In The Matter Of:

APPLE COMPUTER   v.
BURST.COM

SHEILA HEMAMI
November 14, 2006

FINK & CARNEY REPORTING AND VIDEO SERVICES
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[1]
[2]   UNITED STATES DISTRICT COURT
         NORTHERN DISTRICT OF CALIFORNIA (SAN FRANCISCO)
[3]
  APPLE COMPUTER, INC.,   )
[4]
        Plaintiff,   )
[5]
        -against-   )   Case No.
[6]   )   C-06-00019
  BURST.COM, INC.,   )   (MHP)
[7]
        Defendant.   )
[8]
[9]
[10]   DEPOSITION of SHEILA S. HEMAMI, PH.D., an
[11] Expert Witness, taken by Plaintiff at the offices of
[12] Weil, Gotshal & Manges LLP, 767 Fifth Avenue, New
[13] York, New York, on Tuesday, November 14, 2006,
[14] commencing at 9:28 a.m., before Charleane M. Heading,
[15] a Registered Professional Reporter and Notary Public
[16] within and for the State of New York.
[17]
[18]
[19]
[20]
[21]
[22]
[23]
[24]
[25]

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[1]
[2] APPEARANCES:
[3]
[4]   WEIL, GOTSHAL & MANGES LLP
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            Redwood Shores, California 94065
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          BY: NICHOLAS A. BROWN, Esq., of Counsel
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            Houston, Texas 77002
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          BY: LESLIE V. PAYNE, Esq., of Counsel
[13]
[14]
[15]
    ALSO PRESENT:
[16]
[17]   JOSE SANTOS, Videographer
            Fink & Carney Reporting and Video
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[1]
[2]   (Documents were premarked as
[3] Deposition Exhibit No. 101, 102, 103
[4] and 104 for identification, as of this
[5] date.)
[6]   **THE VIDEOGRAPHER:** Now going
[7] on the record. The time is 9:28 a.m.
[8] on November 14, 2006.
[9]   This is the videotaped
[10] deposition of Sheila Hemami in the
[11] matter of Apple Computers, Inc. versus
[12] Burst.com, Inc. under the jurisdiction
[13] of the United States District Court,
[14] Northern Division of California. This
[15] deposition is being held at 767 Fifth
[16] Avenue, New York, New York.
[17]   My name is Jose Santos and I'm
[18] the video specialist. The court
[19] reporter is Charleane Heading and we
[20] both represent Fink & Carney Reporting
[21] with offices located at 39 West
[22] 37th Street, New York, New York.
[23]   May I have an introduction
[24] from counsel?
[25]   **MR. BROWN:** Nick Brown

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[1]
[2] representing Apple Computer.
[3]   MR. PAYNE: Les Payne for
[4] Burst.
[5]   THE VIDEOGRAPHER: Will the
[6] court reporter swear in the witness?
[7] SHEILA S. H EMAMI, called as a
[8] witness, having been first duly sworn by
[9] Charleane M. Heading, RPR, a Notary Public
[10] within and for the State of New York, was
[11] examined and testified as follows:
[12]   EXAMINATION BY
[13]   MR. BROWN:
[14]   Q: Ms. Hemami, would you please state
[15] your full name for the record?
[16]   A: Sheila Susanne Hemami.
[17]   Q: And what's your current address?
[18]   A: 1010 North Cayuga Street, Ithaca,
[19] New York.
[20]   Q: And are you employed as an expert
[21] witness in this case?
[22]   A: Yes.
[23]   Q: Who is employing you?
[24]   A: The bills are being paid by Susman,
[25] Susman Godfrey.

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[1]   *Hemami*
[2]   Q: And are you working on behalf of
[3] Burst.com?
[4]   A: I am.
[5]   Q: Have you had your deposition taken
[6] before?
[7]   A: Just once.
[8]   Q: And when was that?
[9]   A: I believe it was in February of
[10] 2003.
[11]   Q: Did you prepare for the deposition
[12] today?
[13]   MR. PAYNE: I caution the
[14] witness not to go into any
[15] communications with counsel which I
[16] understand, according to the
[17] protective order, are not discoverable
[18] but if you want to answer the question
[19] "yes" or "no," that's fine.
[20]   MR. BROWN: I think to
[21] clarify, Les, at least statements made
[22] by counsel that were relied upon in
[23] any way by the witness —
[24]   MR. PAYNE: Fair enough.
[25]   MR. BROWN: — are

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[1]   *Hemami*
[2] discoverable and I think, I don't want
[3] to agree with your characterization of
[4] the protective order but for the
[5] moment I'm happy with a "yes" or "no."
[6]   Q: Did you prepare for your deposition
[7] today?
[8]   A: Yes.
[9]   Q: And who did you meet with to
[10] prepare?
[11]   A: I prepared myself. I reviewed the
[12] materials in the reports. I guess that all
[13] constitutes the materials.
[14]   Q: Okay. Did you meet with anyone to
[15] prepare?
[16]   A: No.
[17]   Q: Okay. I'm going to go over the
[18] basic ground rules of a deposition since it's been
[19] a little while since you've last done one, but the
[20] fundamental rule is that I ask questions, you
[21] provide answers and the court reporter records
[22] both the questions and the answers.
[23]   Do you understand that that's
[24] happening?
[25]   A: Yes.

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[1]   *Hemami*
[2]   Q: So it's helpful to the court
[3] reporter and the record if I try not to speak over
[4] you when you're talking and you pay me the same
[5] courtesy. Do you understand that?
[6]   A: Yes.
[7]   Q: If at any point you don't understand
[8] a question I'm asking, please ask me for
[9] clarification. Do you understand that?
[10]   A: Yes.
[11]   Q: And will you do that?
[12]   A: Yes.
[13]   Q: Okay. From time to time your, well,
[14] Burst's attorney, who is not your attorney, may
[15] interpose objections. Unless he instructs you not
[16] to answer a question, you still have to answer the
[17] question. Do you understand that?
[18]   A: Yes.
[19]   Q: If you have any questions at any
[20] point about what's happening or the proceedings,
[21] feel free to ask me and I will try to explain
[22] what's happening to you. Okay?
[23]   A: Okay.
[24]   Q: Let's just talk briefly about the
[25] work that you've done in the case so far.

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[1]   *Hemami*

[2]   Have you met with Burst attorneys

[3] during the course of this case?

[4]   **A:** Yes.

[5]   **Q:** Who?

[6]   **A:** I have met with Les Payne, Floyd

[7] Chorush and Michael Heim, Heim, right, with an M.

[8]   **Q:** Have you met with any other Burst

[9] attorneys?

[10]   **A:** I guess I'm not sure.

[11]   **Q:** Okay. Have you met with other

[12] people?

[13]   **A:** Yes.

[14]   **Q:** Who else have you met with?

[15]   **A:** Well, there was an attorney, Micah

[16] Howe at Heim Payne & Chorush. I don't know if

[17] he — I don't know what makes somebody someone's

[18] attorney.

[19]   **Q:** Fair enough. Besides — do you

[20] understand that Micah Howe is an attorney?

[21]   **A:** I do understand that, yes.

[22]   **Q:** Okay. And you understand he works

[23] with the Heim Payne law firm?

[24]   **A:** I do understand that, yes.

[25]   **Q:** Okay. Have you met with anybody

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[1]   *Hemami*

[2] else in connection with this case?

[3]   **A:** No.

[4]   **Q:** In preparing the — well, you have

[5] Exhibit, I believe it's 78, in front of you?

