
9 digital format as the patent claims.

10 MR. AYERS: Oh, I see. I got you. I
11 understand.

12 Q. In column 2, beginning at line 6, it describes
13 each of the three figures as a, quote, "partial block
14 diagram of a television receiver"; true?

15 A. Yes.

16 Q. And by that a person of ordinary skill in the
17 art would understand that there's additional circuitry
18 that would necessarily have to be included for a
19 commercial television; true?

20 MR. HABER: Objection. Form.

21 THE WITNESS: Are you referring to the term
22 "partial"?

23 MR. AYERS: Yes.

24 THE WITNESS: Yes.

25 ///

1 BY MR. AYERS:

2 Q. And each of these three embodiments include a
3 switch for switching the output of the tuner between
4 either one demodulator or another demodulator; correct?

5 A. I think the switch does more than just
6 switching the input of the demodulator.

7 Q. But it at least does that; true?

8 A. Yeah, that's correct.

9 Q. So in Figure 1 we have two analog demodulators,
10 16 and 18, and in Figures 2 and 3 we have an analog
11 demodulator and a digital demodulator?

12 A. That's correct.

13 Q. So Figure 1 includes a switch 14; correct?

14 A. That's correct.

15 Q. And how would you describe that? As a double
16 pole, single throw or --

17 MR. HABER: Objection. Form.

18 THE WITNESS: There are two switches, 14A and
19 14B. If you consider them together, it's a double pole,
20 double throw.

21 BY MR. AYERS:

22 Q. Okay. And that switch 14 is controlled by a
23 microprocessor 22; correct?

24 A. That's correct.

25 Q. And Figures 2 and 3 include a switch 42;

1 correct?

2 A. That is correct?

3 Q. And how would you describe that switch?

4 A. Single pole, double throw.

5 Q. And that switch likewise is controlled by
6 microprocessor 22; correct?

7 A. That's correct.

8 Q. And am I correct that these poles are labeled A
9 and D to refer to an analog or digital respectively?

10 MR. HABER: Objection. Form.

11 THE WITNESS: Yes.

12 BY MR. AYERS:

13 Q. And the circuits include a sync detector 20
14 that's connected to an analog demodulator; correct?

15 A. Yeah, each of the circuits in Figure 1, 2 and 3
16 have a sync detector 20.

17 Q. And that sync separator detects the presence of
18 a signal in the television signal; correct?

19 MR. HABER: Objection. Form.

20 THE WITNESS: Yes.

21 BY MR. AYERS:

22 Q. And that sync separator's connected to
23 microprocessor 22?

24 MR. HABER: Objection. Form.

25 THE WITNESS: That is correct.

1 BY MR. AYERS:

2 Q. Okay. And in column 2, line 38, it says that
3 "in the presence of a sync signal, microprocessor 22,
4 quote, "causes switch 14 to connect its pole 14A to
5 terminal A, which routes the IF signal from tuner 12 to
6 analog demodulator 16"; correct?

7 A. That's correct.

8 Q. And the embodiment shown in Figure 2 operates
9 similarly?

10 MR. HABER: Objection. Form.

11 THE WITNESS: Yes.

12 BY MR. AYERS:

13 Q. So when the sync 20 detects the sync signal, it
14 informs the microprocessor which controls the switch 42
15 in Figure 2?

16 MR. HABER: Objection. Form.

17 THE WITNESS: That's correct.

18 BY MR. AYERS:

19 Q. Column 3, beginning at line 13, it says:

20 "As in the Figure 1 embodiment, microprocessor
21 22 controls the operation of switch 42 in accordance
22 with the type of signal (analog or digital) that is
23 received."

24 Correct?

25 A. That's correct.

1 Q. So in other words, the microprocessor 22 sets
2 its output signal at one state if it detects the
3 presence of a balancing signal?

4 MR. HABER: Objection. Form.

5 BY MR. AYERS:

6 Q. True?

7 A. Yes.

8 Q. And the state of that output signal corresponds
9 to a receipt of an analog television signal?

10 MR. HABER: Objection. Form.

11 THE WITNESS: Yes.

12 BY MR. AYERS:

13 Q. And the microprocessor 22 sets the output
14 signal to a different state if it detects the absence of
15 a valid sync signal; correct?

16 MR. HABER: Objection. Form.

17 THE WITNESS: Yes.

18 BY MR. AYERS:

19 Q. And the state of that output signal corresponds
20 to receipt of a digital television signal; correct?

21 MR. HABER: Objection. Form.

22 THE WITNESS: No.

23 BY MR. AYERS:

24 Q. Would you agree with me that it infers the
25 presence of a digital signal from the absence of a valid

1 sync signal?

2 A. No.

3 MR. HABER: Objection. Form.

4 BY MR. AYERS:

5 Q. So you disagree with the statement in Zenith at
6 column 3 that "microprocessor controls the operation of
7 switch 42 in accordance with the type of signal (analog
8 or digital) that is received"?

9 MR. HABER: Objection. Form.

10 THE WITNESS: No, that's what they describe.

11 BY MR. AYERS:

12 Q. You do agree, however, that the microprocessor
13 22 output may change in response to a change in format;
14 correct?

15 MR. HABER: Objection. Form.

16 THE WITNESS: Yes.

17 BY MR. AYERS:

18 Q. So if the format of the television signal
19 changes, the output of the microprocessor 22 may change?

20 MR. HABER: Objection. Form.

21 BY MR. AYERS:

22 Q. Correct?

23 A. Yes.

24 Q. Would you agree with me that the output of the
25 microprocessor in Zenith is a control signal that is

1 indicative of the type of tuner signal?

2 MR. HABER: Objection. Form.

3 THE WITNESS: No.

4 BY MR. AYERS:

5 Q. Let me have you turn to column 5 in Zenith.

6 Did you consider the claims of the Zenith patent in
7 forming your opinions on what Zenith teaches?

8 A. Yes.

9 Q. Okay. So you understand that when claim 7
10 refers to "means for developing a control signal
11 indicative of the type of said tuner signal," it's
12 referring to the microprocessor 22?

13 MR. HABER: Objection. Form.

14 THE WITNESS: I think refers to microprocessor
15 22 and the sync detector 20.

16 MR. AYERS: Okay.

17 Q. So in your opinion, the "means for developing a
18 control signal indicative of the type of said tuner
19 signal," referred to in claim 7 of Zenith, refers to the
20 microprocessor 22 and sync detector 20?

21 MR. HABER: Objection. Form.

22 THE WITNESS: That's correct.

23 BY MR. AYERS:

24 Q. And at least according to Zenith, that circuit,
25 the microprocessor and sync detector, develops a control

1 signal indicative of the type of said tuner signal;

2 correct?

3 MR. HABER: Objection. Form.

4 THE WITNESS: Correct.

5 BY MR. AYERS:

6 Q. Okay. So I'll ask you again: Do you agree
7 with me that microprocessor 22 develops a control signal
8 indicative of the type of said tuner signal?

9 A. Yes.

10 MR. HABER: Objection. Form.

11 MR. AYERS: Very good. Thank you.

12 MR. HABER: We've been going for about an hour.
13 Do you want to take a break?

14 MR. AYERS: Let me just finish this up.

15 Q. And by "type of tuner signal," Zenith is
16 referring to whether the television signal is in either
17 analog or digital television format; true?

18 MR. HABER: Objection. Form.

19 THE WITNESS: Not necessarily. Because, for
20 example, in Figure 1 it switches between two analog
21 demodulators.

22 BY MR. AYERS:

23 Q. So you would agree with me that "type of said
24 tuner signal" refers to the format of the television
25 signal; true?

1 MR. HABER: Objection. Form.

2 THE WITNESS: No.

3 MR. AYERS: Okay. Why don't we take a break.

4 (Brief recess.)

5 MR. AYERS: Back on the record, Dr. Opris.

6 Q. During your break did you discuss your
7 testimony with counsel for Cresta Tech?

8 A. No.

9 Q. Okay. Referring to paragraph 83 of your
10 declaration, the last sentence you say:

11 "But claim 15 requires more than a mere change
12 in response to a change in format. It requires that
13 the signal be 'indicative of a format.'"

14 Correct?

15 A. I think this refers to claim 13 rather than
16 claim 15.

17 Q. Oh, okay.

18 A. I think it's a typo.

19 Q. You would agree that I read it correctly?

20 A. That's correct.

21 Q. So what do you mean by "indicative of a
22 format"?

23 MR. HABER: Objection. Form.

24 THE WITNESS: "Indicative of a format" means a
25 signal that performs a selection and also comprising

1 information about a format of an input RF signal.

2 BY MR. AYERS:

3 Q. That's your definition of that entire phrase?

4 A. Yes.

5 Q. Are you applying a special definition to the
6 term "indicative" in that construction?

7 MR. HABER: Objection. Form.

8 THE WITNESS: No.

9 BY MR. AYERS:

10 Q. It's your belief that that -- your construction
11 reflects the plain and ordinary meaning of the word
12 "indicative"?

13 A. Yes.

14 MR. HABER: Objection. Form.

15 BY MR. AYERS:

16 Q. Now, were you aware that Cresta Tech submitted
17 a dictionary definition in support of their
18 construction --

19 MR. HABER: Objection. Form.

20 BY MR. AYERS:

21 Q. -- of this phrase?

22 A. No.

23 Q. Can I have you turn to tab A15? Have you seen
24 this dictionary before today?

25 A. No.

1 Q. They didn't consult with you before they
2 submitted this declaration -- this definition?

3 MR. HABER: Objection. Form.

4 THE WITNESS: No.

5 BY MR. AYERS:

6 Q. Could I have you turn to page 2034-2? And do
7 you see "indicative"?

8 A. Yes.

9 Q. Okay. And do you agree that the plain,
10 ordinary meaning of "indicative" is "serving as a sign
11 or indication of, suggestive of"?

12 MR. HABER: Objection. Form.

13 THE WITNESS: According to this dictionary,
14 yes.

15 BY MR. AYERS:

16 Q. Okay. And further, this dictionary definition
17 defines "indication," which is used in the definition of
18 "indicative"?

19 A. Yes.

20 Q. And that is -- it's used as a noun; correct?
21 And the second definition there says "clue, evidence,
22 hint, inkling, intimation"; correct?

23 MR. HABER: Object to form.

24 THE WITNESS: For the word "indication"?

25 MR. AYERS: Yes.

1 THE WITNESS: I don't see that. I see -- okay.

2 No. 2?

3 MR. AYERS: Correct.

4 THE WITNESS: Yes, that's correct.

5 MR. AYERS: All right.

6 Q. Turning back now to your declaration, you --
7 this is on page 34 of your declaration. Top of the page
8 you say:

9 "The doctrine of claim differentiation can be
10 applied here squarely."

11 Correct?

12 A. Yes.

13 Q. And what is the doctrine of claim
14 differentiation?

15 A. My understanding of that claim differentiation
16 is that if two terms are used in the same claim or in
17 the same context, they have to mean different things.

18 Q. Okay. And what two terms are you referring to
19 with reference to the claim differentiation in this
20 paragraph?

21 A. One is "indicative of a format" and the other
22 is "in response to a format."

23 Q. Okay. Let's turn, then, to the claim language
24 where that's used. If I can have you turn to A1, the
25 '585 patent. Claim 13 you're referring to?

1 A. Yes.

2 Q. Okay. And claim 13 says that "the standard
3 selection circuit generates a select signal indicative
4 of a format of said input RF signal"; correct?

5 A. Yes.

6 Q. So the standard selection circuit is what
7 generates the select signal; correct?

8 MR. HABER: Objection. Form.

9 THE WITNESS: Yes.

10 BY MR. AYERS:

11 Q. Okay. And then it goes on to say that "said
12 signal processor selecting a finite impulse response
13 filter in response to said select signal"; correct?

14 MR. HABER: Objection. Form.

15 THE WITNESS: That's correct.

16 BY MR. AYERS:

17 Q. So the signal processor is what selects the
18 finite impulse response filter in response to the select
19 signal; true?

20 A. That's what the claim says.

21 Q. Okay. Turning back to the Zenith reference,
22 tab 7. Referring to Figure 2 --

23 A. Yes.

24 Q. -- would you agree with me that the switch 42
25 selects the output of the tuner depending on the state

1 of the signal from the microprocessor?

2 MR. HABER: Objection. Form.

3 THE WITNESS: No, the switch 42 selects the
4 input of the demodulators. The output of the tuner is
5 just one.

6 BY MR. AYERS:

7 Q. So it routes the output of the tuner to one of
8 the two demodulators, depending on the or in response to
9 the signal from the microprocessor 22?

10 MR. HABER: Objection. Form.

11 THE WITNESS: That's correct.

12 BY MR. AYERS:

13 Q. Okay. Turning to paragraph 84, you describe
14 the Harris reference. That's Exhibit 1005, tab 3 in
15 your notebook. You say that Harris also teaches a
16 plurality of finite impulse response filters that are
17 active simultaneously; correct?

18 A. That's correct.

19 Q. And you refer to page 6. And what are you
20 referring to at page 6?

21 A. What is the Harris reference?

22 Q. It's at tab 3, A3.

23 A. No, I'm referring to Figure 6.

24 Q. Oh, Figure 6. I'm sorry.

25 A. Page 7.

1 Q. Got you. Doesn't Harris also teach that in
2 systems where the second IF filter stage consists of a
3 bank of filter to support various operational modes,
4 cost and board space can be saved by reconfiguring a
5 single DDF to implement the filter required by each
6 operational mode?

7 MR. HABER: Objection. Form.

8 MR. AYERS: I'm referring to the second column
9 of page 5.

10 THE WITNESS: Yes.

11 BY MR. AYERS:

12 Q. Okay. I did read that correctly?

13 A. Yes.

14 Q. Okay. So in that case, only one FIR filter is
15 active at a time; true?

16 MR. HABER: Objection. Form.

17 THE WITNESS: Not from the description about
18 that specific operation.

19 BY MR. AYERS:

20 Q. You don't dispute, though, that it was well
21 known at the time of the '585 patent to reprogram a FIR
22 filter, do you?

23 A. No.

24 MR. HABER: Objection. Form.

25 ///

1 BY MR. AYERS:

2 Q. And in that case there would be a single set of
3 filter coefficients that would be active at any given
4 point in time?

5 MR. HABER: Objection. Form.

6 BY MR. AYERS:

7 Q. True?

8 A. What filter are we referring to?

9 Q. A reprogrammable FIR filter.

10 MR. HABER: Objection. Form.

11 THE WITNESS: So in general, yes, a
12 reprogrammable filter will have a single set of
13 coefficients.

14 BY MR. AYERS:

15 Q. And that single set of coefficients could
16 change over time depending on any number of conditions?

17 MR. HABER: Objection. Form.

18 THE WITNESS: Not clear. What conditions are
19 you referring to?

20 MR. AYERS: A different operational mode.

21 THE WITNESS: Yes.

22 BY MR. AYERS:

23 Q. Now, in paragraphs 85 and 86 of your
24 declaration you describe a scenario, hypothetical
25 scenario, involving the Zenith circuit; is that right?

1 MR. HABER: Objection. Form.

2 THE WITNESS: Yes.

3 BY MR. AYERS:

4 Q. And you start in paragraph 85 with the
5 assumption that the RF signal is in the digital
6 television format; correct?

7 A. That's correct.

8 Q. Did you analyze the situation where the RF
9 signal starts in the analog TV format?

10 A. Yes.

11 Q. Okay. And if the circuit is in the -- it's
12 initially in the analog format and the received
13 television signal is an analog signal, the sync detector
14 would detect a valid sync pulse; correct?

15 MR. HABER: Objection. Form.

16 THE WITNESS: Are you referring to the Zenith
17 patent, Figure 2, for example?

18 MR. AYERS: Yes.

19 THE WITNESS: Okay. So if the state of the
20 switch is such that the analog demodulator is active and
21 the type of signal received is an analog format
22 television signal, and the sync detector detects the
23 right sync detectors, then, yes, the system will work
24 properly.

25 ///

1 BY MR. AYERS:

2 Q. And in that case the microprocessor would
3 maintain the state of the switch to route the output of
4 the IF to the analog demodulator; correct?

5 MR. HABER: Objection to form.

6 THE WITNESS: That is correct.

7 BY MR. AYERS:

8 Q. And if the format of the television signal
9 changed to a digital television format, the sync
10 detector would detect the absence of a sync signal;
11 correct?

12 MR. HABER: Object to form.

13 THE WITNESS: Yes.

14 BY MR. AYERS:

15 Q. And it would so inform the microprocessor 22;
16 correct?

17 A. Yes.

18 Q. And the microprocessor then would change the
19 state of the signal to the switch to cause it to switch
20 to the digital demodulator?

21 A. Yes.

22 Q. Okay. Now let's turn to claims 15 and 20 of
23 the '585 patent. So claim 15 recites "wherein said
24 standard selection circuit generates said select signal
25 by detecting carrier signals identifying one of said

1 formats of said RF signal."

2 Did I read that right? Strike that.

3 Claim 13 recites:

4 "Wherein said standard selection circuit
5 generates said select signal by detecting carrier
6 signals identifying one of said formats of said
7 input RF signals."

8 Correct?

9 MR. HABER: Did you say claim 13?

10 MR. AYERS: Probably. Strike that.

11 Q. Claim 15 -- start over -- recites the receiver
12 of claim 13:

13 "Wherein said standard select circuit generates
14 said select signal by detecting carrier signals
15 identifying one of said formats of said input RF
16 signals."

17 Correct?

18 A. That's correct.

19 Q. And claim 20, corresponding method claim,
20 recites:

21 "Generating said select signal by detecting
22 carrier signals in said input RF signal identifying
23 said format of said input RF signal."

24 Correct?

25 A. Correct.

1 Q. In claim -- in paragraph 93 of your declaration
2 you refer to a CVBS signal?

3 A. Yes.

4 Q. What does CVBS stand for?

5 A. Composed video baseband signal.

6 Q. Is that also referred to sometimes as color
7 video blanking and sync?

8 A. Could be.

9 Q. And would you agree with me that this function
10 of generating the select signal by detecting carrier
11 signals is described exclusively in the '585 patent in
12 the paragraph in column 5 that we discussed earlier?

13 MR. HABER: Objection. Form.

14 THE WITNESS: It describes in that paragraph in
15 Section 5 and also in claim 15 and 20.

16 BY MR. AYERS:

17 Q. Anywhere else in the '585 patent is that
18 detecting in the baseband or in the carrier signals
19 described?

20 MR. HABER: Objection. Form.

21 THE WITNESS: No, I don't see that.

22 BY MR. AYERS:

23 Q. Okay. So in the '585 patent the standard
24 selection circuit is coupled to demodulators 66;
25 correct?

1 A. Yes.

2 Q. Okay. And the input to the demodulators is the
3 output of the DSP 64; correct?

4 MR. HABER: Object to form.

5 THE WITNESS: Yes.

6 BY MR. AYERS:

7 Q. And so would you agree with me that the signal
8 that's output from the DSP does not contain the
9 broadcast carrier signal?

10 MR. HABER: Objection. Form.

11 THE WITNESS: Can you repeat the question?

12 MR. AYERS: Yeah.

13 Q. Would you agree with me that the output of the
14 DSP 64 does not include the broadcast carrier signal?

15 A. What do you mean by "the broadest carrier
16 signal"?

17 Q. Have you ever heard the term "broadcast carrier
18 signal"?

19 A. Yes.

20 Q. Okay. What do you understand that term to
21 mean?

22 A. The carrier signal is the signal that is
23 modulated by the signal containing the information. So
24 if you refer to the broadcast signal as the RF signal
25 that goes through the air with minimum of obligation,

1 then that signal is not present at the output of the
2 DSP. However, a replica of that carrier is present
3 after the IF conversion.

4 So basically, the output of the DSP does carry
5 a replica of the carrier, but not the carrier that goes
6 through the air but the translated carrier based on the
7 tuner intermediate frequency.

8 Q. And is that replica the carrier signal that is
9 detected by the standard selection circuit?

10 A. No.

11 Q. Is it your opinion that claim 15 excludes that
12 carrier signal?

13 MR. HABER: Objection. Form.

14 BY MR. AYERS:

15 Q. Meaning, that if there was a -- if that replica
16 carrier signal uniquely identified a format, could the
17 standard selection circuit detect that carrier signal to
18 identify one of the formats?

19 MR. HABER: Objection. Form.

20 THE WITNESS: The broadcast carrier signal does
21 not uniquely identify the formats, because, for example,
22 you can have two TV stations with two different carriers
23 and two different channels broadcasting in the same
24 format.

25 ///

1 BY MR. AYERS:

2 Q. So it has to uniquely identify the television
3 format to be a carrier signal?

4 MR. HABER: Objection. Form.

5 THE WITNESS: No. Definition of the carrier
6 signal is simply a signal that is modulated by the
7 signal that carries the information.

8 BY MR. AYERS:

9 Q. The specification of the '585 gives two
10 examples of a carrier signal that are used by the
11 standard selection circuit; correct?

12 A. Yes.

13 Q. An analog visual carrier signal?

14 A. Correct.

15 Q. And a pilot carrier signal; correct?

16 A. Correct.

17 Q. And do each of those satisfy your definition of
18 what a carrier signal is?

19 MR. HABER: Objection. Form.

20 THE WITNESS: Which carrier signal are you
21 referring to? So far you refer to broadcast carrier
22 signals. Those are not broadcast carrier signals.

23 MR. AYERS: Right. Okay.

24 Q. Is it your understanding that these two that
25 are referred to in column 5, the visual carrier signal

1 and the pilot carrier signal, are what a person of
2 ordinary skill in the art would consider carrier
3 signals?

4 A. They're actually called sub carriers. Yes,
5 they are carrier signals that uniquely identify the
6 format.

7 Q. And what information do they carry?

8 A. They carry information about how the color
9 information, for example, is encoded in the baseband
10 signal.

11 Q. And so what is your -- I notice in your
12 declaration you didn't provide a construction of the
13 term "carrier signals."

14 A. I believe I did.

15 Q. Did you?

16 A. Not separately. For example, if you look at
17 paragraph 44, page 17, of my declaration, I discuss at
18 the beginning of the paragraph what do I mean by a
19 carrier radio signal.

20 Q. So is it your opinion, then, that anything
21 coming out of a demodulator does not by definition
22 contain a carrier signal?

23 A. That's correct.

24 Q. And I take it that, in your opinion, a person
25 of ordinary skill in the art would not consider a sync

1 pulse a carrier signal?

2 A. A sync pulse is not a carrier signal. A sync
3 pulse does not encode any information about the signal
4 carrier information.

5 Q. Could I have you turn to tab A9 of your
6 notebook? This is a copy of U.S. Patent No. 6,369,857
7 to Balaban, et al., previously marked as Exhibit 1053.

8 Have you seen this patent before, Dr. Opris?

9 A. I might have seen this patent before.

10 Q. And just for your reference, this is actually
11 one of the patents that's cited in the '585 patent. Do
12 you believe that that may have been when you saw this
13 patent?

14 MR. HABER: Objection. Form.

15 THE WITNESS: Yes, I see this patent is
16 referenced in the '585 patent.

17 BY MR. AYERS:

18 Q. And did you consider this patent in forming
19 your opinions that are reflected in Exhibit 2032?

20 MR. HABER: Objection. Form.

21 THE WITNESS: No.

22 BY MR. AYERS:

23 Q. Okay. Let me have you turn to column 19 of the
24 Balaban patent, specifically claim 31. In claim 31 of
25 the Balaban patent it says:

1 "The method of claim 30 wherein the signal is a
2 television signal and wherein the detecting a
3 carrier signal includes detecting at least one of a
4 picture carrier, a sound carrier and a
5 synchronization signal."

6 Correct?

7 MR. HABER: Objection. Form, scope.

8 THE WITNESS: Is the first time I see this
9 claim, so I cannot give you an accurate answer without
10 studying this patent.

11 BY MR. AYERS:

12 Q. But you would agree that that's what Balaban
13 says there?

14 MR. HABER: Objection. Form.

15 THE WITNESS: I can read the words.

16 BY MR. AYERS:

17 Q. So at least in this patent, Balaban, that was
18 part of the intrinsic record of the '585 patent, it
19 considered a synchronization signal to be a carrier
20 signal; true?

21 MR. HABER: Objection. Form, scope.

22 THE WITNESS: Absolutely not.

23 BY MR. AYERS:

24 Q. But you didn't consider this patent?

25 A. I have not.

1 Q. Okay. Let's turn to page 37 of your
2 declaration. This section discusses claims 11 and 12 of
3 the '585 patent. So let's look at claim 11 of the '585
4 patent. Are you there?

5 A. Yes.

6 Q. Claim 11 depends from claim 10; correct?

7 A. That's correct.

8 Q. And it says:

9 "Wherein said plurality of finite impulse
10 response filters are stored in memory."

11 Correct?

12 A. Yes.

13 Q. And by "finite impulse response stored in
14 memory," do you agree that the claim's referring to the
15 filter coefficients being stored in memory?

16 MR. HABER: Objection. Form.

17 THE WITNESS: Yes.

18 BY MR. AYERS:

19 Q. Okay. And it goes on to say:

20 "And said signal processor indexes said memory
21 to retrieve one of said plurality of finite impulse
22 response filters."

23 Correct?

24 A. That's correct.

25 Q. Would you agree with me that it was well known

1 at the time to store digital filter coefficients in
2 memory?

3 MR. HABER: Objection. Form.

4 THE WITNESS: Yes.

5 BY MR. AYERS:

6 Q. And that was typically how digital filters were
7 implemented; would you agree?

8 A. No.

9 Q. You wouldn't.

10 Do you -- what do you consider to be memory?

11 A. A memory, and I mean a digital memory, is a
12 circuit that can store digital bits.

13 Q. Okay. So that could include read only memory?

14 A. Yes.

15 Q. Dynamic random access memory?

16 A. That's correct.

17 Q. Include registers?

18 A. Yes.

19 Q. Would you agree that in a typical application
20 that the filter coefficients need to be stored in, at
21 least initially, in nonvolatile memory so they be
22 retained when the power was shut off?

23 MR. HABER: Objection. Form.

24 THE WITNESS: No. A typical application of the
25 FR filter is that the coefficients are hard coded, are

1 in the circuit. They cannot be changed.

2 BY MR. AYERS:

3 Q. And that's true even in the Harris component
4 that is discussed?

5 MR. HABER: Objection. Form.

6 THE WITNESS: No. Harris has programmable
7 coefficients.

8 BY MR. AYERS:

9 Q. Okay. So you're talking about a hard coded
10 filter?

11 A. You asked me about a typical application.

12 Q. Okay. A typical FIR filter implemented using a
13 digital signal processor, how about that, would you
14 agree that those filter coefficients are initially
15 stored in a read only memory or some other form of
16 nonvolatile memory so that they're retained when the
17 power is shut down?

18 MR. HABER: Objection. Form.

19 THE WITNESS: You have to provide me with
20 specification of such a system. I'm not sure if that's
21 the typical application or what you're exactly referring
22 to.

23 MR. AYERS: That's fair enough.

24 Q. Would you agree that it was not uncommon, let's
25 start with that, at the time of the '585 patent to store

1 filter coefficients in a nonvolatile memory so that they
2 would be retained when power was removed?

3 MR. HABER: Objection. Form.

4 THE WITNESS: Again, I'm not aware of any
5 application at that time that will store the
6 nonvolatile -- store the coefficients in a nonvolatile
7 memory.

8 BY MR. AYERS:

9 Q. Are you familiar with the -- with TI's TMS 320
10 family of digital signal processors?

11 MR. HABER: Objection. Form.

12 THE WITNESS: I'm not familiar with that.

13 BY MR. AYERS:

14 Q. So you haven't done a lot of work with
15 programmable DSPs?

16 A. I did quite a bit of work with programmable
17 DSPs, not that particular kind of microprocessors.

18 Q. What family are you familiar with?

19 A. I cannot recall right now.

20 Q. Okay. So tell me about some of the
21 applications that you worked on using these family of
22 DSPs.

23 A. I didn't say I worked with family of DSPs.
24 What family of DSP are you referring to?

25 Q. Which family have you worked with in the past?

1 A. I didn't work with commercial family of DSPs.

2 I designed my own DSPs and I designed my own filters.

3 Q. I see. I see. And that's what you're drawing
4 on for your opinions in this case?

5 MR. HABER: Objection. Form.

6 THE WITNESS: I draw the opinion in this case
7 based on the evidence before me and I listed that
8 evidence in my declaration.

9 BY MR. AYERS:

10 Q. Would you agree with me that -- that the filter
11 coefficient -- digital filter coefficients would
12 necessarily need to be stored in memory?

13 MR. HABER: Objection. Form.

14 THE WITNESS: No.

15 BY MR. AYERS:

16 Q. Okay. They could be hard coded without being
17 stored in memory?

18 A. That's correct.

19 Q. Okay. And that's for a -- strike that.

20 Paragraph 97 of your declaration you say:

21 "Notably, Harris does not disclose a memory
22 storing a plurality of finite impulse response
23 filters."

24 Correct?

25 A. That's correct.

1 Q. Now, we read a section of Harris earlier where
2 it describes where the filter can be reprogrammed
3 depending on different operational modes; do you recall
4 that?

5 MR. HABER: Objection. Form.

6 THE WITNESS: Which paragraph are you referring
7 to?

8 MR. AYERS: Let's look at -- that would be tab
9 3. It's on page 5 of Harris Exhibit 1005.

10 Q. Harris says that:

11 "In systems where the second IF filter stage
12 consists of a bank of filters to support various
13 operational modes, cost and board space can be saved
14 by reconfiguring the signal DDF to implement the
15 filter required by each operational mode."

16 Correct?

17 A. I see that.

18 Q. Okay. So in that case the memory would store a
19 plurality of FIR filter -- sets of filter coefficients;
20 true?

21 MR. HABER: Objection. Form.

22 THE WITNESS: There is no memory mentioned in
23 this paragraph.

24 MR. AYERS: Okay.

25 Q. You don't disagree that the Harris part that's

1 being discussed uses a memory to store the filter
2 coefficients, though, do you?

3 MR. HABER: Objection. Form.

4 THE WITNESS: I don't see anywhere in Harris
5 the description of a memory or the use of a memory.

6 BY MR. AYERS:

7 Q. You went out and found a data sheet for that
8 part, didn't you?

9 A. Yes, I did.

10 Q. Okay. Well, I brought that with me.

11 Turn to tab 13. And this is a data sheet that
12 you found; correct?

13 A. I don't remember now.

14 Q. You don't remember?

15 A. No.

16 Q. Okay.

17 A. I did not review this material for this IPR.

18 Q. Okay. This was submitted in a previous IPR.

19 You don't dispute, though, that you did consider a
20 Harris data sheet that purports to describe the DDF
21 that's discussed in the Harris reference?