[6]   **A:** Yes.

[7]   **Q:** Is that a copy of the expert report

[8] you prepared in this case?

[9]   **A:** It sure looks like it, yes.

[10]   **Q:** Well, why don't you flip through it

[11] and confirm that that is, in fact, the report in

[12] this case?

[13]   **A:** Yes, I think it is.

[14]   **Q:** Okay.

[15]   **MR. PAYNE:** We'll stipulate.

[16]   **THE WITNESS:** Thank you. I

[17] would not like to read it again.

[18]   **MR. BROWN:** Neither would I.

[19]   **Q:** Who, if anyone, did you meet with in

[20] preparing this report other than the attorneys

[21] that you've listed?

[22]   **A:** I did not meet with anyone in the

[23] preparing of this report. I did not meet with

[24] anybody other than attorneys during the time

[25] period which — actually, is that true?

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[1]   *Hemami*

[2]   I didn't have any meetings with

[3] anybody while I prepared the report.

[4]   **Q:** Okay. What was the time frame

[5] during which you prepared Exhibit 78, your report

[6] in this case?

[7]   **A:** It was, it was about, it was

[8] September through October 20th.

[9]   **Q:** And when were you first retained in

[10] this case?

[11]   **A:** Okay. I know I'm not supposed to

[12] ask you questions, but what constitutes

[13] "retained"?

[14]   **Q:** Well, why don't we break it down?

[15] How did you first hear about this

[16] case?

[17]   **A:** I was, I was contacted by a Susman

[18] attorney.

[19]   **Q:** Do you remember approximately when?

[20]   **A:** That I don't remember, no.

[21]   **Q:** And in that conversation, did he

[22] tell you about the case?

[23]   **MR. PAYNE:** Well, let's hold

[24] on. I'm going to object.

[25]   Nick, I understand your

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[1]   *Hemami*

[2] interpretation of the protective

[3] order. Maybe we need to get on the

[4] same page here. I think we probably

[5] have the same understanding, but the

[6] way I read the protective order,

[7] communications between counsel and

[8] Dr. Hemami are not discoverable unless

[9] she relies on them in terms of

[10] preparing her opinion, opinions.

[11]   Is that how you interpret the

[12] protective order?

[13]   **MR. BROWN:** Well, I'd have to

[14] look at it again because I don't want

[15] to interpret it without —

[16]   **MR. PAYNE:** Well, I've got it

[17] right here, but it seems like you're

[18] asking her, you know, about a

[19] conversation she had with an attorney

[20] for Burst and I just don't think —

[21]   **MR. BROWN:** And I don't need

[22] to get into the conversation for

[23] purposes here. I'm trying to figure

[24] out when she was retained and what the

[25] timeline is.

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[1] **Hemami**

[2] **MR. PAYNE:** That's fine.

[3] **MR. BROWN:** I think you agree

[4] we can do that.

[5] **MR. PAYNE:** That's fine.

[6] **Q:** So —

[7] **A:** Well, perhaps then I can provide you

[8] with information without having all this back and

[9] forth.

[10] **MR. PAYNE:** Well, no. Let's

[11] let him ask the question and you

[12] answer the question and if I need to

[13] object, I will object.

[14] **MR. BROWN:** I think I have a

[15] question that might solve the problem.

[16] **Q:** Can you give me your understanding

[17] of how you came to be employed by Susman or Burst

[18] or whoever you understand yourself to be employed

[19] by in this case?

[20] **A:** I was contacted like the day before

[21] I went to Greece in August and when I returned, we

[22] executed, I guess executed the paperwork to, what,

[23] I don't know, formally retain me. I don't know

[24] what the right way to word that is. I signed up.

[25] How's that?

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[1] **Hemami**

[2] **Q:** Was that in August?

[3] **A:** Yes.

[4] **Q:** Approximately when?

[5] **A:** Around the 14th. That was when I

[6] was contacted. Then I went to Greece. I came

[7] back around the 23rd.

[8] **Q:** And you signed the paperwork around

[9] the 23rd. Is that right?

[10] **A:** Some time after then, yes. Yes.

[11] **Q:** Was it within a week of the 23rd?

[12] **A:** Oh, sure.

[13] **Q:** If you turn to tab — there's no

[14] tab, but I think there's an appendix A —

[15] **A:** Yes.

[16] **Q:** — which I think is page 66. Do you

[17] have that?

[18] **A:** Yes.

[19] **Q:** And spanning pages 66 to 78 in your

[20] expert report, which is appendix A, is what

[21] appears to be your CV. Is that right?

[22] **A:** Yes.

[23] **Q:** Is that, in fact, your CV?

[24] **A:** Yes, at the time I submitted the

[25] report.

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[1] **Hemami**

[2] **Q:** So appendix A of your, of Exhibit 78

[3] was your CV as of October 20, 2006?

[4] **A:** Yes.

[5] **Q:** How regularly do you update it?

[6] **A:** I update it very regularly because I

[7] simply can't keep track of all my papers

[8] otherwise.

[9] **Q:** Is the information in your CV

[10] accurate to the best of your ability?

[11] **A:** Now it's not, no. Effective

[12] sometime the week of Halloween, I was promoted to

[13] full professor so under the "Professional

[14] Experience," there should be, the "Associate

[15] Professor" line would terminate with

[16] "November 2000 to October 2006" and we would

[17] insert a line that said "Full Professor, School of

[18] Electrical & Computer Engineering, November 2006

[19] to present."

[20] **Q:** Congratulations.

[21] **A:** Thank you.

[22] And there may be some papers which

[23] have changed status, but to be honest with you,

[24] the papers are, for the vast majority, accurate.

[25] I cannot remember if we've had any conference

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[1] **Hemami**

[2] papers except — we have, between then and now.

[3] **Q:** Let me try it slightly differently.

[4] Was the CV that's attached as

[5] appendix A to Exhibit 78 accurate as of the time

[6] you submitted your report in October of 2006?

[7] **A:** I believe it was, yes.

[8] **Q:** Okay. And you made your best

[9] efforts to ensure that that was true. Is that

[10] right?

[11] **A:** Yes, yes.

[12] **Q:** Now, you said earlier that you've

[13] testified in one deposition prior to now. Is that

[14] right?

[15] **A:** That's correct.

[16] **Q:** Was that in connection with a patent

[17] case?

[18] **A:** It was not.

[19] **Q:** What was it in connection with?

[20] **A:** It pertained to the transmission of

[21] audio-visual information over satellites. It

[22] pertained to technical matters pertaining to the

[23] transmission of that information.

[24] **Q:** Were you a fact witness or an expert

[25] witness in that case?

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Hemami

[1]
[2]   **A:** To my understanding, I was an expert
[3] witness.
[4]   **Q:** Well, who were the parties to that
[5] case?
[6]   **A:** I was, I was, I guess, I don't know
[7] what the verb is, representing, retained by
[8] Pegasus. Let me get their name right here. It
[9] just says "Pegasus" here. Well, I think I was
[10] retained by Pegasus or —
[11]   **Q:** Are you looking at your CV?
[12]   **A:** Or — yes. Yes. You know, this
[13] case was sort of a mess and I was, I think I was
[14] retained by Pegasus. I was on the NRTC side.
[15]   **Q:** Okay. And what was the nature of
[16] the claims in the case?
[17]   **A:** Now I have an awkward question. Can
[18] I talk about this?
[19]   **Q:** I don't know.
[20]   **A:** I don't either.
[21]   **MR. PAYNE:** Well, are — let
[22] me, can I just voir dire about
[23] confidentiality or you can do it?
[24]   **MR. BROWN:** I think, why don't
[25] I do it?

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Hemami

[1]
[2]   **MR. PAYNE:** Okay.
[3]   **Q:** I can tell you that except in
[4] extremely odd circumstances the complaints that
[5] are filed in a court are public documents. That's
[6] not always true in some very rare circumstances,
[7] but what I'm asking you is what the case was
[8] about. That's very likely to have been in the
[9] complaint.
[10]   **A:** Okay.
[11]   **Q:** So I'm fairly confident, regardless
[12] of the confidentiality agreement you had in the
[13] case, you can talk about the general nature of the
[14] case.
[15]   **A:** Okay. And I apologize for not
[16] having a better understanding.
[17]   **Q:** But having said that, let me ask you
[18] a question. Did you sign a confidentiality
[19] agreement in that case?
[20]   **A:** I'm sure I did, though I don't have
[21] a direct recollection of doing such a thing.
[22]   **Q:** Okay. Well, why don't you tell me
[23] the general nature of the case.
[24]   **A:** The satellites were jointly owned
[25] but operated by one of the parties. The owners

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Hemami

[1]
[2] who were not operating the satellites claimed that
[3] they could be operated in a different manner and
[4] the operator of the satellite claimed that they
[5] could not be operated in that different manner.
[6]   **Q:** And the case was about whether that
[7] was true?
[8]   **A:** Yes.
[9]   **Q:** Or at least your involvement was
[10] about that?
[11]   **A:** Yes. I believe there were many
[12] other pieces to the case but my involvement
[13] pertained to how the satellites could or could not
[14] be operated.
[15]   **Q:** Did you work in a case involving
[16] patents on the JPEG standard?
[17]   **A:** I did.
[18]   **Q:** Who were you retained by in that
[19] case?
[20]   **A:** In that case, I was retained by
[21] Forgent.
[22]   **Q:** And who were the attorneys that you
[23] worked with in that case?
[24]   **A:** Initially, the firm was Godwin
[25] Gruber. Then their name changed to Godwin Pappas

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Hemami

[1]
[2] and perhaps one other name associated with them.
[3] And then Susman Godfrey, I guess, took over. I'm
[4] not sure what the — somehow assumed the case.
[5]   **Q:** Which Susman Godfrey attorneys if
[6] any did you work with in connection with that
[7] case?
[8]   **A:** Steve Susman, Max Tribble and Tibor
[9] Nagy.
[10]   **Q:** Did you provide an expert report in
[11] that case?
[12]   **A:** I did.
[13]   **Q:** What was the subject matter
[14] addressed in the report?
[15]   **A:** The report was a, a claim
[16] construction report.
[17]   **Q:** So you've provided a claim
[18] construction expert report in this case and in the
[19] Forgent case. Is that true?
[20]   **A:** That's true.
[21]   **Q:** Have you provided a claim
[22] construction report in any other case?
[23]   **A:** I have not.
[24]   **Q:** Have you provided an expert
[25] report — well, let me ask you about the Pegasus

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[1]   *Hemami*
[2] case listed on your CV.
[3]   Did you provide an expert report in
[4] that case?
[5]   **A:** Yes.
[6]   **Q:** Were you deposed in that case?
[7]   **A:** Yes.
[8]   **Q:** I take it you were not deposed in
[9] the Forgent case. Is that correct?
[10]   **A:** That's correct.
[11]   **Q:** Other than this case, the Pegasus
[12] case and the Forgent case, have you provided
[13] expert reports in any cases?
[14]   **A:** No.
[15]   **Q:** Have you been retained in any cases
[16] other than those three cases?
[17]   **A:** Yes.
[18]   **Q:** Which cases?
[19]   **A:** I was retained in a case, I was
[20] retained by RealNetworks in a case where some
[21] individuals were alleging patent infringement
[22] against RealNetworks and I was also retained in a
[23] case, another case involving Forgent and I was
[24] retained by Forgent.
[25]   **Q:** Was the other case involving Forgent

Page 21

[1]   *Hemami*
[2] a patent case?
[3]   **A:** Yes.
[4]   **Q:** Do you remember who the other
[5] parties to that case were?
[6]   **A:** The only one I remember definitively
[7] is — and now that I say that I have to question.
[8] It could be EchoStar but let me say could be. I
[9] don't want to rely on my memory right now for
[10] that.
[11]   **Q:** Okay. Do you keep a record of the
[12] expert witness work that you have done?
[13]   **A:** Do I keep a record?
[14]   **Q:** Right.
[15]   **A:** No.
[16]   **Q:** You said you didn't want to rely on
[17] your memory. Was there something else that you
[18] could rely on?
[19]   **A:** For that case, no. No.
[20]   **Q:** So we now have Pegasus, two cases
[21] for Forgent, RealNetworks and the current case.
[22]   **A:** Yes.
[23]   **Q:** Are there any other cases in which
[24] you've been retained as an expert witness?
[25]   **A:** No.

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[1]   *Hemami*
[2]   **Q:** And all of those five cases except
[3] the Pegasus case are patent cases. Is that right?
[4]   **A:** Yes.
[5]   **Q:** Why is it that in your CV when you
[6] have the heading, "Other Expert Witness Consulting
[7] in the Past 4 Years," you only list the Pegasus
[8] case and not those other cases that we just
[9] discussed?
[10]   **A:** The RealNetworks case was not in the
[11] past four years and my understanding of this
[12] category was it involved giving testimony and
[13] that's the only case in which I gave any
[14] testimony.
[15]   **Q:** So the, what you meant by this
[16] heading was other expert witness testimony in the
[17] past four years. Is that right?
[18]   **A:** I think that what you have stated is
[19] more correct.
[20]   **Q:** Do you have a copy of the expert
[21] report that you provided in the Forgent case?
[22]   **A:** Yes.
[23]   **MR. BROWN:** Les, I'd like to
[24] get a copy of that report if that's
[25] possible.

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[1]   *Hemami*
[2]   **MR. PAYNE:** Let me check into
[3] confidentiality issues and I'll ask
[4] the same of Mr. Halpern's reports —
[5]   **MR. BROWN:** That's fine.
[6]   **MR. PAYNE:** — to get those.
[7]   **MR. BROWN:** We'll check the
[8] same thing.
[9]   **Q:** I'd like to ask you to turn to page
[10] 26 of your expert report. There's a heading there
[11] which reads, "The Level of Ordinary Skill in the
[12] Art." Do you see that?
[13]   **A:** Yes.
[14]   **Q:** Actually, before we keep going, I
[15] want you, if you need to in the course of
[16] answering my questions, to read whatever you need
[17] to read to answer the question. I'll try to
[18] direct you to the part that I'm asking you
[19] questions about and right now, I'm going to ask
[20] you some questions about ordinary skill.
[21]   So please feel free to read whatever
[22] you need to read in order to answer my questions
[23] as accurately as possible. Will you do that?
[24]   **A:** Okay. Do you want me to do that now
[25] or whenever?