22 MR. HABER: Objection. Form, scope.

23 THE WITNESS: Again, I don't remember exactly
24 what I consider for the previous IPR. Unless I review
25 my declaration from the previous IPR, I cannot confirm

1 or deny that.

2 MR. AYERS: Okay.

3 Q. Well, then, just assume for me, for the sake of
4 argument, that I'm right and that this is the data sheet
5 that you previously considered. If I can turn to page
6 9, I believe it is. Do you see that section? It's
7 2015-9. I'm sorry, there are two sets of...

8 See there's described coefficient RAM?

9 A. Yes.

10 Q. And it says that the coefficient RAM stores the
11 coefficients for the current FIR filter being
12 implemented; correct?

13 A. I see that.

14 Q. So you don't dispute, do you, that the Harris
15 DDF used a memory to store the filter coefficients, do
16 you?

17 MR. HABER: Objection. Form, scope.

18 THE WITNESS: Again, I did not consider this
19 material for this IPR, so I cannot give you an accurate
20 answer unless I have time to review this material in
21 context of the proceeding, current proceedings.

22 BY MR. AYERS:

23 Q. So you rendered your opinions about what Harris
24 did or did not disclose in this case but didn't consider
25 the data sheet that you found in the previous case?

1 MR. HABER: Objection. Form.

2 THE WITNESS: I consider only the material
3 that's Exhibit 1005.

4 BY MR. AYERS:

5 Q. So you have no opinion on whether Harris used a
6 coefficient RAM; is that true?

7 A. I have no opinion.

8 Q. So I take it, then, that you have no opinion,
9 then, on whether this coefficient RAM in Harris was used
10 to store a plurality of filter coefficients in different
11 operational modes; true?

12 MR. HABER: Objection. Form.

13 THE WITNESS: Again, I did not form an opinion
14 on that.

15 BY MR. AYERS:

16 Q. Let me turn to the Thomson reference, which I
17 believe is tab 2 in your notebook, Exhibit 1004. You
18 say in paragraph 97 that in Thomson there are two
19 separate processing pathways disclosed in Thomson, one
20 for each format; correct?

21 A. Yes.

22 Q. Okay. You would agree with me, though, that
23 there is a single input 3 to circuit 4 in Thomson?

24 MR. HABER: Objection. Form.

25 THE WITNESS: Referring to Figure 1?

1 MR. AYERS: Yes.

2 THE WITNESS: Yes.

3 BY MR. AYERS:

4 Q. And that single input 3 is connected to the
5 input of a single amplifier 5?

6 A. Yes.

7 Q. And the amplifier 5 produces a single output?

8 A. Yes.

9 Q. And the single output of amplifier 5 is
10 connected to a single band-pass filter 8?

11 MR. HABER: Objection. Form.

12 THE WITNESS: Is not clear that the band-pass
13 filter, if it's single filter.

14 BY MR. AYERS:

15 Q. Well, you would agree with me that Thomson
16 refers to band-pass filter 8 in the singular, though,
17 wouldn't you?

18 MR. HABER: Objection. Form.

19 THE WITNESS: Yes.

20 BY MR. AYERS:

21 Q. Thomson doesn't say band-pass filters 8; true?

22 A. True.

23 Q. In other parts of the specification, though,
24 Thomson refers to low-pass filters 14 and 15; true?

25 A. Yes.

1 Q. So Thomson knew how to describe multiple
2 filters when it wanted to; correct?

3 MR. HABER: Objection. Form.

4 THE WITNESS: When Thomson refers to circuits
5 14 and 15, he refers to circuit that have two different
6 inputs; however, band-pass filter 8 has a single input,
7 but the output is -- can be multiple outputs, because it
8 feeds multiple demodulators or partial demodulator for
9 digital and an analog demodulator. So they're two
10 different things. You're referring to two different
11 things that are in two different contexts.

12 BY MR. AYERS:

13 Q. But in one context it referred to band-pass
14 filter 8 in the singular and in another context it
15 referred to low-pass filters 14 and 15, plural; correct?

16 MR. HABER: Objection. Form.

17 THE WITNESS: Correct, because those filters
18 have different functions.

19 BY MR. AYERS:

20 Q. And band-pass filter 8 is shown in Figure 1 of
21 Thomson as having only a single output; true?

22 MR. HABER: Objection. Form.

23 THE WITNESS: No. That single line does not
24 necessarily means a single signal or a single physical
25 wire.

1 BY MR. AYERS:

2 Q. Right. Okay. Well, again, Thomson knew how to
3 represent multiple outputs of the same block, if that's
4 what it meant; correct?

5 MR. HABER: Objection. Form.

6 THE WITNESS: No. For example, even a signal
7 3, which is an input, is not necessarily a single end
8 input. Could be a differential input, so could be two
9 wires that come into the tuner.

10 BY MR. AYERS:

11 Q. But in that case it would represent a single
12 signal?

13 MR. HABER: Objection. Form.

14 THE WITNESS: Yes.

15 BY MR. AYERS:

16 Q. Okay. But take, for example, the sound
17 selection filters shown in Figure 1, that has two
18 outputs; right?

19 A. Which circuit are you referring to?

20 Q. Sound selection filters.

21 A. Yes.

22 Q. Okay. So, again, if Thomson wanted to
23 represent two separate outputs, he knew how to do that,
24 didn't he?

25 MR. HABER: Objection. Form.

1 THE WITNESS: Simply says here that he has two
2 outputs.

3 BY MR. AYERS:

4 Q. And drew them separately?

5 A. Yes.

6 Q. But didn't -- but you're only a single output
7 coming out of band-pass filter 8; true?

8 MR. HABER: Objection. Form.

9 THE WITNESS: The band-pass filter 8 has only
10 one line coming out. Doesn't mean a single signal.

11 BY MR. AYERS:

12 Q. I just said it is shown as a single output;
13 correct?

14 MR. HABER: Objection. Form.

15 THE WITNESS: Again, you can represent multiple
16 outputs with one line.

17 BY MR. AYERS:

18 Q. Or it could represent multiple outputs with
19 multiple lines as it did with the sound selection
20 filters; correct?

21 A. Correct.

22 Q. But at least in the case of the band-pass
23 filter 8 it chose not to represent it with multiple
24 outputs; true?

25 MR. HABER: Objection. Form.

1 THE WITNESS: Look, for example, the control
2 signal coming from the digital QSV is shown at the
3 single line and obviously cannot be a single wire,
4 because the control has to be more than one wire.

5 To give you another example: All these signals
6 after the A to D are digital signals. So digital
7 signals, that means it's a parallel digital
8 representation of a signal. So for sure there are
9 multiple wires. It's not 1 bit signal. Could be 8
10 bits, could be 16 bits. I think he's using a 10-bit A
11 to D. So there are multiple physical lines.

12 BY MR. AYERS:

13 Q. Could be a bus in other words?

14 A. Could be a bus, could be multiple buses.

15 Q. Where in the '585 patent is the embodiment of
16 claim 11 described?

17 A. It is described, for example, in Figure 2.

18 Q. Okay. Anywhere else?

19 A. Well, a summary of Figure 2, it's depicted on
20 -- it's described in column 3, line 12.

21 Q. Okay. That's the top-level description of
22 Figure 1?

23 A. Yes. And then on column 4, starting with the
24 line 55, the whole paragraph describes basically the --
25 part of the functionality of Figure 2.

1 Q. And it's your opinion that a person of ordinary
2 skill in the art could make and use the receiver claimed
3 in claim 11 based on the figures shown in Figure 1 and
4 this description in column 4?

5 MR. HABER: Objection. Form, relevance, scope.

6 THE WITNESS: I think in column 4 refers to
7 Figure 2. You mentioned Figure 1, so I'm not sure.

8 MR. AYERS: Strike that. Let me rephrase that.

9 Q. So it's your opinion that a person of ordinary
10 skill in the art could make and use the receiver claimed
11 in Figure 11 based on the Figure 2 as well as the
12 description that you referenced in column 4?

13 MR. HABER: Objection. Relevance, scope.

14 THE WITNESS: Again, you mentioned Figure 11,
15 so I'm not sure what figure you're referring to.

16 MR. AYERS: I thought I meant -- I thought I
17 said Figure 2.

18 THE WITNESS: No, you said Figure 11.

19 MR. AYERS: Can you read back the question?

20 (Whereupon the record was read as follows:

21 "Q. So it's your opinion that a person of
22 ordinary skill in the art could make and use the
23 receiver claimed in Figure 11 based on the Figure 2
24 as well as the description that you referenced in
25 column 4?")

1 MR. AYERS: Sorry about that. Too many -- too
2 long of a question obviously. So strike that. Let me
3 start again.

4 Q. So it's your opinion, Dr. Opris, that a person
5 of ordinary skill in the art could make and use the
6 receiver claimed in claim 11 based on the Figure 2 and
7 the description in column 4?

8 A. Yes.

9 MR. HABER: Objection. Relevance.

10 BY MR. AYERS:

11 Q. Would you agree with me that the actual filter
12 coefficients are not disclosed in the '585 patent?

13 MR. HABER: Objection. Relevance.

14 THE WITNESS: I agree with you.

15 BY MR. AYERS:

16 Q. The number of filter coefficients is not
17 disclosed?

18 MR. HABER: Objection. Relevance.

19 THE WITNESS: No.

20 BY MR. AYERS:

21 Q. The resolution, the number of bits of those
22 filter coefficients, is not stored or is not disclosed
23 in the '585 patent?

24 MR. HABER: Objection. Relevance.

25 THE WITNESS: That is correct.

1 BY MR. AYERS:

2 Q. And yet despite those omissions, it's your
3 opinion that a person of ordinary skill in the art could
4 implement this circuit claimed in claim 11?

5 MR. HABER: Objection. Relevance, scope.

6 THE WITNESS: Yes.

7 BY MR. AYERS:

8 Q. And that's because it was routine to implement
9 digital filter coefficients at this time?

10 MR. HABER: Objection. Relevance.

11 THE WITNESS: No.

12 BY MR. AYERS:

13 Q. It wasn't routine?

14 A. No.

15 Q. It took some level of innovation to come up
16 with the filter coefficients that are used in claim 11?

17 MR. HABER: Objection. Relevance.

18 THE WITNESS: Yes. It takes some design work
19 because the system is very complex.

20 BY MR. AYERS:

21 Q. And yet despite that complexity, the inventors
22 didn't describe those filter coefficients in this -- in
23 this patent?

24 MR. HABER: Objection. Form, scope, relevance.

25 THE WITNESS: The inventors did not claim the

1 filter themselves in this invention.

2 BY MR. AYERS:

3 Q. Just the architecture?

4 A. That's correct.

5 Q. Let's turn now to Grumman, which I believe is
6 tab 6. No. Yes, tab 6. It says U.S Patent 5,381,357,
7 Exhibit 1008, assigned to Grumman.

8 A. Yes.

9 MR. HABER: We've been going about an hour
10 again. Do you want to take a quick break?

11 MR. AYERS: Yes. This is going to get ugly
12 quickly. Probably makes sense to take a break.

13 (Brief recess.)

14 BY MR. AYERS:

15 Q. Let's turn now to Exhibit 1008, U.S. Patent No.
16 5,381,357 which you refer to as the Grumman patent. So
17 let's start first with some context. So if we turn to
18 column 1 of Grumman, it provides some background, the
19 field of the invention, and it says that "the instant
20 invention relates to a finite impulse response filter
21 that filters complex digital signals in a manner such
22 that the real and imaginary parts of a complex digital
23 signal are filtered separately in distinct parallel data
24 paths"; true?

25 A. Yes.

1 Q. Okay. So you'd agree that Grumman describes a
2 finite impulse response filter; true?

3 MR. HABER: Objection. Form.

4 THE WITNESS: Yes.

5 BY MR. AYERS:

6 Q. It processes real and imaginary parts of a
7 complex digital signal; true?

8 A. Yes.

9 Q. And you'd also agree that the filter is
10 adaptive; correct?

11 MR. HABER: Objection. Form.

12 THE WITNESS: Yes.

13 BY MR. AYERS:

14 Q. Okay. And we turn to Figure 3, according to
15 column 4, line 39, it says that it "shows a typical
16 application for an adaptive filter which can be
17 implemented using the filter of the present invention";
18 true?

19 A. I turned to Figure 3 and then you --

20 Q. I'm sorry. Figure 3 is described at column 4,
21 beginning at line 39.

22 A. Yes.

23 Q. And it says the "Figure 3 shows a typical
24 application for an adaptive filter which can be
25 implemented using the filter of the present invention";

1 true?

2 A. That's correct.

3 Q. And so in this adaptive filter shown in Figure
4 3, you have the reference input Y in of N. That's the
5 input to the adaptive filter; correct?

6 MR. HABER: Objection. Form.

7 BY MR. AYERS:

8 Q. That's the signal that's going to be filtered?

9 A. Yes.

10 Q. And then you have a, quote, unquote, "desired
11 input" D in sub "n" that is fed to a difference or some
12 -- or some kind of -- that calculates some error signal
13 east of "n"; is that right?

14 MR. HABER: Objection. Form.

15 THE WITNESS: Yes.

16 BY MR. AYERS:

17 Q. And then that east sub "n" is then fed back to
18 the adaptive filter of Grumman; correct?

19 A. Yes.

20 Q. And then that's shown as a input, a control
21 input if you will, to the adaptive filter of Grumman?

22 A. Yes.

23 Q. And am I correct that in response to that
24 signal that the adaptive filter selects a different set
25 of filter coefficients?

1 MR. HABER: Objection. Form.

2 THE WITNESS: No.

3 BY MR. AYERS:

4 Q. Okay. Would you agree it selects different
5 filter coefficients?

6 A. Yes.

7 Q. Okay. You just dispute the term "set"?

8 A. Yes.

9 Q. Okay. You would agree it selects multiple
10 different filter coefficients?

11 MR. HABER: Objection. Form.

12 THE WITNESS: No. Just changes the filter
13 coefficients, but they're the same coefficients that are
14 changed based on the error signal.

15 BY MR. AYERS:

16 Q. I'm just trying to clarify. You'd agree that
17 it's more than one filter coefficient is changed?

18 MR. HABER: Objection. Form.

19 THE WITNESS: That's correct, more than one
20 coefficient of filter is changed.

21 MR. AYERS: Okay.

22 Q. So Grumman also discloses two memory banks;
23 correct?

24 MR. HABER: Objection. Form.

25 THE WITNESS: Can you show me where Grumman

1 does that?

2 MR. AYERS: I'm referring to bank 0 and bank 1
3 in Figure 1B.

4 THE WITNESS: Yes.

5 BY MR. AYERS:

6 Q. Okay. And you would agree that each of those
7 banks stores filter coefficients; true?

8 A. Yes.

9 Q. Okay. And those filter coefficients are stored
10 in the memory bank by a processor; correct?

11 MR. HABER: Objection. Form.

12 THE WITNESS: I'm not sure where Grumman
13 describes what stores the coefficient in the bank.

14 MR. AYERS: Okay.

15 Q. I'm referring to column 4, line 7. It says:
16 "The coefficient data values of the adaptive
17 weight circuits are stored in two memory banks for
18 access by the filter or host processor."

19 A. This sentence simply says that the adaptive
20 weight circuits are stored in the banks for access by
21 the filter or for access by the host processor.

22 Q. Okay.

23 A. Doesn't say who stores the weight in the
24 memory.

25 Q. Do you have an opinion on how those filter

1 coefficients got in those memory banks?

2 A. No.

3 Q. What about the next sentence that says: "These
4 values," meaning the coefficient data values, "can also
5 be stored in alternative memory bank storage so that
6 when the data is accessed by the filter from the memory
7 storage bank, data can be written to the alternative
8 memory storage bank at the request of the host processor
9 and vice versa"?

10 MR. HABER: Is that a question?

11 BY MR. AYERS:

12 Q. Does that help inform your opinion on
13 whether -- on how the coefficients get in the memory
14 banks?

15 A. No.

16 Q. Okay. Let me have you turn to column 5,
17 beginning at line 19. It says:

18 "The coefficients are variable; therefore, the
19 filter is capable of operation as an adaptive filter
20 when interfaced to a host processor which executes
21 the adaptive algorithm and updates the
22 coefficients."

23 A. I read that.

24 Q. Okay. And does that help you answer the
25 question of how the filter coefficients are stored in

1 the memory banks?

2 MR. HABER: Objection. Form.

3 THE WITNESS: Can you repeat the question,
4 please.

5 MR. AYERS: Can you read the question back,
6 please?

7 (Whereupon the record was read as follows:

8 "Q. Okay. And does that help you answer the
9 question of how the filter coefficients are stored
10 in the memory banks?")

11 THE WITNESS: Not really.

12 BY MR. AYERS:

13 Q. Okay. What about in column 6 where it
14 describes the address lines? These are address lines
15 that are sent from the host processor; is that right?

16 A. What line are you referring to?

17 Q. Beginning at line 28.

18 A. Okay. I read that.

19 Q. So you would agree with me that the address
20 lines or signals -- the signals on the address lines are
21 generated by the host processor; true?

22 A. Yes.

23 MR. HABER: Objection. Form.

24 BY MR. AYERS:

25 Q. And that's in connection with writing to the

1 memory bank; correct?

2 MR. HABER: Objection. Form.

3 THE WITNESS: Actually, this paragraph refers
4 only to addressing the coefficient registers, not about
5 writing coefficient registers.

6 BY MR. AYERS:

7 Q. Not about writing to the...

8 A. Yes.

9 Q. So you don't have an opinion on how the
10 coefficients got into the memory banks in the first
11 instance?

12 MR. HABER: Objection. Form.

13 THE WITNESS: I don't form an opinion about
14 that because was not the matter before me when I
15 considered the IPR.

16 BY MR. AYERS:

17 Q. Now, would you agree with me that Grumman
18 describes some swap circuitry?

19 MR. HABER: Objection. Form.

20 THE WITNESS: I think Grumman mentioned the
21 swap circuitry. I'm not sure he describes it.

22 BY MR. AYERS:

23 Q. And by "swap circuitry," do you understand
24 Grumman to mean some circuitry that swaps filter
25 coefficients?

1 MR. HABER: Objection. Form.

2 THE WITNESS: Which coefficients are you
3 referring to?

4 BY MR. AYERS:

5 Q. Well, Grumman describes what he calls -- I'm
6 referring, I guess, to column 4. It refers to
7 "coefficient swapping circuit"; correct?

8 A. What line?

9 Q. Line 20.

10 A. Okay.

11 Q. Do you know what he means by "coefficient
12 swapping circuit"?

13 A. Yes.

14 Q. What circuitry is he referring to?

15 A. I think he refers to circuit 38 in 1A.

16 Q. Thirty-eight in 1A. Okay. Swap circuitry.
17 And what's the purpose of the swap circuitry?

18 MR. HABER: Objection. Form.

19 THE WITNESS: I didn't form an opinion what was
20 the purpose of this sub circuitry because it was not
21 part of the discussion in the IPR.

22 BY MR. AYERS:

23 Q. Okay. So you have no opinion on the purpose of
24 the swap circuitry shown in Figure 1A?

25 A. No.

1 Q. So I take it, if I walk you through this,
2 timing diagrams shown in Figure 4, that you wouldn't
3 have an opinion on those timing diagrams?

4 A. I did not express any opinion in my declaration
5 about these timing diagrams.

6 MR. HABER: Counsel, there is an opinion in his
7 declaration.

8 MR. AYERS: Then he can answer the question,
9 not you.

10 MR. HABER: I'm just trying to understand, keep
11 the record clear.

12 BY MR. AYERS:

13 Q. So would you agree with me that Grumman
14 describes this architecture that's shown in Figure 1A
15 and 1B as a, quote, "two-bank architecture" at column
16 10, line 67?

17 MR. HABER: Objection. Form.

18 THE WITNESS: Yes.

19 BY MR. AYERS:

20 Q. And this swapping circuitry 38 swaps filter
21 coefficients; is that right?

22 MR. HABER: Objection. Form.

23 THE WITNESS: I think the function of the swap
24 circuit is to allow a continuous filter operation in
25 Grumman.

1 BY MR. AYERS:

2 Q. By swapping coefficients between banks 0 and
3 bank 1; correct?

4 MR. HABER: Objection. Form.

5 THE WITNESS: Yes.

6 BY MR. AYERS:

7 Q. And so you would agree with me that there are
8 FIR filter coefficients stored in bank 0; correct?

9 A. Excuse me?

10 Q. You'd agree with me that there are FIR filter
11 coefficients stored in bank 0?

12 A. Yes.

13 Q. You'd also agree with me that there are FIR
14 filter coefficients stored in bank 1?

15 A. Yes.

16 Q. And you'd agree with me that this swapping
17 circuit functions to swap the filter coefficients
18 between bank 0 and bank 1?

19 MR. HABER: Objection. Form.

20 THE WITNESS: Again, bank 0 and bank 1 contains
21 coefficients of the same filter. The filter is
22 adaptive. So what the swap circuit in Grumman allows is
23 the continuous operation of the filter, but is the same
24 filter. They're not two different filters that are
25 swapped in and out.

1 BY MR. AYERS:

2 Q. At some point in time potentially the filter --
3 the error signal's going to go to 0; correct?

4 A. Yes.

5 Q. At which point the filter coefficients would
6 remain constant; true?

7 A. Yes.

8 Q. Okay. Let's turn to claim 12. Claim 12 of the
9 '585 patent refers to a first computing unit and a
10 second computing unit; is that right?

11 A. Yes.

12 Q. Okay. And where are those computing units
13 described in the '585 patent?

14 MR. HABER: Objection. Form.

15 THE WITNESS: I think they're described part of
16 the DSP 64.

17 BY MR. AYERS:

18 Q. And are you referring to the top of column 5?

19 A. Yes.

20 Q. Okay. Where it says, beginning at line 1,
21 "Furthermore, in the present invention DSP includes two
22 computing units to speed up the computation time"?

23 A. Yes.

24 Q. And it goes on to say:

25 "Specifically, the filtering operation of the

1 real and imaginary parts in the frequency domain are
2 carried out in parallel."

3 A. That's correct.

4 Q. Any other description of the computing units?

5 A. Well, the paragraph continues with:

6 "DSP 64 may include only one computing unit."

7 Q. Any other place in the specification it's
8 described?

9 MR. HABER: Objection. Form.

10 THE WITNESS: Again, the DSP unit 64 is
11 described in multiple places for multiple functions, so
12 I'm not sure what is your question exactly.

13 BY MR. AYERS:

14 Q. Just whether it's described anywhere else in
15 the specification.

16 A. The DSP 64?

17 Q. The multiple computing units.

18 A. I don't see that.

19 Q. And did you apply a -- what you believe to be
20 the broadest reasonable interpretation of the term
21 "computing unit" in forming your opinion?

22 A. Yes.

23 Q. And are these computing units that are
24 described in column 5 integrated on the same silicon?

25 A. Yes.

1 Q. Do they have to be integrated on the same
2 silicon?

3 MR. HABER: Objection. Form.

4 THE WITNESS: Depend on what is the scope of
5 your design.

6 BY MR. AYERS:

7 Q. So could or could not be on the same silicon?

8 A. According to the '585 patent they have to be.

9 Q. They have to be?

10 A. Yes.

11 Q. Where does it say that?

12 A. Because the scope of the '585 patent is to
13 obtain a chip with small cost. One chip with small cost
14 is not going to cost you less if you split the computing
15 unit in multiple chips.

16 Q. So in your opinion, claim 12 requires the
17 computing units to be on the same silicon?

18 MR. HABER: Objection. Form.

19 THE WITNESS: Claim 12 does not require that
20 needs to be on the same silicon. I don't see that
21 limitation here.

22 MR. AYERS: Okay.

23 Q. Would you agree with me that Grumman processes
24 the real and imaginary components separately?

25 MR. HABER: Objection. Form.

1 THE WITNESS: The question was if Grumman
2 processes the real and imaginary part separately? And
3 my answer would be no, they're part of the same filter.

4 BY MR. AYERS:

5 Q. Okay. Would you agree that in Grumman that the
6 real and imaginary parts are filtered separately in
7 distinct parallel data paths?

8 MR. HABER: Objection. Form.

9 THE WITNESS: No. Actually, referring to
10 Figure 1 in Grumman, the input can be swapped between
11 the two blocks, the upper block and the lower block.

12 BY MR. AYERS:

13 Q. So you would disagree with Grumman's statement
14 in column 1 where it describes the instant invention as
15 relating to, quote, "a finite impulse response filter
16 that filters complex digital signals in a manner such
17 that the real and imaginary parts of the complex digital
18 signal are filtered separately in distinct parallel data
19 paths"?

20 A. I just looked at Figure 1 and I see actually
21 the input can be routed both to the upper part and the
22 lower part, so I'm not sure exactly how that Figure 1 is
23 related to the description in the first paragraph that
24 you just mentioned.

25 Q. And is the upper part, does it -- is that --

1 the upper and lower parts, is that what Grumman is
2 referring to as the parallel data paths?

3 MR. HABER: Objection. Form.

4 THE WITNESS: I don't know what Grumman refers
5 to, the parallel data paths.

6 MR. AYERS: Okay.

7 Q. Do you understand that or -- that one of these,
8 either the upper or the lower, processes the real
9 portion of the signal and the other processes the
10 imaginary portion?

11 A. Yes.

12 Q. Okay. So this could be what Grumman is
13 referring to as the separately in distinct parallel data
14 paths?

15 MR. HABER: Objection. Form.

16 THE WITNESS: Yes.

17 BY MR. AYERS:

18 Q. And you'd agree that each of these parallel
19 data paths could be considered a computing unit?

20 MR. HABER: Objection. Form.

21 THE WITNESS: Yes.

22 BY MR. AYERS:

23 Q. Let's turn to paragraph 1 of 7 of your opinion.
24 There you say:

25 "Notably, both Thomson and Harris possess real

1 filters only and have no disclosure of processing an
2 imaginary portion of a finite impulse response
3 filter."

4 Correct?

5 A. That's correct.

6 Q. Could I have you look at Harris, which is tab 3
7 of your notebook, 1005? And turn to page 7. And Figure
8 7 is probably the simplest, but it -- Figure 6 shows the
9 same thing as well. Do you see that block in the middle
10 of Figure 7?

11 A. Yes.

12 Q. And you see there's a -- there are three boxes
13 in there? There's a first one and then that one
14 produces an output -- two outputs, I and Q?

15 A. Yes.

16 Q. And the I goes to one DDF and the Q goes to a
17 second DDF?

18 A. Yes.

19 Q. Okay. Now let me have you turn to -- and that
20 part -- it's hard to see. It's the HSP43220 DDF.

21 MR. HABER: Objection. Form.

22 THE WITNESS: Okay.

23 BY MR. AYERS:

24 Q. And then if I could have you turn to tab 13,
25 which is Cresta Exhibit 1015.

1 A. Yes.

2 Q. We discussed this earlier. This purports to be
3 a data sheet on that Harris part that's shown in the
4 Harris reference.

5 A. Okay.

6 Q. And did you consider this data sheet in forming
7 your opinion expressed in paragraph 107 that Harris
8 processes real filters only?

9 A. No.

10 MR. HABER: Objection. Form.

11 BY MR. AYERS:

12 Q. Could I have you turn to page 2015-13?

13 A. Yes.

14 Q. Do you see this chip setup application? And
15 then in Figure 14 it shows the HSP45116 incoming and
16 then it has two outputs, one driving one HSP43220 DDF
17 and another output driving another DDF?

18 A. Yes.

19 Q. And is it true that this data sheet says that
20 the HSP45116 down-converts the signal of interest to
21 baseband generating a real component and an imaginary
22 component?

23 A. Yes.

24 Q. Okay. And so the real component is one of the
25 outputs that is connected to one of the DDFs and the

1 imaginary component is output to the other DDF?

2 MR. HABER: Objection. Form.

3 THE WITNESS: Yes.

4 BY MR. AYERS:

5 Q. And you don't dispute, do you, that it was well
6 known to process imaginary and real components
7 separately at the time of the '585 patent?

8 MR. HABER: Objection. Form.

9 THE WITNESS: No.

10 BY MR. AYERS:

11 Q. Let me turn now to Ground 3, claim 14, which
12 starts at paragraph 104. In paragraph 111 you say:

13 "Birleson invention is a TV receiver, and like
14 any other TV receiver, it must have a channel filter
15 that allows the selection of a wanted channel from
16 an unwanted channel."

17 Is that right?

18 A. That's correct.

19 Q. And the channel filter is element SIFFa 106?

20 This is at tab 8 of your...

21 Birleson also shows an ACD circuit 30; is that
22 right?

23 A. Yes.

24 Q. And what does ACD stand for?

25 A. I think it stands for automatic carrier

1 detector.

2 Q. And would that mean -- by that does it mean
3 automatic carrier signal detection?

4 MR. HABER: Objection. Form.

5 THE WITNESS: I'm not sure I understand your
6 question.

7 BY MR. AYERS:

8 Q. What is Birleson referring to when it says
9 "carrier"? What is the carrier?

10 MR. HABER: Objection. Form.

11 THE WITNESS: Okay. So the automatic carrier
12 detect circuit in Birleson detects whether the incoming
13 signal is an analog or digital signal.

14 BY MR. AYERS:

15 Q. And it does that by detecting a carrier signal;
16 correct?

17 A. That's correct.

18 Q. And its function is to detect whether the
19 incoming channel is an analog signal or digital signal;
20 correct?

21 MR. HABER: Objection. Form.

22 THE WITNESS: Correct.

23 BY MR. AYERS:

24 Q. The ACD 30 has two -- has an input C and an
25 input D; correct?

1 A. Yes.

2 Q. And the C input is connected to the output of
3 SIFFa 106; correct?

4 A. Yes.

5 Q. And SIFFa 106 has a band-pass characteristic
6 that is suitable for a digital signal; correct?

7 MR. HABER: Objection. Form.

8 THE WITNESS: Yes.

9 BY MR. AYERS:

10 Q. The D input is connected to the output of SIFFb
11 109; correct?

12 A. Yes.

13 Q. And SIFFb 109 in combination with SIFFa 106 has
14 a band-pass characteristic required for analog
15 television; true?