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Hemami

[1]
[2]   **Q:** That's completely up to you. All
[3] right?
[4]   **A:** Okay.
[5]   **Q:** What I'd like you to do is listen to
[6] my question and if you think you need to read
[7] something, go ahead and read it. Okay?
[8]   Do you understand — well, if you
[9] turn to the next page, there's a section 4, "The
[10] Meaning of Specific Claim Terms." Do you see
[11] that?
[12]   **A:** Yes.
[13]   **Q:** And then following that you provide
[14] opinions about the meaning of claim terms in the
[15] Burst patents. Is that right?
[16]   **A:** Yes.
[17]   **Q:** And when I say, "the Burst patents,"
[18] you understand those are Exhibits 1 through 4
[19] which are in front of you?
[20]   **A:** Yes.
[21]   **Q:** So you've provided opinions of the
[22] meaning of certain claim terms at least in the
[23] Burst patents. Is that right?
[24]   **A:** Yes.
[25]   **Q:** And when you did that, did you

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Hemami

[1]
[2] understand that you were providing an opinion
[3] about how those terms would be understood by a
[4] person of ordinary skill in the art?
[5]   **A:** Yes.
[6]   **Q:** In your expert report, in section 3,
[7] which is titled, "The Level of Ordinary Skill in
[8] the Art," did you describe your understanding of a
[9] person of ordinary skill in the art that pertains
[10] to the Burst patents?
[11]   **A:** Yes.
[12]   **Q:** Was that the understanding that you
[13] used when you were providing the opinions in
[14] section 4 of your report?
[15]   **A:** Yes.
[16]   **Q:** The second paragraph — well,
[17] actually, let's start with the first paragraph.
[18]   You state in the first paragraph
[19] that, "A person of ordinary skill in the art at
[20] the time of the patent application leading to the
[21] '995 patent was filed would have had an
[22] understanding of, one, digital communication
[23] technologies and their available bandwidths and,
[24] two, audio and/or video compression techniques."
[25]   Do you see that?

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Hemami

[1]
[2]   **A:** Yes.
[3]   **Q:** Are those the two areas that you
[4] believe the Burst patents relate to?
[5]   **A:** Yes.
[6]   **Q:** In the second paragraph, you state
[7] that, "A person of ordinary skill in the art would
[8] work in the area of digital communication of
[9] audio/video source information." Do you see that?
[10]   **A:** Yes.
[11]   **Q:** Is that an accurate description of
[12] the area of the Burst patents in your opinion?
[13]   **A:** Yes.
[14]   **Q:** And you then say, "A person in this
[15] area could be specialized in digital
[16] communications having a familiarity with
[17] compression technology, or such a person could be
[18] specialized in compression technology having a
[19] familiarity with digital communications."
[20]   Do you see that?
[21]   **A:** Yes.
[22]   **Q:** Are you one of those people?
[23]   **A:** Yes.
[24]   **Q:** Which one?
[25]   **A:** I fall in the second category.

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Hemami

[1]
[2]   **Q:** Is it fair to say, then, that you
[3] are specialized in compression technology and that
[4] you have a familiarity with digital
[5] communications?
[6]   **A:** Yes.
[7]   **Q:** You then in the next two paragraphs
[8] provide what appears to me to be a sliding scale
[9] of education and experience as the minimum level
[10] for ordinary skill, skill in the art. So with a
[11] Bachelor's degree, you state that you would need
[12] two to three years of experience. Do you see
[13] that?
[14]   **A:** Yes.
[15]   **Q:** And then if you have a Ph.D., it
[16] appears to be your opinion that you, at that
[17] point, don't need any actual work experience in
[18] that area. Is that right?
[19]   **A:** I would disagree with your
[20] characterization of "work experience."
[21]   **Q:** Please explain.
[22]   **A:** Perhaps you can clarify "work
[23] experience."
[24]   **Q:** Sure.
[25]   **A:** Because I interpreted it in some

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[1]   *Hemami*
[2] manner.
[3]   **Q:** Well, you write here that if you —
[4] you give two paragraphs at the end of this section
[5] which describe what level of education and
[6] experience you need to be a person of ordinary
[7] skill in the art. Is that true?
[8]   **A:** That is true.
[9]   **Q:** And one of the examples you provide
[10] is someone with a Bachelor's degree in electrical
[11] engineering with at least — I think there's a
[12] typo there — two to three years of experience
[13] working on digital communication of audio/video
[14] source information. Is that right?
[15]   **A:** Yes.
[16]   **Q:** And then you provide another
[17] alternative which is a Master's degree with one
[18] year of experience working. Do you see that?
[19]   **A:** Yes.
[20]   **Q:** And then you provide another
[21] alternative which is a person with a Ph.D. degree
[22] and you don't say anything about experience
[23] working. Do you see that?
[24]   **A:** Yes.
[25]   **Q:** It seems that you're trying to

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[1]   *Hemami*
[2] describe a sliding scale where as your educational
[3] level increases, your number of years working
[4] experience decreases. Is that right?
[5]   **A:** Well, so I guess I didn't use the
[6] word "working" here.
[7]   **Q:** Well, you actually did. You said,
[8] "One year of experience working on digital
[9] communication of audio/video source information."
[10]   **A:** Yes, okay.
[11]   **Q:** Right?
[12]   **A:** I suppose working —
[13]   **Q:** And then above —
[14]   **A:** I believe your initial question was
[15] "work experience."
[16]   My characterization —
[17]   **MR. PAYNE:** Is there a
[18] question on the table?
[19]   **MR. BROWN:** I think there is.
[20]   **MR. PAYNE:** Okay.
[21]   **Q:** Which is did you use a sliding scale
[22] balancing experience working against educational
[23] level?
[24]   **A:** In fact, I would say this is a, sort
[25] of a constant scale in that having a Ph.D. in

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[1]   *Hemami*
[2] electrical engineering in the area of digital
[3] communication of audio/video information
[4] essentially includes years of experience working
[5] on exactly doing that. So, whereas somebody with
[6] a Bachelor's degree having had four years of
[7] education, if I simply state Bachelor's degree,
[8] that does not include any experience working.
[9]   The Ph.D. includes the working
[10] experience. So perhaps you could view it as a
[11] constant level where the delineation between the
[12] terminal degree and the current level simply
[13] moves.
[14]   **Q:** So in your view, there needs, one
[15] needs to have experience working on digital
[16] communication of audio/video source information.
[17] Is that right?
[18]   It's just that in the case of a
[19] Ph.D., you get that during the course of your
[20] Ph.D.?
[21]   **A:** One would have experience with
[22] digital communication technologies and some amount
[23] of audio and/or video compression techniques.
[24]   **Q:** Would it be possible, in your view,
[25] to have ordinary skill in the art of the Burst

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[1]   *Hemami*
[2] patents without a formal technical degree if one
[3] had sufficient experience?
[4]   **A:** Yes.
[5]   **Q:** Can you describe the nature of the
[6] experience that you think would be required in
[7] that case?
[8]   **A:** So I have in mind a, somebody of the
[9] nature of experience in, I guess, what we would
[10] generally call video engineering, so perhaps
[11] somebody who's experienced in broadcasting or
[12] developing, say, videoconferencing material.
[13]   Another example might be worked at
[14] NASA. NASA did a tremendous amount of
[15] transmitting, not audio — well, let me not say
[16] not audio, I don't know that, but certainly visual
[17] information over great distances. And you know,
[18] clearly in 1988 the, shall we say the digital
[19] revolution was, was coming and had arrived for
[20] much of certainly audio and video and visual
[21] information.
[22]   So for the technically curious, as a
[23] word for nerdy or geeky video engineer, they would
[24] certainly stay on top of these developments and be
[25] following them with great interest.