16 MR. HABER: Objection. Form.

17 THE WITNESS: Can you repeat that question,
18 please?

19 MR. AYERS: Sure.

20 Q. SIFFb 109 in combination with SIFFa 106 has a
21 band-pass characteristic required for analog television?

22 MR. HABER: Objection.

23 THE WITNESS: That's not according to the
24 description in Birleson. The description in Birleson
25 says the SIFFb 109 in combination with SIFFa 106

1 produces the band characteristic required for analog
2 television.

3 MR. AYERS: I thought that's what I said,
4 but --

5 THE WITNESS: I think you mentioned digital.

6 MR. AYERS: Oh, I'm sorry. Let me rephrase the
7 question.

8 Q. So SIFFb 109 in combination with SIFFa 106 has
9 a band-pass characteristic required for analog
10 television?

11 MR. HABER: Objection. Form.

12 THE WITNESS: Yes.

13 BY MR. AYERS:

14 Q. Okay. And then ACD 30 compares the power
15 levels of the signals received on inputs C and D; true?

16 MR. HABER: Objection. Form.

17 THE WITNESS: Is the description, yes.

18 BY MR. AYERS:

19 Q. And based on that comparison, the ACD 30 is
20 able to determine whether the input television signal's
21 in an analog or a digital television format; true?

22 A. Yes.

23 Q. Okay. And the results of that comparison are
24 then provided via the I2C bus which adjusts which 108 to
25 select or deselect SIFFb 109; correct?

1 MR. HABER: Objection. Form.

2 THE WITNESS: Yes.

3 BY MR. AYERS:

4 Q. And I2C is a standard serial communication
5 protocol?

6 A. Yes.

7 Q. And switch 108 controls whether the receiver
8 processes the digital television signal from SIFFa 106
9 or the analog television signal from SIFFb 109; correct?

10 A. Can you repeat the question, please?

11 MR. AYERS: Can you read the question back?

12 (Whereupon the record was read as follows:

13 "Q. And switch 108 controls whether the
14 receiver processes the digital television signal
15 from SIFFa 106 or the analog television signal from
16 SIFFb 109; correct?")

17 THE WITNESS: I'm not sure what you refer to
18 as -- which block is processing what?

19 BY MR. AYERS:

20 Q. Yeah, I meant -- well, why don't we look at
21 column 11 to be more precise. Maybe processing's not
22 the right word. The function of this -- the purpose of
23 this switching is described, I believe, starting at line
24 12.

25 A. Okay.

1 Q. It says:

2 "In this embodiment shown, when ACD 30 analyzes
3 the outputs of filters 106 and 109, the signal path
4 of tuner 10 is configured for analog television."

5 Right? Meaning, in the default state it's --

6 A. I'm trying to find tuner 10.

7 Q. That may be the overall -- yeah, it's referring
8 to the entire circuit. It's just above Figure 1.

9 A. The whole thing is tuner 10?

10 Q. Right. So in the embodiment shown in Figure 1,
11 it's default to -- configured for analog television.

12 A. Okay. That's the description.

13 Q. Then it goes on to say:

14 "SIFF 109 will be selected in the signal path
15 by switch 108."

16 A. That is correct.

17 Q. Following the comparison, meaning the
18 comparison by ACD 30, if the signal is determined to be
19 a digital television signal, SIFFb 109 will then be
20 switched out of the signal path and attenuator 110 will
21 be selected by switch 108; correct?

22 MR. HABER: Objection. Form.

23 THE WITNESS: That's correct.

24 BY MR. AYERS:

25 Q. So the purpose of the ACD is to detect whether

1 the incoming television signal is in the analog format
2 or the digital format; true?

3 MR. HABER: Objection. Form.

4 THE WITNESS: The purpose of the ACD is to
5 detect if the incoming signal has a carrier or not.
6 It's simply a carrier detector.

7 MR. AYERS: Okay. That's true.

8 Q. In combination -- as described in column 11, it
9 provides the input, however, by which the switch 108 is
10 controlled to switch either the analog -- strike that.
11 It's not a very good...

12 So the ACD 30 provides input to -- or input by
13 which the switch 108 is controlled; is that true?

14 MR. HABER: Objection. Form.

15 THE WITNESS: Is not clear to me who controls
16 the switch 108.

17 MR. AYERS: Okay.

18 Q. It goes -- the output of the ACD is sent over
19 the I2C bus; correct?

20 A. Yes.

21 Q. You don't know where to, but it's received by
22 something?

23 A. Yes.

24 Q. Okay. And would you agree that that something
25 controls switch 108 based on the data that's transmitted

1 from the ACD over the I2C bus?

2 MR. HABER: Objection. Form.

3 THE WITNESS: That's something is not described
4 in the Birleson patent.

5 BY MR. AYERS:

6 Q. Okay. But you would agree that the switch 108
7 is described as being controlled based on what type of
8 television signal is received --

9 MR. HABER: Objection. Form.

10 BY MR. AYERS:

11 Q. -- true?

12 A. I think the only description I see about switch
13 108, if it selects or deselects the SIFFb 109.

14 Q. As we discussed, SIFFb 109 is specific to a
15 particular television format; true?

16 MR. HABER: Objection. Form.

17 THE WITNESS: I'm not sure if SIFFb 109 is
18 specific to a certain television format. From the
19 description, it seems that only SIFFb 109, in
20 combination with SIFFa 106, produces the bandwidth
21 characteristic required for analog television.

22 MR. AYERS: Okay. Let me ask it differently.

23 Q. Would you agree that SIFF 109 is unnecessary if
24 the analog -- if the television signal is in a digital
25 television format?

1 MR. HABER: Objection. Form.

2 THE WITNESS: That information is not provided
3 in the patent, in the Birleson patent.

4 BY MR. AYERS:

5 Q. Let me have you turn to column 2 of Birleson.
6 Beginning at line 52, Birleson says:

7 "Two second intermediate frequency filters
8 (SIFFs) are selectively switched into the
9 intermediate frequency (IF) signal path to create an
10 overall band-pass characteristic that is
11 alternatively suitable for either digital or analog
12 television signals."

13 Correct?

14 A. I see that.

15 Q. Okay. And do you understand that the two
16 second intermediate frequency SIFFs that Birleson is
17 referring to is SIFFs a106 and b109?

18 MR. HABER: Objection. Form.

19 THE WITNESS: No, because according also to
20 Birleson, SIFF 109, so SIFFb 109, in conjunction with
21 SIFFa 106, has a band-pass characteristic that is
22 suitable for digital television. So both of them have
23 to be there for digital television, whereas we just
24 recited is they've been alternatively suitable for
25 either digital or analog television signals, so they

1 cannot be the same SIFFs.

2 BY MR. AYERS:

3 Q. Right. I think what we read previously is that
4 SIFFa has a band-pass characteristic that's suitable for
5 digital television; right?

6 A. That's correct.

7 Q. And that the -- and that signal is then passed
8 through amplifier 107 to SIFFb; correct?

9 A. That is correct.

10 Q. And then it's filtered again through SIFFb?

11 A. Yes.

12 Q. And that the two SIFFs, if you will, SIFFa and
13 SIFFb, have an overall frequency response that's
14 suitable for analog television; correct?

15 MR. HABER: Objection. Form.

16 THE WITNESS: Yes.

17 BY MR. AYERS:

18 Q. Okay. So that would be one filter, if you
19 will, or set of filters. The other would be SIFFa
20 alone; true?

21 A. Okay. So now we're considering two sets of
22 filters, one is SIFFa alone and the other one is SIFFa
23 plus SIFFb?

24 Q. Correct.

25 A. Okay.

1 Q. Now, does that, that assumption, is that
2 consistent with the description that's given in Figure
3 2?

4 A. Figure 2 of Birleson?

5 Q. I'm sorry, column 2. I'm getting hungry.

6 A. No, because column 2 says that the output of --
7 excuse me. Because the two second intermediate
8 frequency filters (SIFFs) are selectively switched into
9 the intermediate frequency IF signal, so your previous
10 question was if the SIFFs refer here in column 2 are the
11 SIFFs 106 and 109, and my answer is still no.

12 Q. Okay. So are you aware of any other SIFFs in
13 Birleson that it might be referring to in column 2?

14 A. Again, maybe, but I do not express an opinion
15 on that in my declaration referring to this IPR.

16 Q. But you did express an opinion on how this
17 Birleson circuit works; right?

18 A. My only opinion referring to Birleson is
19 referring to claim 14.

20 Q. Okay.

21 A. And claim 14 requires that the receiver of
22 claim 13 "wherein said standard selection circuit
23 generates set select signal in response to an input
24 signal from a user."

25 Q. Right.

1 A. Nothing in Birleson refers to a signal input
2 from a user.

3 Q. That's a pretty categorical statement. Are you
4 sticking with that?

5 A. Yes.

6 Q. But before we get to that, you did refer to
7 SIFFa 106 in your declaration; right?

8 A. Can you point me where in my declaration?

9 Q. Paragraph 111.

10 A. Yes.

11 Q. You also referred to ACD 30 in paragraph 112?

12 A. That's correct.

13 Q. And so presumably, in order to render your
14 opinion, you looked at those components and see how they
15 operated in connection with the Birleson circuit?

16 A. Yes.

17 Q. Okay. That's what I'm trying to understand, is
18 how the circuit works. Okay?

19 A. But we have to understand how the circuit works
20 in the context of claim 14, because they refer to the
21 claim 14.

22 Q. Right. We're going to get to that. I'm just
23 going through the basis for your opinion here which
24 refers to SIFFa 106 and ACD 30; right? You offered some
25 testimony about how those operate; true?

1 A. Yes.

2 Q. Okay. So that's what we're discussing.

3 So you don't have an opinion, I guess, on
4 whether the two second intermediate frequency SIFFs
5 referred to in column 2 of Birleson refer to SIFFa 106
6 and SIFFb 109?

7 MR. HABER: Objection. Form.

8 THE WITNESS: No.

9 MR. AYERS: Okay.

10 Q. How about the automatic carrier detection ACD
11 circuit referred to in column 2, do you know -- do you
12 have an opinion on whether that refers to ACD 30 shown
13 in Figure 1?

14 A. Yes.

15 Q. And what is that opinion?

16 A. It refers to that circuit.

17 Q. Okay. Okay. And there it says:

18 "An automatic carrier detection ACD circuit
19 monitors the output of both SIFFs and determines
20 whether the signal being processed is in the digital
21 or analog format."

22 Correct?

23 A. Correct.

24 Q. Okay. Now, what are the outputs of both SIFFs
25 that the ACD 30 monitors in Figure 1?

1 A. The outputs are noted at signal C and D.

2 Q. Okay. And C is output from SIFFa 106; correct?

3 A. Yes.

4 Q. And D is output from SIFFb 109?

5 A. I think is the dotted line, not really the
6 figure. The figure is a little bit misleading, but yes.

7 Q. Okay. So does that help answer the question
8 about which two second intermediate frequency SIFFs
9 column 2 is referring to?

10 MR. HABER: Objection. Form.

11 THE WITNESS: Again, I think the column 2 is
12 misleading because it says that the two intermediate
13 frequency filter SIFFs are selectively switched into
14 intermediate frequency.

15 BY MR. AYERS:

16 Q. Well, okay. So in your opinion, only one of
17 the SIFFs is selectively switched into the signal path?

18 A. Correct.

19 Q. Okay. So with that understanding, you would
20 agree that the ACD referred to in column 2 is monitoring
21 the outputs of SIFFa and SIFFb?

22 MR. HABER: Objection. Form.

23 THE WITNESS: Yes.

24 BY MR. AYERS:

25 Q. Okay. So as it's described here, this ACD

1 monitors the outputs of both SIFFs and determines
2 whether the signal being processed is in the digital or
3 analog format; correct?

4 A. That's correct.

5 Q. And then it says that the output of the
6 selected SIFF combination -- okay. Well, that's --
7 strike that.

8 Let's go back to column 11 of Birleson. So am
9 I correct that this -- the ACD determines whether the
10 signal being processed is in the digital or analog
11 format and informs something of what format that's in?

12 MR. HABER: Objection. Form.

13 THE WITNESS: Can you repeat the question,
14 please?

15 MR. AYERS: Yeah. Let me just rephrase that
16 question.

17 Q. So the ACD monitors the outputs of both SIFFs,
18 determines whether the signal being processed is in the
19 digital or analog format, and informs some other circuit
20 of that determination?

21 MR. HABER: Objection. Form.

22 BY MR. AYERS:

23 Q. True?

24 A. I think the ACD only provides an output to an
25 I2C interface. The Birleson does not describe further

1 what happens with that signal on the I2C.

2 Q. Right. But you would agree with me that the
3 information that's provided over that I2C bus is --
4 indicates the format of the television signal; true?

5 MR. HABER: Objection. Form.

6 THE WITNESS: No.

7 BY MR. AYERS:

8 Q. Okay. Well, what information is communicated
9 over the I2C bus?

10 A. The only information communicated over the I2C
11 bus, if the ACD detects a carrier or does not detect a
12 carrier. This is not enough information to determine
13 the format.

14 Q. Something determines the format from that
15 information, though?

16 A. No.

17 MR. HABER: Objection. Form.

18 BY MR. AYERS:

19 Q. So is Birleson wrong when it says that the ACD
20 monitors the outputs of both SIFFs and determines
21 whether the signal being processed is in the analog or
22 digital format?

23 MR. HABER: Objection. Form.

24 THE WITNESS: I don't see that.

25 MR. AYERS: I'm referring to column 2. Sorry

1 to switch columns on you. Let rephrase the question.

2 Q. So is Birleson wrong when it says that the
3 automatic carrier detection circuit monitors the outputs
4 of both SIFFs and determines whether the signal being
5 processed is in the digital or analog format?

6 MR. HABER: Objection. Form, relevance.

7 THE WITNESS: No.

8 BY MR. AYERS:

9 Q. And isn't it that information about the format
10 that the signal's in that's communicated over the I2C
11 bus?

12 MR. HABER: Objection. Form.

13 THE WITNESS: No. As we discussed before, even
14 though, for example, I know that the format is analog or
15 the signal is analog format, I don't know which format
16 it is. Could be analog FM. Could be analog AM. There
17 are many dozens -- I mean, at least a dozen analog
18 formats and many dozens of digital formats. So that
19 information is not determined by the ACD circuit.

20 BY MR. AYERS:

21 Q. Okay. So the ACD circuit in Birleson would
22 have to be able to determine more than whether it's just
23 in an analog or digital format in order to indicate the
24 format of the television signal?

25 A. It will have to provide some information about

1 the format.

2 Q. And whether it's in analog format or digital
3 format is not information about the format, in your
4 opinion?

5 A. It is information about the format. It's not
6 complete information about the format.

7 Q. And what information -- what additional
8 information would it need to be complete information, in
9 your opinion?

10 MR. HABER: Objection. Form.

11 THE WITNESS: Again, I didn't study Birleson in
12 that view, but if I would have to offer an opinion, will
13 be to have some other information about how the data is
14 formatted. For example, the bandwidth of the channel or
15 where are the sub carriers, or how do I need to
16 demodulator that particular format.

17 BY MR. AYERS:

18 Q. All that information would have to be contained
19 in this signal in order to be indicative of the format?

20 A. It will have to be indicated in the output of
21 that particular standard selection circuit.

22 Q. And where is that information described in the
23 '585 patent?

24 A. It is not.

25 Q. Okay. Let's go back to Birleson for the

1 moment. So you would agree with me that -- well, you
2 say:

3 "Birleson does not teach changing the input
4 source argued by the petition, but instead that
5 'signal testing' may be initiated by a channel
6 change."

7 Is that right?

8 A. Yes.

9 Q. And you refer to column 11, line 20, so let's
10 look at that. And it says there:

11 "Signal testing may be initiated by a channel
12 change."

13 Correct?

14 A. That's correct.

15 Q. And you don't dispute that a channel change
16 could be the result of an input from a user, do you?

17 MR. HABER: Objection. Form.

18 THE WITNESS: May or may not be.

19 BY MR. AYERS:

20 Q. Typically how a channel is changed, isn't it?

21 A. Okay.

22 Q. And then it says signal testing is initiated by
23 that channel change; true?

24 A. That's correct.

25 Q. And by "signal testing" it means the testing

1 done by ACD 30; correct?

2 A. That's correct.

3 Q. So each time the channel is changed, the ACD
4 checks to see whether the format of the signal is in an
5 analog format or digital format; correct?

6 MR. HABER: Objection. Form.

7 THE WITNESS: Yes.

8 BY MR. AYERS:

9 Q. And then it says:

10 "Following the test, I2C 124 either switches
11 SIFFb 109 out or leaves it in the signal path,
12 depending on whether an analog or digital signal is
13 detected."

14 Correct?

15 A. Okay.

16 Q. Do you disagree that that's an accurate
17 description of Birleson?

18 A. That's an accurate description.

19 Q. Okay. Now, you say that Birleson does not
20 teach changing the input source, but could I have you
21 look at the paragraph beginning at line 27?

22 A. Okay.

23 Q. Okay. It says:

24 "I2C 124 can initiate signal testing in ACD
25 depending on any number of other factors."

1 True?

2 A. True.

3 Q. "Signal testing could be initiated by a channel
4 change as discussed above or by a change in the
5 input source."

6 Correct?

7 A. Correct.

8 Q. And then it goes on to give an example:

9 "For instance, if an operator switched the
10 input from an antenna or cable line to a video
11 recorder or laser disc player, then the test could
12 be initiated even though the operator did not change
13 the channel."

14 True?

15 A. Correct.

16 Q. And you would agree with me that switching the
17 input could also be initiated by a user; true?

18 MR. HABER: Objection. Form.

19 THE WITNESS: Yes.

20 BY MR. AYERS:

21 Q. Birleson also describes a remote control with a
22 test mode input on a remote control; true?

23 A. Yes.

24 Q. And that, too, may initiate signal testing;
25 correct?

1 A. Yes.

2 Q. So, again, that test mode would be initiated by
3 a user actuating a button on the remote control;
4 correct?

5 MR. HABER: Objection. Form.

6 THE WITNESS: Yes.

7 MR. AYERS: Why don't we take a lunch break.

8 (Lunch recess.)

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1 LOS ANGELES, CALIFORNIA; WEDNESDAY, JANUARY 13, 2016

2 1:45 P.M.

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4

5 FURTHER EXAMINATION

6

7 BY MR. AYERS:

8 Q. Back on the record.

9 Dr. Opris, I'd like to turn now to your

10 opinions in IPR 2015-00626 relating to the '792 patent;

11 would that be all right with you?

12 A. Yes.

13 Q. Okay. And I believe I have a copy of the
14 declaration that you submitted in that case at tab B4.

15 A. Okay.

16 Q. Exhibit 2032. I want to expedite this as much
17 as possible. So in -- is there any differences of
18 substance in Sections 1 through 5 of your declaration in
19 the 626 case compared to those same sections in the 615
20 case?

21 A. You're talking Section 1 to 5?

22 Q. One through 7, actually.

23 A. Definitely should be some differences in the
24 Section 2, "Resources Consulted."

25 Q. Okay. Other than the resources that you

1 consulted or the opinions that you've expressed,
2 particularly in the background of the invention and the
3 claim construction section, the same in the 626 as the
4 615?

5 A. Yes.

6 Q. That will save me from having to ask you those
7 questions over again. You said there were some
8 differences in the resources you consulted in Section 2,
9 and in Section 2 you list a number of resources that you
10 consulted in rendering your opinions; is that right?

11 A. That's correct.

12 Q. Any other resources that you consulted in
13 rendering these opinions?

14 A. No.

15 Q. Okay. Then let's turn to page 28 of your
16 declaration, which addresses claim 29 of the '792
17 patent.

18 A. Okay.

19 Q. Okay. And claim 29 as listed in column 14
20 depends from claim 1; is that right?

21 A. Claim 29 in the '792 patent depends on claim 1.

22 Q. Okay. So claim 1 recites a receiver, a
23 television receiver; correct?

24 A. Yes.

25 Q. And that television receiver includes a

1 frequency conversion circuit, an analog-to-digital
2 converter, a signal processor and a signal output
3 circuit; is that true?

4 A. I think list a lot more than that.

5 Q. At least a lot more than that?

6 A. List a lot more than what you just said.

7 Q. At least a lot more than that? I'm sorry.

8 A. List a lot more than what you just said.

9 MR. HABER: I think he's saying lists.

10 MR. AYERS: Oh, it lists a lot more than what
11 you said. Okay. And I don't mean to give short shrift
12 to the actual language, but there are one, two, three --
13 four components of the television receiver recited in
14 claim 1.

15 THE WITNESS: That's correct.

16 BY MR. AYERS:

17 Q. Okay. A frequency conversion circuit, an
18 analog-to-digital converter, a signal processor and a
19 signal output circuit; true?

20 A. Correct.

21 Q. And the requirements of each of those
22 components is laid out in claim 1. Claim 29 doesn't add
23 an additional component to the television receiver of
24 claim 1, does it?

25 A. Yes, it does.

1 MR. HABER: Objection. Form.

2 BY MR. AYERS:

3 Q. What component is that?

4 A. So it requires that the input RF signal
5 comprises an RF signal received from terrestrial
6 broadcast, an RF signal received from satellite
7 broadcast, and an RF signal received from cable
8 transmission.

9 Q. And by the input RF signal, claim 29 is
10 referring to an input RF signal that is received by the
11 frequency conversion circuit; true?

12 A. Yes.

13 Q. So that's the sort of starting point for the
14 television receiver of claim 1; true?

15 A. That's correct.

16 Q. Okay. And so claim 29 says that that input RF
17 signal can be received from one of three different
18 sources; correct?

19 A. Correct.

20 Q. Can be received from a terrestrial broadcast, a
21 satellite broadcast or -- well, okay. Strike that.

22 The claim, though, doesn't say that the input
23 RF signal is received from each of those sources, does
24 it?

25 MR. HABER: Objection. Form.

1 THE WITNESS: Which claim?

2 MR. AYERS: Twenty-nine. Sorry.

3 THE WITNESS: Can you repeat the question?

4 BY MR. AYERS:

5 Q. It says -- okay. Would you agree with me that
6 the -- that the input RF signal does not have to be
7 received from each of these sources?

8 MR. HABER: Objection. Form.

9 THE WITNESS: I think it does.

10 MR. AYERS: Okay.

11 Q. The claim doesn't say wherein the input RF
12 signal is received from terrestrial broadcast, from
13 satellite broadcast, from cable transmission, does it?

14 A. I think that's what it says.

15 Q. No, it says the RF signal comprises an RF
16 signal received from terrestrial broadcast; correct?

17 MR. HABER: Objection. Form.

18 THE WITNESS: Correct.

19 BY MR. AYERS:

20 Q. And there is referring to -- excuse me. An RF
21 signal is not referring to the input RF signal, is it?

22 MR. HABER: Objection. Form.

23 THE WITNESS: I think an RF signal received is
24 same as input RF signal.

25 ///

1 BY MR. AYERS:

2 Q. Well, the claim doesn't say that the RF signal
3 is received from these different sources, does it?

4 MR. HABER: Objection. Form.

5 THE WITNESS: Again, my understanding of input
6 RF signal is the same as RF signal received.

7 BY MR. AYERS:

8 Q. Okay. Let's look at "comprises." What's your
9 understanding of the meaning of "comprises"?

10 MR. HABER: Objection. Form.

11 THE WITNESS: The customary meaning is that
12 something comprises something, that means includes.

13 MR. AYERS: Right.

14 Q. Includes but is not limited to; is that right?

15 A. That's correct.

16 Q. Okay. So if we use that meaning, it says:
17 "Wherein the input RF signal includes but is not limited
18 to an RF signal received from broadcast -- terrestrial
19 broadcast" --

20 MR. HABER: Objection. Form.

21 BY MR. AYERS:

22 Q. -- right?

23 A. That's correct. That the customary meaning
24 will be that the input RF signal can be another RF
25 signal received from another source.

1 Q. So long as an RF signal is received from
2 terrestrial broadcast -- strike that.

3 In other words, as long as the input RF signal
4 includes an RF signal received from terrestrial
5 broadcast, that first clause would be satisfied; true?

6 MR. HABER: Objection. Form.

7 THE WITNESS: No. My understanding of the form
8 is that the receiver should be able to receive a signal
9 from terrestrial broadcast or from the satellite
10 broadcast or from the cable transmission.

11 BY MR. AYERS:

12 Q. The receiver should be able to receive those?

13 A. Yes.

14 Q. This is just referring -- claim 29 just refers
15 to the signal itself; right? That's input to the
16 television receiver; correct?

17 MR. HABER: Objection. Form.

18 THE WITNESS: Correct.

19 BY MR. AYERS:

20 Q. It doesn't modify the receiver itself; true?

21 MR. HABER: Objection. Form.

22 THE WITNESS: Yes, it does, by claim 1.

23 BY MR. AYERS:

24 Q. And what -- how does it claim -- how does it
25 modify claim -- the receiver of claim 1, other than

1 specifying the source of an RF signal?

2 A. Because claim 1 recites "television receiver
3 comprising of frequency conversion circuit for receiving
4 an input RF signal." So by reading that in conjunction
5 with claim 29, I construct that as basically the
6 television receiving should be able to receive the input
7 RF signal as specified in claim 29, which is from
8 terrestrial broadcast, from satellite broadcast or from
9 cable television.

10 Q. And so what changes -- what does that propagate
11 through claim 1 by changing the source of the input, the
12 RF signal?

13 MR. HABER: Objection. Form.

14 THE WITNESS: A lot, because those, for
15 example, those three broadcast signals have different
16 formats. So a lot of claim 1 is changed based on the
17 format that is received.

18 BY MR. AYERS:

19 Q. Okay. And where are those changes described in
20 the '792 patent?

21 MR. HABER: Objection. Form.

22 THE WITNESS: Claim 1, for example, recites
23 that "the signal processor processing the digital
24 representation of the intermediate frequency signal in
25 accordance with the television signal format of the

1 input RF signal." So clearly because those three
2 broadcast that you just mentioned in claim 29 have
3 different formats, the signal processor of claim 1 has
4 to be able to process those television signals according
5 to a format.

6 BY MR. AYERS:

7 Q. Well, a single source can transmit television
8 signal different formats; true?

9 A. No. What do you mean "a single source can
10 transmit"? For example, a satellite cannot transmit
11 terrestrial broadcast.

12 Q. No, but it can transmit both analog and digital
13 format television; true?

14 MR. HABER: Objection. Form.

15 THE WITNESS: It's true.

16 BY MR. AYERS:

17 Q. So this frequency conversion circuit of claim 1
18 already has the ability to process both analog -- or
19 different formats from a single source; correct?

20 A. A frequency -- the frequency conversion
21 circuit, yes, has the capability of processing in
22 different formats.

23 Q. All right. So the fact that claim 1 recites
24 receiving an input signal -- the input -- RF signal,
25 encoding information of one or more plurality of

1 formats, that's true whether the source is a single
2 source or multiple sources; right?

3 A. No. For example, I can design a frequency
4 conversion circuit that receives satellite broadcast and
5 then might not be suitable for receiving terrestrial
6 broadcast. They work in different frequency bands.

7 Q. Right. But the same frequency conversion
8 circuit could also receive input RF signal encoding
9 information in a analog television format as well as a
10 digital television format; right?

11 A. Yes.

12 MR. HABER: Objection. Form.

13 BY MR. AYERS:

14 Q. So the frequency conversion circuit wouldn't
15 need to change in order to accommodate both those
16 formats; true?

17 MR. HABER: Objection. Form.

18 THE WITNESS: True.

19 BY MR. AYERS:

20 Q. Okay. And so claim 1 in and of itself wouldn't
21 need to change -- strike that.

22 So given that, what changes need to be made to
23 the frequency conversion circuit of claim 1 if the input
24 signal comprises an RF signal received from terrestrial
25 broadcasts, from satellite broadcast and cable

1 transmission?

2 A. Again, the three broadcast signals that you
3 mentioned work in different bands. So if I were to
4 design a circuit that can receive from three different
5 bands, I have to design the frequency circuit,
6 conversion circuit, to be able to do that.

7 Q. Okay. And where is that described in the '792
8 patent?

9 A. What is "that"?

10 Q. The differences in that frequency conversion
11 circuit to accommodate these three different frequency
12 bands.

13 MR. HABER: Objection. Form.

14 THE WITNESS: I think that was known in the art
15 at that time of the invention.

16 BY MR. AYERS:

17 Q. And that's why it's not specifically described
18 in the '792 patent?

19 A. Yes.

20 Q. Okay. Why don't we turn to column 4. At line
21 52 it says:

22 "Frequency conversion circuit 110 receives
23 input RF signals on signal input terminal 102."

24 Right?

25 A. Yes.

1 Q. And the input RF signals can be received from
2 terrestrial broadcast or cable transmissions; correct?

3 A. Correct.

4 Q. Where does the -- where's the frequency
5 conversion circuit described that receives RF signals
6 from satellite?

7 MR. HABER: Objection. Form.

8 THE WITNESS: Is not described in the text, but
9 is claimed in claim 29.

10 BY MR. AYERS:

11 Q. So other than in claim 29, it's not described
12 in the specification of the '792 patent?

13 A. Again, I didn't look specifically for that
14 information, so I cannot form an opinion.

15 Q. So you formed an opinion about claim 29 that
16 explicitly refers to receiving an input RF signal
17 comprising an RF signal from all three sources but
18 didn't look to how the inventors described the circuit
19 that receives all three signals?

20 MR. HABER: Objection. Form.

21 THE WITNESS: No, that was not within my scope
22 of the present IPR.

23 BY MR. AYERS:

24 Q. The patent, in the background, the description
25 of the related art, the '792 patent does describe

1 receiving a television signal from all three sources;
2 right?

3 A. Yes.

4 Q. So you'd agree with me that it was well known
5 in the art at the time of the '792 patent for a
6 television receiver to receive an RF signal from
7 terrestrial, cable or satellite broadcast television?

8 MR. HABER: Objection. Form.

9 THE WITNESS: That was known in the art.

10 MR. AYERS: Okay.

11 Q. And the difference being primarily the
12 frequency band in which those signals are transmitted?

13 A. No, the difference is a lot more involved than
14 that, because they involve different formats, completely
15 different modulation schemes.

16 Q. Well, but we've already agreed that different
17 formats can be transmitted by a single source; right?

18 MR. HABER: Objection. Form.

19 THE WITNESS: So, again, if you refer only to
20 the frequency conversion circuit, you're right. But
21 your question was a lot broader. If that is the only
22 change.