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Hemami

[1]
[2] Q: Can you give me a rough number about
[3] the number of years of experience that you think
[4] you would need if you didn't have a formal
[5] technical degree?
[6] A: No, because that depends on, to some
[7] extent the, how quickly an individual can pick up
[8] material, how interested they are, you know,
[9] whether it's a, they spend two hours a day on it
[10] or they immerse themselves in an immersive
[11] environment. I don't think that there's a, I
[12] don't think there's a recipe that, at the point
[13] after which we award them the label of, of having
[14] tremendous expertise.
[15] Q: Okay. Let's change the focus to you
[16] for just a moment.
[17] I think you said before that you
[18] viewed yourself as specialized in compression
[19] technology but also having a familiarity with
[20] digital communications. Is that right?
[21] A: That's correct.
[22] Q: And you have a Ph.D. in electrical
[23] engineering, correct?
[24] A: I do.
[25] Q: So you, yourself, qualify as a

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Hemami

[1]
[2] person of ordinary skill in the art or perhaps I
[3] should say at least ordinary skill in the art
[4] under the definition you provided here. Is that
[5] right?
[6] A: Yes.
[7] Q: Okay. You were present at the
[8] deposition of Mr. Halpern yesterday, correct?
[9] A: Yes.
[10] Q: And you were present when he
[11] testified about his experience and qualifications,
[12] correct?
[13] A: Yes.
[14] Q: And you'll recall that he has a
[15] Bachelor's degree in mathematics, correct?
[16] A: Yes.
[17] Q: And then he has work experience
[18] following that, correct?
[19] A: Yes.
[20] Q: If you — would you agree that he
[21] has a specialty in digital communications?
[22] A: No.
[23] Q: Okay. Why not?
[24] A: Based on what he described — or how
[25] can I put this? Based on the responses and

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Hemami

[1]
[2] explanations that I heard him state yesterday, as
[3] well as what is in his report, I believe that I
[4] would label him as more of a networking expert as
[5] opposed to a digital communications expert.
[6] Q: And what's the difference in your
[7] mind between networking and digital
[8] communications?
[9] A: Digital communications classically
[10] is, it's a larger topic and includes what we would
[11] say, in communications parlance, the physical
[12] layer and multiple access techniques.
[13] The physical layer includes, for
[14] example, if one is posed with the problem of
[15] wanting to get digital information from your
[16] office here to your office in Palo Alto, how would
[17] you physically do that. You know, one option is
[18] for you to carry a CD-ROM back with you on the
[19] airplane but there are other mechanisms by which
[20] you could transmit over a certain frequency range
[21] to a satellite. You could transmit over specific
[22] cables, electrical versus electromagnetic
[23] signalling.
[24] What are the characteristics of
[25] those various signalling media? If we choose to

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Hemami

[1]
[2] transmit your information by relaying it through a
[3] satellite, how error-prone is it going to be, what
[4] are the delays going to be, is the propagation
[5] delay an issue.
[6] I view networking as sitting up from
[7] the physical layer. The networking does not
[8] necessarily care how the bits get from point A to
[9] point B, whether you routed them through a
[10] satellite or through a copper wire.
[11] What it does care about is what
[12] protocols were used to enable that communication,
[13] how did you deal with the delays, was there
[14] traffic. A network is generally interconnection
[15] of entities, perhaps even interconnection of many
[16] networks and networking addresses how the
[17] operation of that unit, above the physical layer,
[18] not so much what particular circuit is toggling
[19] whatever signal on the, the channel is being
[20] sensed at the other end. It's beyond that.
[21] It doesn't care how the bit got from
[22] point A to point B. It just needs to know that
[23] the bit got there with its, whatever assorted
[24] information it had to come with.
[25] Q: So as I understand what you said,

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[1] **Hemami**
[2] there's a physical layer and there's a networking
[3] layer at a higher level of abstraction than the
[4] physical layer. Is that right?
[5]   A: I think that's an accurate
[6] description of what I had just said.
[7]   Q: Okay. You used the phrase "digital
[8] communications" here.
[9]   A: Yes.
[10]   Q: Does digital communications, as you
[11] used it, include both the physical layer and the
[12] networking layer or one or what?
[13]   A: That depends on whose perspective we
[14] are —
[15]   Q: Okay. I want to — I don't mean to
[16] interrupt you, but I want to try to keep us on
[17] track.
[18]   So what I'm concerned is the area of
[19] the Burst patents and you've testified that the
[20] areas of the Burst patents is, as you've set forth
[21] here, digital communication of audio/video source
[22] information.
[23]   So the perspective I'm interested in
[24] is what's included in digital communication when
[25] you're using that phrase to describe the field of

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[1] **Hemami**
[2] the Burst patents?
[3]   A: Okay. Excellent question and I
[4] understand your question.
[5]   With respect to the field of the
[6] Burst patents, digital communications and
[7] networking can simply be lumped into the — let me
[8] select my word here — the mechanism by which the
[9] material is transmitted. So the Burst patents, we
[10] see transmission away, discussion of transmission
[11] between units or relayed through, through a
[12] satellite.
[13]   As far as the Burst patents are
[14] concerned, I guess going back to my layered
[15] hierarchy, this unit sits very high up in the view
[16] of what's — it doesn't care so much what's going
[17] on, the mechanisms, the nitty gritty issues of
[18] what's going on underneath it.
[19]   As far as the unit is concerned, the
[20] bits are just bits that it can transmit out and
[21] receive in. How they got from point A to point B,
[22] in terms of the physical layer, the network,
[23] whether there was a multiple access technique
[24] involved, is irrelevant.
[25]   Q: You wrote here in your report, "A

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[1] **Hemami**
[2] person in this area could be specialized in
[3] digital communications, having a familiarity with
[4] compression technology."
[5]   When you wrote that, did you, were
[6] you trying to exclude someone with a specialty in
[7] only networking or exclude someone with a
[8] specialty in only the physical layer?
[9]   A: I don't believe so.
[10]   Q: So if you have experience in at
[11] least networking or at least the physical layer
[12] for digital communication, that would qualify,
[13] either one of those would qualify under what you
[14] wrote here as digital communications. Is that
[15] right?
[16]   A: Well, in conjunction with the
[17] compression knowledge —
[18]   Q: Sure.
[19]   A: — yes.
[20]   Q: So the next part of your sentence
[21] says, "having a familiarity with compression
[22] technology," right?
[23]   A: Yes.
[24]   Q: And that's what you were referring
[25] to?

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[1] **Hemami**
[2]   A: Yes.
[3]   Q: But for the part where you say
[4] "specialized in digital communications," that
[5] would include either what you described as the
[6] networking layer or the physical layer?
[7]   A: Right. A digital communications
[8] person understands that bits go from point A to
[9] point B and they deal with one aspect of the bits,
[10] what we would consider a lower layer than the
[11] networking person.
[12]   The networking person also deals
[13] with getting information from one point to
[14] another, also bits from one point to another,
[15] typically in larger chunks than an individual bit
[16] but in both cases, they have an understanding that
[17] they live in the area where they are simply
[18] delivering information around and with the
[19] understanding that they are delivering
[20] information, they are then to some extent enabled
[21] to question, well, what can I do with the
[22] delivery.
[23]   Q: Having said all that, do you believe
[24] that Mr. Halpern is a person of ordinary skill in
[25] the art within your definition?

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Hemami

[1]
[2] **A:** He's certainly, we could — we could
[3] pair up his expertise as he described it with
[4] respect to the, his, his networking understanding.
[5]   I believe that his level of
[6] familiarity with compression is perhaps a bit on
[7] the low side but I, I didn't get to ask questions
[8] so I can't make a judgment as to my comfort with
[9] his combined knowledge on the two topics.
[10]   **Q:** Okay. If I understood you
[11] correctly, you were saying, you said that his
[12] level of knowledge of the networking piece of
[13] digital communications was sufficient but that you
[14] weren't sure about whether he had sufficient
[15] familiarity with the compression technology piece.
[16] Is that correct?
[17]   **A:** Yes, although I guess I would like
[18] to add something —
[19]   **Q:** Go ahead.
[20]   **A:** — which is perhaps I felt that,
[21] perhaps his networking understanding was a bit
[22] narrow within the networking layer.
[23]   Now, given his background, I can
[24] understand that. He certainly didn't study
[25] physical layer communication with, with a math

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Hemami

[1]
[2] degree and that's fine. We don't expect people to
[3] do that.
[4]   **Q:** You said that you think his
[5] experience was narrow. What do you mean by
[6] "narrow"?
[7]   **A:** So I have described without giving a
[8] very formal definition of what I mean by these
[9] layers and we have the physical layer which simply
[10] sends material, digital material from one point to
[11] another. We have the networking layer which
[12] includes, it doesn't care about the physical
[13] transmission media but addresses how the bits get
[14] from point A to point B.
[15]   I guess my understanding of such a
[16] person as I described is that the physical person
[17] would have some knowledge of the networking layer
[18] and the networking person would also have some
[19] knowledge of the physical layer and simply because
[20] I most commonly interact with people who know both
[21] layers, as an electrical engineer. And with that,
[22] I suppose I would have to rethink or think, think
[23] through in greater detail if somebody solely
[24] focuses on the network issue, the networking layer
[25] alone, without any consideration of the physical

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Hemami

[1]
[2] layer, the implications of that with respect to
[3] interpreting the patents.
[4]   **Q:** So you don't have an opinion about
[5] that one way or the other?
[6]   **A:** Could you restate that?
[7]   **Q:** Sure. I —
[8]   **A:** Just remind me of what "that" is.
[9]   **Q:** You just said that — all right,
[10] well, maybe not "just" since you've been
[11] explaining something for a while but at one point,
[12] we talked about the networking layer and the
[13] physical layer and you said that it was your view
[14] that the familiarity with digital communications
[15] that you require in your report could be satisfied
[16] by either.
[17]   It sounds like you just said that
[18] you might want to rethink that. Is that right?
[19]   **A:** I, I did just say that, however, I,
[20] I think what I would like to say is I would really
[21] have to reconsider the entire issue.
[22]   I have always understood networking
[23] people to understand something about the physical
[24] layer and physical layer people to understand
[25] something about the network layer.

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Hemami

[1]
[2]   I guess what I'm really looking for
[3] is somebody who's able to think flexibly and
[4] understand that they are delivering digital
[5] information and that there are multiple layers and
[6] that they may sit at one layer but other things go
[7] on at other layers.
[8]   **Q:** Are you capable of making a judgment
[9] right now about whether Mr. Halpern has ordinary
[10] skill in the art under your definition?
[11]   **A:** Ordinary skill in the art here, you
[12] are referring to both items, the digital
[13] communication technology and the compression
[14] techniques?
[15]   **Q:** Correct.
[16]   **A:** And, again, I would like to go back
[17] to what I said.
[18]   I am, based on what I read in his
[19] report and what I heard during the deposition, I
[20] am unsure of the depth of his knowledge on the
[21] compression techniques.
[22]   **Q:** So does that mean that your, the
[23] answer to my question is yes, you're not capable
[24] of making a judgment right now?
[25]   **A:** I think that's accurate.

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Hemami

[1]
[2] **Q:** You think that's accurate?
[3] **A:** Yes.
[4] **Q:** "Yes," that's accurate?
[5] **A:** Yes.
[6] **Q:** "Yes," you are not capable of making
[7] a judgment right now?
[8] **A:** Based on what I know, yes, I am not
[9] capable of making a judgment.
[10] **MR. BROWN:** Okay. Let's mark
[11] as Exhibit 79 a document with
[12] production numbers APBU159385 through
[13] 393.
[14] (Documents bearing Bates Nos.
[15] APBU00159385 through 393 was marked as
[16] Deposition Exhibit No. 79 for
[17] identification, as of this date.)
[18] **Q:** Exhibit 79 is now in front of you.
[19] Have you seen this paper before?
[20] **A:** I have.
[21] **Q:** This paper is called, "Scene
[22] Adaptive Coders." Is that right?
[23] **A:** Yes.
[24] **Q:** Are you familiar with this paper?
[25] **A:** I am.

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Hemami

[1]
[2] **Q:** Can you describe this paper briefly?
[3] **A:** This paper describes a still image
[4] lossy compression algorithm. I guess I'll put a
[5] period at the end of that sentence.
[6] **Q:** It describes using that algorithm
[7] for coding real-time color television transmission
[8] over a 1.5 megabit per second channel, correct?
[9] **A:** No. It does not describe that.
[10] That is a sentence in the abstract. The paper
[11] does not describe that.
[12] **Q:** Can you turn to the conclusion of
[13] the paper?
[14] **A:** I don't see a conclusion.
[15] **Q:** I'm sorry. The summary at the very
[16] end.
[17] **A:** Yes.
[18] **Q:** The final sentence of that summary
[19] reads, "At Compression Labs, Inc., the coder has
[20] been implemented with real-time hardware to code
[21] NTSC color video at a channel rate of 1.5 megabits
[22] per second." Do you see that?
[23] **A:** I do.
[24] **Q:** Doesn't that state that the
[25] technique described in this paper has been used in

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Hemami

[1]
[2] real-time hardware to code color television at 1.5
[3] megabits per second?
[4] **A:** That sentence does state that they
[5] built or they implemented real-time hardware at
[6] CLI to do that but the statement that you asked me
[7] previously was not that.
[8] **Q:** Why is it that you think this paper
[9] does not describe coding color television at a 1.5
[10] megabits per second data rate?
[11] **A:** This paper describes a still image
[12] compression algorithm. It starts off on the first
[13] page with section 2, describes a cosine transform
[14] and then goes through some statistical analysis of
[15] how those cosine transform coefficients would
[16] behave.
[17] It then describes what it calls the
[18] scene adaptive coder by going through the steps on
[19] the second page, a cosine transform, a
[20] thresholding operation, normalization and
[21] quantization.
[22] These are all operations that are
[23] done on a still image and the coding operation
[24] where coding here is referring to a lossless
[25] coding.

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Hemami

[1]
[2] It then goes through and describes a
[3] rate buffer. The rate buffer has to do with
[4] making sure that you hit the right size —
[5] **Q:** I'm not sure that I asked you for a
[6] complete description of every part of this paper.
[7] In fact, I'm confident that I didn't.
[8] Do you recall the question that I
[9] asked you?
[10] **A:** The question that you asked me is
[11] what does the paper describe.
[12] **Q:** No.
[13] **MR. PAYNE:** I'm going to
[14] object because I think that she was
[15] still trying to complete her answer
[16] but go ahead.
[17] **Q:** I think it's clear that you're not
[18] answering the question that I asked you but if you
[19] want to finish saying something, go ahead.
[20] **A:** Well, my understanding of the
[21] question was why does this not represent coding
[22] video and everything I have described to one of
[23] ordinary skill in the art is describing
[24] compression, lossy compression of a single array
[25] of pixels representing an image.