23 MR. AYERS: Fair enough. Fair enough.

24 Q. So that there'd have to be some change to the
25 signal processor as well to accommodate that different

1 format; is that right?

2 A. That's correct.

3 Q. Okay. And where are those differences
4 described in the '792 patent relating -- the differences
5 between processing one format or another format?

6 A. The '792 patent claims that the signal
7 processor processes the information according to a
8 format.

9 Q. Okay. Is that it?

10 A. Yes. So that basically the signal processor
11 identifies the format and is able to process the input
12 information according to that particular format.

13 Q. Okay. And it was well known at the time how to
14 process a signal in a given format if you knew what the
15 format was?

16 MR. HABER: Objection. Form.

17 THE WITNESS: Yes.

18 BY MR. AYERS:

19 Q. Okay. Let's look now at Thomson, which is
20 Exhibit 1004, tab 2, A2. Are you there?

21 A. Yes.

22 Q. Okay. At column 1, line 55 of Thomson, it
23 says:

24 "Nowadays, a multi-standard TV receiver should
25 be able to function also as a satellite broadcast

1 receiver."

2 Correct?

3 A. Yes.

4 Q. And by "also," do you understand Thomson to
5 mean that in addition to terrestrial and cable that the
6 multi-standard TV should be able to function also as a
7 satellite broadcast receiver?

8 MR. HABER: Objection. Form.

9 THE WITNESS: Yes.

10 MR. AYERS: Okay.

11 Q. Claims 24 and 25 of the '792 patent relate to
12 Grumman -- the combination of Thomson, Harris and
13 Grumman. Am I correct that you've expressed the same
14 opinions in this 626 matter relating to Grumman as you
15 did in the 615?

16 A. Yes.

17 Q. So if I asked you all those same questions,
18 you'd give me the same answers with respect to Grumman?

19 A. I believe so.

20 Q. And then at page 34, claims 26 and 28, relate
21 to your opinions on the combination of Thomson, Harris
22 and Zenith. Am I correct that you've expressed the same
23 opinions with respect to Zenith in the 626 case as you
24 did in the 615 case?

25 A. Yes.

1 Q. Then on page 39 you have some opinions with
2 respect to claim 27 related to the combination of
3 Thomson, Harris, Zenith and Birleson, and am I correct
4 that you've expressed the same opinions with respect to
5 Birleson in the 626 as you did in the 615?

6 A. Yes.

7 Q. Okay. Let's turn to Ground 5, claims 18 and
8 19, beginning on page 41. You say, beginning in
9 paragraph 110:

10 "Thomson is concerned with the problem of
11 processing the analog signals using FM demodulation
12 and processing digital signals using QPSK
13 demodulation."

14 Correct?

15 A. That's correct.

16 Q. Can we turn back to Thomson, which is at tab 2?
17 The passage at column 1, lines 34 through 39, that you
18 recite, don't actually refer to this as the problem that
19 Thomson is addressing; correct?

20 MR. HABER: Objection. Form.

21 THE WITNESS: I'm not sure. What do you mean
22 by "problem that Thomson is addressing"?

23 BY MR. AYERS:

24 Q. Well, you've described this passage as, quote,
25 unquote, "the problem" that Thomson is addressing in

1 paragraph 110 of your declaration.

2 A. That is correct.

3 Q. Okay. And the paragraph that you refer to
4 doesn't use the word "problem," does it?

5 A. That's correct. However, the whole Thomson
6 patent refers to satellite receiver, basically the
7 satellite -- receiver from satellite broadcast; right?
8 This is the problem that Thomson addresses. And
9 satellite broadcast has this type of modulation, which
10 is FM modulation, for analog format and QPSK modulation
11 for digital format. So I believe that my statement here
12 is very correct.

13 Q. Well, are you -- in other words, are you saying
14 that Thomson is directed to a satellite receiver?

15 A. That is correct.

16 Q. Okay. And satellite transmissions happen to
17 have FM and QPSK modulation?

18 A. That is correct.

19 Q. You're not saying that Thomson -- prior to
20 Thomson that FM and QPSK demodulation were unknown, are
21 you?

22 MR. HABER: Objection. Form.

23 THE WITNESS: No.

24 BY MR. AYERS:

25 Q. So they're not inventing a new FM demodulator?

1 A. That's correct.

2 Q. Or a new QPSK demodulator?

3 A. That's correct.

4 Q. Those things were well known at the time of
5 Thomson?

6 A. Yes.

7 Q. So it's not trying to come up with a better FM
8 demodulator or better QPSK demodulator; correct?

9 MR. HABER: Objection. Form.

10 THE WITNESS: He is trying to come up with a TV
11 receiver suitable for satellite broadcast.

12 MR. AYERS: Right.

13 Q. And, in fact, in the paragraph before the one
14 you cite he provides the, quote, unquote, "the object of
15 the invention" in Thomson; true?

16 MR. HABER: Object to form.

17 THE WITNESS: Correct.

18 BY MR. AYERS:

19 Q. Okay. And it says:

20 "To provide a broadcast receiver of the kind
21 described which is suited for digital and analog
22 input signals and using a common A-to-D converter
23 only for analog and digital transmission via
24 satellite."

25 Right?

1 A. That is correct.

2 Q. Okay. That doesn't mention FM modulation or
3 QPSK modulation, does it?

4 A. No. But satellite transmission of analog
5 signal is FM modulation and satellite transmission of
6 digital signal is QPSK modulation.

7 Q. Okay. So I guess I'm just trying to probe
8 that, your statement, that the problem -- the specific
9 problem that Thomson was addressing was processing
10 analog signals using FM demodulation and QPSK
11 demodulation. It was -- really the problem or the
12 object of Thomson was to provide a broadcast receiver of
13 the kind which is suitable for digital and analog input
14 signals?

15 MR. HABER: Objection. Form.

16 BY MR. AYERS:

17 Q. True?

18 A. Again, Thomson was concerned with satellite
19 receiver for both analog and digital transmission.
20 Those type of modulations that I mentioned are the type
21 of modulation used in digital and analog transmission of
22 satellite signals, so I think Thomson related to these
23 particular forms of modulations.

24 Just to come back to my statement, the next
25 sentence is Thomson objectives to provide FM modulation

1 and QPSK modulation using a common A-to-D converter. So
2 basically I captured the paragraph that you just cite
3 before.

4 MR. AYERS: Can you read that answer back to
5 me?

6 (Whereupon the record was read as follows:

7 "A. Again, Thomson was concerned with
8 satellite receiver for both analog and digital
9 transmission. Those type of modulations that I
10 mentioned are the type of modulation used in digital
11 and analog transmission of satellite signals, so I
12 think Thomson related to these particular forms of
13 modulations.

14 Just to come back to my statement, the next
15 sentence is Thomson objectives to provide FM
16 modulation and QPSK modulation using a common A-to-D
17 converter. So basically I captured the paragraph
18 that you just cite before.")

19 BY MR. AYERS:

20 Q. Where -- I guess I'm -- were you quoting from
21 Thomson when you said that? I'm trying to find that
22 sentence, because I don't see QPSK in that paragraph.

23 A. No, QPSK, for example, you find in Figure 1.

24 Q. Okay. So you go on to say that:

25 "Thomson's objective is to provide FM

1 modulation and QPSK modulation using a common A-to-D
2 converter."

3 Right?

4 A. That's correct.

5 Q. And you cite now to this paragraph that I
6 referred to before, column 1, line 29 through 33; right?

7 A. That's correct.

8 Q. And we've already established that that
9 paragraph doesn't refer explicitly to either FM
10 modulation or QPSK modulation; correct?

11 MR. HABER: Objection. Form.

12 THE WITNESS: It refers indirectly because it
13 refers to an analog and digital transmission via
14 satellite.

15 MR. AYERS: Okay.

16 THE WITNESS: Those type of transmissions are
17 of the type of modulations I mentioned.

18 BY MR. AYERS:

19 Q. So that's an artifact of the television signal
20 being transmitted via satellite; is that right?

21 A. That's correct.

22 Q. And you go on to say:

23 "Thomson teachings of minimizing the number of
24 electronic components would have led a POSITA away
25 from using another digital-to-analog converter."

25 A. Yes.

1 Q. And that same person of ordinary skill in the
2 art would know to use a digital-to-analog converter to
3 perform that conversion; true?

4 A. Yes.

5 Q. At paragraph 111 you refer to "claim 18
6 limitation of first and second output terminals provide
7 differential output signals indicative of video and
8 audio information," and you say that that "requires the
9 first output terminal provide signals indicative of both
10 video and audio information and the second output
11 terminal provide signals of both video and audio
12 information"; is that right?

13 A. That is correct.

14 Q. And which element is that recited in?

15 A. That is recited at the end of claim 18.

16 Q. "A third driver circuit for driving the analog
17 output signals from the second digital-to-analog
18 converter onto the second output terminal"?

19 A. And the next paragraph:

20 "Ran the first and second output terminals
21 provide differential output signals indicative of
22 video and audio information encoded in the RF
23 signal."

24 Q. So these first and second output terminals
25 are -- have different functions or carry different

1 signals?

2 MR. HABER: Objection. Form.

3 THE WITNESS: The first and second output
4 terminals in claim 18 carry different signals if we're
5 talking about digital TV signal or an analog TV signal.

6 BY MR. AYERS:

7 Q. So are those out -- would you consider those
8 output terminals to be -- the signals to be time
9 division multiplexed onto those output terminals?

10 A. No.

11 Q. And why not?

12 A. Because you cannot time division multiplex on
13 analog TV receiver with additional TV receiver at the
14 same time. They do not receive two formats at the same
15 time.

16 Q. Well, the time are mutually exclusive; right?

17 MR. HABER: Objection. Form.

18 BY MR. AYERS:

19 Q. The signals are still multiplexed onto that
20 terminal?

21 MR. HABER: Objection. Form.

22 THE WITNESS: Okay. By multiplexing meaning
23 that I watch five minutes analog TV and then 10 minutes
24 digital TV, yes. In that sense, yes.

25 ///

1 BY MR. AYERS:

2 Q. And would you agree with me that it was well
3 known in the art to multiplex two or more signals onto a
4 single output terminal if those signals were mutually
5 exclusive in time?

6 MR. HABER: Objection. Form.

7 THE WITNESS: Have to provide me with the
8 reference in order to make that determination.

9 BY MR. AYERS:

10 Q. As a person of ordinary skill in the art, you
11 couldn't answer that question without a reference?

12 A. You have to know exactly what -- are you asking
13 in -- at the time of the invention?

14 Q. Yes, at that time.

15 A. At the time of the invention I don't know to
16 make that determination, unless you point to me a
17 circuit that is similar enough to what we're talking
18 about.

19 Q. Would you agree that pin count at the time of
20 the '792 was an important design parameter for an
21 integrated circuit?

22 MR. HABER: Objection. Form.

23 THE WITNESS: Yes. And that is exactly one of
24 the features of the patent '792; that at one point I
25 think they claim they can do a chip with only three

1 terminals, except power and ground.

2 BY MR. AYERS:

3 Q. What are the advantages of having fewer pins on
4 a package or an integrated circuit chip?

5 A. Cost.

6 Q. Board space?

7 A. Yes.

8 Q. And so would you at least agree with me that
9 there was, at the time of the '792 patent, a motivation
10 for a person of ordinary skill in the art to design a
11 circuit with as few terminal pins as possible?

12 MR. HABER: Objection. Form.

13 THE WITNESS: Yes.

14 BY MR. AYERS:

15 Q. And would you also agree with me that if you
16 had more signals to output than pins on that package,
17 that the signals that were mutually exclusive in time
18 were likely candidates to be multiplexed onto a
19 particular pin?

20 MR. HABER: Objection. Form.

21 THE WITNESS: I have to look at the exact
22 configuration that you're talking about because it's not
23 that simple to multiplex two different signals, even if
24 they're mutually exclusive in time.

25 ///

1 BY MR. AYERS:

2 Q. They could have different -- well, strike that.

3 So would you agree with me that the Thomson
4 receiver is only processing one television signal in one
5 format at a time?

6 MR. HABER: Objection. Form.

7 THE WITNESS: No, Thomson seems to process both
8 analog and digital television signals.

9 BY MR. AYERS:

10 Q. Simultaneously it's processing both analog
11 signals or analog television format and digital
12 television format?

13 A. I don't see any circuit in Thomson to select
14 between one demodulator and the partial demodulator, the
15 partial demodulator on the other hand, so they might be
16 processing at the same time.

17 Q. Even though a typical television receiver would
18 only display video from one -- in one format at a time?
19 You think it would nonetheless process in both formats?

20 MR. HABER: Objection. Form.

21 THE WITNESS: I'd have to look at what you call
22 a typical TV receiver. Many TV receivers have
23 picture-in-picture and other features that unless I look
24 at the technical specification, I cannot answer your
25 question.

1 BY MR. AYERS:

2 Q. Okay. Would you agree with me that at the time
3 of the '792 patent that compatibility with existing
4 interface chips was an important design consideration in
5 designing a television circuit?

6 MR. HABER: Objection. Form.

7 THE WITNESS: What is your question again?

8 BY MR. AYERS:

9 Q. Would you agree with me that a person of
10 ordinary skill in the art would consider compatibility
11 with existing circuits in designing a television
12 receiver?

13 MR. HABER: Objection. Form.

14 THE WITNESS: What do you mean by "existing
15 circuits"? You want circuits to be compatible with what
16 other circuits?

17 BY MR. AYERS:

18 Q. Other circuits that are required to implement a
19 commercially available or a television that's going to
20 be sold commercially.

21 MR. HABER: Objection. Form.

22 THE WITNESS: I have to look exactly at what
23 component are you referring to.

24 BY MR. AYERS:

25 Q. Would you agree with me that standards are an

1 important consideration in designing commercially
2 available products?

3 MR. HABER: Objection. Form.

4 THE WITNESS: In general, yes.

5 BY MR. AYERS:

6 Q. And one of the advantages of designing to a
7 standard is that there are compatible chips that could
8 be used that are likewise compatible with that standard?

9 MR. HABER: Objection. Form.

10 THE WITNESS: You're referring to a standard.
11 The chip is functioning within the standard? I'm not
12 sure. What standard are you referring to?

13 MR. AYERS: Any standard.

14 THE WITNESS: For example, any standard, the
15 standard for satellite TV, I have to have, in order to
16 receive a satellite TV signal, I have to design a chip
17 which is conforming to that standard.

18 MR. AYERS: Right.

19 Q. And there are -- because that satellite
20 broadcast is standardized, component manufacturers can
21 design to that standard; right?

22 A. That's correct.

23 Q. Okay. And that allows -- and that results,
24 typically, in multiple suppliers for a given component;
25 right?

1 MR. HABER: Objection. Form.

2 THE WITNESS: That is possible, yes.

3 BY MR. AYERS:

4 Q. And those -- let's take a tuner, for example.

5 If a tuner has a standard output -- I don't want to say
6 standard, but -- strike that. I'll move on.

7 Claim 19 adds a low-pass filter to claim 18; is
8 that right?

9 A. Yes, claim 19 specifies a low-pass filter
10 coupled between the first digital-to-analog converter
11 and the first and second driver circuits.

12 Q. And what's the purpose of the low-pass filter
13 in claim 19?

14 A. To provide a low-pass filtering function.

15 Q. And you would agree with me it was not uncommon
16 to provide a low-pass filter at the output of a
17 digital-to-analog converter at the time of the '792
18 patent?