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[1]   *Hemami*
[2]   Were the paper to describe video
[3] coding using this coder, I would expect the paper
[4] to describe things that are not here.
[5]   **Q:** Like what?
[6]   **A:** So the hardware configuration, what
[7] did they use, how did they interconnect things,
[8] did they design custom circuitry, was the
[9] circuitry discrete or integrated, how long did it
[10] take, how many man-hours, did they do subjective
[11] tests on the video.
[12]   Furthermore, the entire results
[13] section presents results for still images. All
[14] they have done with this sentence is applied the
[15] number, 0.4 bits per pixel, to the digitized pixel
[16] rate of NTSC video. Video has so many pixels per
[17] second.
[18]   They state in the abstract that they
[19] get good results at .4 bits per pixel. So it's a
[20] simple matter to multiply .4 bits per pixel times
[21] the number of pixels per second that one gets for
[22] digitizing NTSC TV to compute that 1.5 megabits
[23] per channel.
[24]   **Q:** Is it accurate to say that in your
[25] view this article does not contain sufficient

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[1]   *Hemami*
[2] disclosure of video coding to tell one of ordinary
[3] skill in the art that this is how to do video
[4] coding? Is that right?
[5]   **A:** One of ordinary skill in the art
[6] would understand that any technique that could be
[7] applied to a single image could be applied to
[8] digitized images which were obtained from NTSC
[9] video or PAL or any other format of video. So to
[10] some extent, there's nothing to disclose there.
[11]   This is a coder that operates on a
[12] single image and we can certainly consider video
[13] to be a very special case of particular sequence
[14] of images. And that sentence in the summary is
[15] essentially doing that, saying, well, if we take
[16] images as produced by digitizing a standard video
[17] signal, the resulting data rate is the following.
[18]   **Q:** Okay. But what I'm trying to
[19] understand is whether this paper, in your view,
[20] discloses video compression to a person of
[21] ordinary skill in the art?
[22]   **A:** This paper describes an intra-frame
[23] coding technique, sorry, a single frame or image
[24] compression technique which one of ordinary skill
[25] would understand could be applied to frames in

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[1]   *Hemami*
[2] sequence from digitizing a standard analog video
[3] signal.
[4]   **Q:** And this paper says expressly that
[5] that can be done, correct?
[6]   **A:** It, it states that, that it computes
[7] a number based on the assumption. I mean, they do
[8] not state in order to apply this to video, first
[9] digitize the video, then take each frame."
[10]   They don't give us a block diagram,
[11] for example, but one of the ordinary skill would
[12] understand even without John's paper that coding
[13] individual frames independently is a valid
[14] technique for compressing or coding video.
[15]   **Q:** You said before that this paper
[16] didn't disclose things that you would expect it to
[17] disclose if it was going to actually describe
[18] video compression and you listed a variety of
[19] things that you would expect to be disclosed,
[20] including the hardware configuration and the
[21] circuitry that they used.
[22]   **A:** Based on the sentence in the
[23] summary, that is what I stated.
[24]   **Q:** Now, so your view is that this paper
[25] doesn't disclose the hardware configuration and it

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[1]   *Hemami*
[2] doesn't disclose the circuitry and, therefore, it
[3] doesn't disclose video compression to a person of
[4] ordinary skill in the art. Is that right?
[5]   **MR. PAYNE:** Objection. Form.
[6]   **Q:** And if that's not right, explain
[7] why.
[8]   **MR. PAYNE:** Objection to form.
[9]   **A:** So my objection with calling this a
[10] video compression paper is that it describes a
[11] still image compression technique and simply gives
[12] a computation of the resulting bit rate that would
[13] occur if one applied this to video.
[14]   **Q:** And in your mind, that's not enough
[15] to make it a paper about video compression. Is
[16] that right?
[17]   **A:** I think, I would say that is correct
[18] in that when I look, when a person of ordinary
[19] skill looks for a paper about video compression,
[20] it's not enough to simply look for the word
[21] "video" to appear because just because "video"
[22] appears doesn't necessarily mean it is about video
[23] to start with.
[24]   And secondly, to take an intra, a
[25] still image coder and simply provide the rate that

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Hemami

[1]
[2] one would achieve at a particular input rate,
[3] intra-frame coding was well understood so there's
[4] nothing new here.
[5]   **Q:** In your view, there's nothing new in
[6] this paper, "Scene Adaptive Coder," as Exhibit 79?
[7]   **A:** If we consider video compression —
[8] the still image compression technique in this
[9] paper was clearly judged worthy of publication by
[10] the IEEE but due to, presumably, its novel
[11] technical content.
[12]   The technical content of the paper
[13] involves coding still images. They simply state
[14] that when applied at a certain rate, this could be
[15] applied to video. That was not the novel part of
[16] the paper.
[17]   **Q:** When did you first see this paper?
[18]   **A:** Oh, when I was in graduate school,
[19] many years ago.
[20]   **Q:** In what context did you see it in
[21] graduate school?
[22]   **A:** Well, I studied image and video
[23] compression and transmission in graduate school
[24] and to the extent that this was a, I wouldn't say
[25] it was classical at the time because it was not

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Hemami

[1]
[2] that old at the time, but this was a well-known,
[3] well-written paper by the time I got around to
[4] reading it.
[5]   **Q:** When was that?
[6]   **A:** It was on its way to being
[7] classical. How's that?
[8]   **Q:** As of today, would you call this a
[9] classical paper?
[10]   **A:** I would.
[11]   **Q:** What do you mean by a classical
[12] paper?
[13]   **A:** A classical paper is a paper that
[14] is, that we sort of cite frequently as the
[15] beginning of perhaps a — there are going to be
[16] several items here so don't take the order in
[17] which I give them as necessarily indicative of how
[18] important something is.
[19]   A classical paper either indicates,
[20] perhaps, a paradigm shift in how problems were
[21] addressed. They may, typically are well written.
[22] Obviously, if a paper is not well written, even if
[23] the ideas are new, dissemination doesn't work very
[24] well.
[25]   Also, sometimes I think we can say

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Hemami

[1]
[2] that classical papers are sort of the, the paper
[3] on which many, many subsequent incremental but
[4] important improvements or modifications are made.
[5]   **Q:** And this paper qualifies under that
[6] standard?
[7]   **A:** I believe that if you talk to an
[8] image compression person and ask them if this were
[9] a classical paper, they would say yes.
[10]   **Q:** Are you an image compression person?
[11]   **A:** I am.
[12]   **Q:** And you think this is a classical
[13] paper?
[14]   **A:** I do.
[15]   **MR. PAYNE:** Nick, are you at a
[16] good stopping point or do you have
[17] some questions on something else?
[18]   **MR. BROWN:** I would be happy
[19] to take a break now if that's what you
[20] would like to do.
[21]   **MR. PAYNE:** Five minutes?
[22]   **MR. BROWN:** That's fine.
[23]   **THE VIDEOGRAPHER:** The time is
[24] now 10:25. Off the record.
[25]   (Recess taken)

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Hemami

[1]
[2]   **THE VIDEOGRAPHER:** The time is
[3] now 10:32. On the record.
[4]   **BY MR. BROWN:**
[5]   **Q:** Dr. Hemami, can you take your expert
[6] report and turn to the materials considered list
[7] at the end? Do you have that?
[8]   **A:** Yes.
[9]   **Q:** Will you turn and look at number
[10] 26, please?
[11]   **A:** Yes.
[12]   **Q:** Do you see it says there, "The claim
[13] construction disclosures of Burst and those of
[14] Apple as well as the references cited in each"?
[15] Do you see that?
[16]   **A:** Yes.
[17]   **Q:** If you turn to the binder that's in
[18] front of you, which is Exhibit 71 and go to tab U,
[19] please.
[20]   **A:** Okay.
[21]   **Q:** If you turn past the page that has
[22] the U on it, do you see that this is a document
[23] filed with the court entitled, "Patent Local Rule
[24] 4-3 Claim Construction and Pre-Statement"? Do you
[25] see that?