19 MR. HABER: Objection. Form.

20 THE WITNESS: That depends on the application.

21 BY MR. AYERS:

22 Q. Which applications was it known to use a
23 low-pass filter after a digital-to-analog converter?

24 A. I don't know. You have to give me an example
25 and I can tell you that application would require a

1 low-pass filter or would not require a low-pass filter.

2 Q. Under what circumstances would it require a
3 low-pass filter, in your opinion?

4 A. Again, depends on the application, depends on
5 the actual technical specifications.

6 Q. And I take it you've designed circuits that
7 have a low-pass filter after the output of a
8 digital-to-analog converter?

9 A. Yes.

10 Q. And what were those applications?

11 A. For example, transmitter applications. When
12 you want to do a modulation, you put a D-to-A converter,
13 you put on a filter, you put into a mixer.

14 Q. So would you say that it's in applications
15 which require low noise?

16 MR. HABER: Objection. Form.

17 THE WITNESS: Not necessarily. May require a
18 finite bandwidth. May have a host of other technical
19 specifications.

20 BY MR. AYERS:

21 Q. Okay. Would you agree, though, if the
22 specifications called for that, a person of ordinary
23 skill in the art would know to use a low-pass filter to
24 provide a low-pass filtering function?

25 MR. HABER: Objection. Form.

1 THE WITNESS: Not necessarily. Again, a
2 low-pass filter function can be obtained by a low-pass
3 filter but can be obtained by other means. So, again,
4 without a specific example I cannot give you a definite
5 answer.

6 MR. AYERS: Okay. Why don't we take a break.
7 Let me see if I can wrap this up.

8 (Brief recess.)

9 MR. AYERS: Back on the record.

10 Well, I searched my memory bank, couldn't come
11 up with another intelligent question, so I'll pass the
12 witness.

13 MR. HABER: All right. Let's take a few
14 minutes and take some time, go over my notes. I may
15 have some redirect. Let's take a short break again, if
16 you don't mind.

17 MR. AYERS: Okay.

18 (Brief recess.)

19

20 EXAMINATION

21

22 BY MR. HABER:

23 Q. Dr. Opris, you recall earlier in the day giving
24 some testimony about the '585 patent, claim 13; right?

25 A. Yes.

1 Q. And you were asked about the Zenith reference,
2 which is in tab 7 there. And at the end of the Zenith
3 reference, in column 5, there is a claim there, claim 7.
4 Take a quick look at that.

5 A. Yes.

6 Q. In claim 7 there are two different means,
7 elements there which correspond to two different
8 structures, and I wanted to ask you: The second one,
9 "the means for controlling operation of said RF switch,"
10 can you identify for me where in Zenith -- what element
11 in Zenith is the means for controlling the operation of
12 the RF switch? Specifically can look at Figure 1 or
13 Figure 2.

14 A. So I assume that the RF switch is the switch
15 42, for example, Figure 2, and the means for controlling
16 the operation is provided by the microprocessor 22.

17 Q. And "the other structural element of this
18 claim, the means for developing a control signal," can
19 you identify for me what the means for developing a
20 control signal is?

21 A. Is the sync detect circuit 20.

22 Q. Earlier in the day I think you may have
23 testified that the microprocessor is the means for
24 developing a control signal indicative of the type of
25 said tuner signal; is that correct?

1 A. No, it's the sync detect, circuit 20.

2 Q. And the microprocessor controls the operation
3 of the RF switch, what does the microprocessor do to
4 control the operation of the RF switch?

5 A. Microprocessor just issues a 1 or a 0 signal to
6 flip the switch.

7 Q. Now, going back, another claim of the '585,
8 claim 15. Before we move on to claim 15, you don't
9 agree with the statement that the microprocessor
10 develops a control signal indicative of the type of a
11 tuner signal; right?

12 A. No.

13 MR. AYERS: Objection. Form.

14 BY MR. HABER:

15 Q. No, you don't agree?

16 A. No, I do not.

17 Q. Now, claim 15 discusses detecting carrier
18 signals, and earlier you may have testified that
19 anything coming out of a demodulator has or it does not
20 have a carrier signal in it. I want to direct your
21 attention to Figure 2 of the '585 patent. There's an
22 arrow coming out of the top of the demodulator in Figure
23 2.

24 A. You're talking about demodulator 66?

25 Q. Yes.

1 A. Okay.

2 Q. So there's an arrow coming out of the top of
3 demodulator 66?

4 A. Yes.

5 Q. Does the signal on that arrow have a detectable
6 carrier signal? Actually, strike that.

7 Does the signal on that arrow have information
8 about the carrier signal in the underlying data?

9 MR. AYERS: Object to the form.

10 THE WITNESS: Does that signal has information
11 about the carrier? No.

12 BY MR. HABER:

13 Q. Looking back at claim 15, is the signal coming
14 out of demodulator 66 a --

15 A. So --

16 Q. Go ahead.

17 A. I'm sorry, which signal you're talking about?
18 I think you're talking about the signal that goes from
19 the demodulators to the standard selection circuit.
20 That information has carrier information because that's
21 how the standard selection circuit operates. However,
22 the output of the demodulators are the video/audio
23 signals that are on the right. They do not have carrier
24 information.

25 Q. I think there was some confusion there. So

1 your earlier answer was referring to these three arrows
2 on the right?

3 A. Correct. Those are the output of the
4 demodulators.

5 Q. And so the arrow coming from the top of the
6 demodulator?

7 A. The arrow that comes from the top of the
8 demodulator, it's an internal signal to the
9 demodulators. It's not the output of the demodulator.
10 Yes, it come out of the demodulator, but is not the main
11 output of the demodulators, which are the baseband
12 signals. Basically, the demodulators sometimes are
13 co-demodulators (sic), so basically they recover the
14 carrier by themselves and they can send that information
15 or a signal containing that information to the standard
16 selection circuit.

17 Q. And then the baseband signals on the right,
18 what you refer to as the output of the demodulator,
19 those don't have carrier signals?

20 A. In general, they do not have carrier.

21 Q. Regarding -- I'm going to ask about another
22 claim, claim 11, of the '585 patent. Now, regarding
23 claim 11 of the '585 patent, you were asked questions on
24 the Harris reference, which is tab 3 in your binder.
25 You were asked questions about the information on page

1 5, specifically the two paragraphs in the second column
2 there. And there was a sentence in particular. Just
3 read the sentence here.

4 "In systems where the second IF filter stage
5 consists of a bank of filters to support various
6 operational modes, cost and board space can be
7 saved" --

8 Says "be."

9 -- "reconfiguring in a single DDF to implement
10 the filter required by each operational mode."

11 Now, I want to point up to Figure 1 of Harris.
12 Figure 1 is identified as a high level block diagram of
13 a single channel receiver. Can you tell me if what's
14 depicted here in Figure 1 processes more than one
15 format?

16 A. I'm sorry, can you repeat the question?

17 Q. What's here in Figure 1, diagram of a single
18 channel receiver, this processes one format; right?

19 MR. AYERS: Objection. Form.

20 THE WITNESS: Yes.

21 BY MR. HABER:

22 Q. Now, if you go to -- back to where we were
23 looking before on page 5, the first full paragraph
24 there, can you explain what that first paragraph is
25 describing with regard to Figure 1?

1 MR. AYERS: Objection. Form.

2 THE WITNESS: Page 5, the first paragraph?

3 MR. HABER: Yes.

4 THE WITNESS: That starts with: "The DDF
5 consists of a cascade of two low-pass filter stages."?

6 MR. HABER: Yes.

7 THE WITNESS: This paragraph describes the
8 functionality of the DDF.

9 BY MR. HABER:

10 Q. When it says there's a cascade of two low-pass
11 filter stages?

12 A. Yes, that means there are two low-pass filters
13 cascaded in one following the other.

14 Q. And then in the second paragraph, where it says
15 that this bank of filters can be implemented as a single
16 DDF, what is that referring to?

17 A. I think it refers to the fact that for certain
18 application a multi- -- a bank of filters can be
19 implemented to a single device.

20 Q. For example, looking at Figure 1, having these
21 filters cascaded in series here could be replaced here
22 with a single DDF; right?

23 MR. AYERS: Objection. Form.

24 THE WITNESS: Which filters are you pointing
25 to?

1 MR. HABER: I'm looking at the -- at Figure 1.

2 THE WITNESS: Yes.

3 BY MR. HABER:

4 Q. So, for example, in paragraph 5 it says if the
5 filter's following second IF mixer, so all the
6 filters after second IF mixer --

7 A. Okay.

8 Q. -- those could be replaced with a single DDF,
9 is what this paragraph is saying; right?

10 A. Well, there are two filters that follows the
11 second IF mixer. One is a band-pass filter bank. And
12 there are other filters that seem to be after the
13 demodulator or inside the demodulator. The band-pass
14 filter bank that is specified in Figure 1 cannot be
15 implemented by the DDF because the DDF, it's a low-pass
16 filter, whereas the filter banks are specified as
17 band-pass filters.

18 Q. Could you implement what's here in Figure 1
19 with a plurality of DDFs?

20 MR. AYERS: Objection. Form.

21 THE WITNESS: Again, I'm not sure where you
22 want to put the DDFs in the Figure 1. Which filter in
23 the Figure 1 do you want to replace with the DDF?

24 BY MR. HABER:

25 Q. Look at the second full paragraph on page 5,

1 the system that says -- "in systems where the second IF
2 filter stage consists of a bank of filters," the bank of
3 filters is referring to the analog filters; right, in
4 Figure 1?

5 MR. AYERS: Objection. Form.

6 THE WITNESS: Figure 1 bank -- band-pass filter
7 bank, and I assume referring to bank of filters, are
8 analog filters, yes.

9 BY MR. HABER:

10 Q. So what Harris says in the rest of that
11 sentence is that you use a DDF -- a single DDF to
12 replace that bank of filters?

13 MR. AYERS: Objection. Form.

14 THE WITNESS: Yes, but they don't describe
15 exactly how to do that because, first of all, the DDFs
16 are low-pass filter rather than band-pass filters, and
17 then they do not describe A-to-D converter that is
18 needed to translate from analog domain to a digital
19 domain.

20 BY MR. HABER:

21 Q. Okay. But that sentence isn't talking about a
22 plurality of channel filters; right?

23 A. Absolutely not.

24 Q. When Harris talks about a plurality of channel
25 filters, for example, it does what's in Figure 6; right?

1 A. That's correct. Figure 1 clearly refers to a
2 single channel receiver.

3 Q. And you recall being asked questions about the
4 Grumman reference?

5 A. Yes.

6 Q. Grumman refers to a single adaptive filter;
7 right?

8 A. That's correct.

9 Q. There's not more than one filter in Grumman?

10 A. No.

11 MR. AYERS: Objection. Form.

12 BY MR. HABER:

13 Q. And in Grumman it refers to two banks which are
14 all part of a single filter that affect adaptability;
15 right?

16 A. That's correct.

17 MR. AYERS: Objection. Form.

18 BY MR. HABER:

19 Q. You recall earlier you were asked about a data
20 sheet for a Harris component? You recall that?

21 A. I remember that.

22 Q. And do you recall that you were asked about
23 real and imaginary functionality in that -- described in
24 that data sheet; right?

25 A. Which is the data sheet?

1 Q. Thirteen. I think you were asked specifically
2 about page 13.

3 A. Yes, I remember that.

4 Q. Does the system that uses this component have
5 to have -- have to implement any of that functionality?

6 A. Which system and which functionality are you
7 referring to?

8 Q. The functionality described here on page 13.
9 Specifically, I'm asking about the Harris reference
10 that's actually at issue in this IPR. Assuming that
11 this device is actually used -- for example, in Figure 1
12 of the Harris reference, does it actually have to
13 implement any of that functionality?

14 A. No.

15 Q. Does Figure 1 of Harris actually require that?

16 A. No.

17 Q. Do any of the figures require that?

18 A. No.

19 MR. HABER: All right. I think that's all I
20 have for today, and I think we're done.

21 MR. AYERS: I just have one follow-up question.
22 I don't think we need to switch.

23 ///

24 ///

25 ///

1 FURTHER EXAMINATION

2

3 BY MR. AYERS:

4 Q. I just wanted to follow up on one of the
5 questions you had regarding Zenith. You were asked some
6 questions about claim 7 of Zenith, tab 7. So you were
7 asked some questions about claim 7 of Zenith, in column
8 5.

9 A. Yes.

10 Q. You recall that? And so it's your testimony
11 that the structure that corresponds to the means for
12 developing a control signal indicative of the type of
13 said tuner signal is the sync detector 20?

14 A. That's what Zenith refers to, yes.

15 Q. And so the output of the sync detector is a
16 control signal indicative of the type of said tuner
17 signal?

18 A. According to the Zenith patent, yes.

19 MR. AYERS: Okay. Thank you. That's all I
20 have.

21 MR. HABER: I think we're done.

22 (Whereupon at the hour of 3:45 p.m. the
23 deposition was concluded.)

24 ///

25 ///

1 Declaration

2

3

4

5 I hereby declare I am the deponent in the within
6 matter; that I have read the foregoing deposition and
7 know the contents thereof, and I declare that the same
8 is true of my knowledge, except as to the matters which
9 are therein stated upon my information or belief, and as
10 to those matters, I believe it to be true.

11 I declare under the penalties of perjury of the
12 State of California that the foregoing is true and
13 correct.

14 Executed on the day of , 2016
15 at , California.

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W i t n e s s

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1

2 I, Philip D. Norris, a Certified Shorthand
3 Reporter, License No. 4980, certify:

4 That, prior to being examined, Ion E. Opris, Ph.D.,
5 the witness named in the foregoing deposition, was by me
6 duly sworn to testify the truth, the whole truth, and
7 nothing but the truth;

8 That said deposition is a true record of the
9 testimony given and was taken before me on Wednesday,
10 January 13, 2016, at 9:00 a.m., before the following
11 parties: Benjamin Harber, Esq., and Michael R. Fleming,
12 Esq., representing Cresta Technology Corporation, and
13 Peter J. Ayers, Esq., representing Silicon Laboratories,
14 and was thereafter reduced to typewriting via
15 computer-aided transcription under my direction;

16 I further certify that I have not been disqualified
17 as specified under Rule 28 of the Federal Rules of Civil
18 Procedure.

19 I further certify that I am not interested in the
20 event of the action

21 Dated this 19th day of January 2016.

22

23

24 Philip D. Norris
CSR NO. 4980

25

1 Errata Sheet
2
3 NAME OF CASE: SILICON LABORATORIES vs. CRESTA TECHNOLOGY
4 DATE OF DEPOSITION: 01/13/2016
5 NAME OF WITNESS: Ion E. Opris, PH.D.
6 Reason Codes:
7 1. To clarify the record.
8 2. To conform to the facts.
9 3. To correct transcription errors.
10 Page _____ Line _____ Reason _____
11 From _____ to _____
12 Page _____ Line _____ Reason _____
13 From _____ to _____
14 Page _____ Line _____ Reason _____
15 From _____ to _____
16 Page _____ Line _____ Reason _____
17 From _____ to _____
18 Page _____ Line _____ Reason _____
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20 Page _____ Line _____ Reason _____
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22 Page _____ Line _____ Reason _____
23 From _____ to _____
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25 _____

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