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[1] **Hemami**

[2] **A:** Yes.

[3] **Q:** Why don't you flip through that

[4] document until you get to the tables that follow

[5] it.

[6] **A:** Okay.

[7] **Q:** Have you seen those tables before?

[8] **A:** I don't know if I've seen them from

[9] this document, but I certainly have seen claim

[10] construction tables which are rectangular and long

[11] like the ones that Les has.

[12] **Q:** Okay. Going back to your report,

[13] number 26 which reads, "The claim construction

[14] disclosures of Burst and Apple," does that include

[15] the tables that are rectangular and long that you

[16] are referring to?

[17] **A:** Yes.

[18] **Q:** You state in your expert report the

[19] references cited in each. Do you see that?

[20] **A:** Yes.

[21] **Q:** Do you see how there are two columns

[22] in there? One is labeled "Burst's Evidence" and

[23] one is labeled "Apple's Evidence." Do you see

[24] that?

[25] **A:** Yes.

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[1] **Hemami**

[2] **Q:** And do you see that in those columns

[3] there are various references cited at various

[4] places?

[5]   For example, on the second page in

[6] the "Burst's Evidence" column, The Modern

[7] Dictionary of Electronics, 6th Edition, 1984 is

[8] cited. Do you see that?

[9] **A:** Yes.

[10] **Q:** Are those the references, is that an

[11] example of one of the references that you were

[12] referring to?

[13] **A:** Yes.

[14] **Q:** When you wrote in your expert report

[15] number 26, "the references cited in each," did you

[16] mean anything other than what is cited in the

[17] "Burst's Evidence" and "Apple's Evidence" columns?

[18] **A:** That item in the reference list

[19] refers to the materials that were listed in these

[20] columns so I don't remember if your question was

[21] phrased as a positive or a negative, but —

[22] **Q:** Okay. When you wrote in your expert

[23] report, "the references cited in each," what you

[24] meant is the references contained in the "Burst's

[25] Evidence" and "Apple's Evidence" columns. Is that

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[1] **Hemami**

[2] right?

[3] **A:** That's right.

[4] **Q:** And did you review each of the

[5] references listed in those two columns?

[6] **A:** I tried my very best to do every

[7] single one.

[8] **Q:** So, for example, you looked in the

[9] Modern Dictionary of Electronics. Is that true?

[10] **A:** I did.

[11] **MR. BROWN:** I'm going to mark

[12] as Exhibit 80 a copy of a few pages of

[13] The Modern Dictionary of Electronics.

[14] It's only got one page from the actual

[15] content of the dictionary, production

[16] numbers APBU414957 through 959.

[17]   (Documents bearing Bates Nos.

[18] APBU00414957 through 959 was marked as

[19] Deposition Exhibit No. 80 for

[20] identification, as of this date.)

[21] **Q:** And you see on the face of

[22] Exhibit 80 is The Modern Dictionary of

[23] Electronics, 6th Edition. Do you see that?

[24] **A:** Yes.

[25] **Q:** That's the dictionary that's

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[1] **Hemami**

[2] referred to in the "Burst's Evidence" column of

[3] the chart that you were looking at, correct?

[4] **A:** Yes.

[5] **Q:** I'd like you to look at the third

[6] page of Exhibit 80, which is one page from the

[7] dictionary.

[8] **A:** Yes.

[9] **Q:** On the right-hand side there's a

[10] definition of "burst transmission." Do you see

[11] that?

[12] **A:** Yes.

[13] **Q:** I don't believe that this dictionary

[14] was cited by Burst in relationship with the term

[15] "burst transmission" in the chart.

[16]   Did you read or consider this

[17] definition before writing your expert report?

[18] **A:** I did.

[19] **Q:** Were you familiar with this

[20] definition prior to seeing it in this dictionary?

[21] **A:** No.

[22] **Q:** Do you believe this definition is

[23] accurate?

[24] **A:** In the context of the way that

[25] "burst transmission" is used in the Burst patents,

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Hemami

[1]
[2] no.
[3]   **Q:** This definition expressly refers to
[4] radio transmissions, correct?
[5]   **A:** It does.
[6]   **Q:** Do you believe that this definition
[7] is accurate in the context of radio transmissions?
[8]   **A:** I believe that this definition
[9] describes analog radio transmissions.
[10]   **Q:** Is the reason that you believe this
[11] is not accurate in the context of the Burst
[12] patents that in your view, the Burst patents
[13] pertain to digital data transmissions?
[14]   **A:** Yes.
[15]   **Q:** Is there another reason?
[16]   **A:** Not that I can think of now but
[17] that's certainly the largest one that looms in my
[18] mind and that is exactly what my reaction was when
[19] I read this definition the first time.
[20]   I should say this is transmission of
[21] analog information.
[22]   **Q:** How is that different in your mind
[23] from what you said before?
[24]   **A:** Well, I said analog radio
[25] transmission which to me means transmission of

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Hemami

[1]
[2] analog signals but I wanted to clarify because,
[3] forgive me, I don't think you're an electrical
[4] engineer. I wanted to clarify that it was the
[5] delineation between digital signals being
[6] transmitted and analog signals being transmitted.
[7]   **Q:** Earlier you were talking about the
[8] physical layer. Do you recall that?
[9]   **A:** I do.
[10]   **Q:** Typically that physical layer uses
[11] analog transmission to convey digital information,
[12] correct?
[13]   **A:** Yes.
[14]   **Q:** In fact, I believe that's always the
[15] case, correct?
[16]   **A:** One could make an argument
[17] differently for switching bits on a copper wire
[18] but I think what, generally speaking, what you've
[19] said, yes.
[20]   **Q:** So, generally, digital information
[21] is conveyed using analog signals?
[22]   **A:** Yes.
[23]   **MR. PAYNE:** Objection to form.
[24]   **A:** Perhaps — yes, let me correct
[25] myself.

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Hemami

[1]
[2]   Digital signals are transmitted
[3] using analog modulation techniques.
[4]   **Q:** Analog modulation techniques of an
[5] analog signal?
[6]   **A:** No. The signal that is being
[7] modulated is, can be digital, can be digital.
[8]   **Q:** You're modulating an analog
[9] waveform, correct?
[10]   **A:** Yes.
[11]   **Q:** And you're doing that in order to
[12] convey digital information, correct?
[13]   **A:** Yes.
[14]   **Q:** I think the word "signal" may be
[15] confusing things but if you want to transmit
[16] digital information from one point to another,
[17] generally you need to do that by modulating an
[18] analog waveform. Is that true?
[19]   **A:** That is true.
[20]   **Q:** One type of analog waveform that can
[21] be modulated in order to convey digital
[22] information is a radio wave, correct?
[23]   **A:** That is correct.
[24]   **Q:** You can also modulate a microwave,
[25] correct?

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Hemami

[1]
[2]   **A:** A microwave is a radio wave.
[3]   **Q:** It's a subcategory of a radio wave,
[4] correct?
[5]   **A:** Yes, I would agree with that.
[6]   **Q:** Let's talk briefly about microwaves
[7] since we're on the topic.
[8]   Microwave transmission is described
[9] in the Burst patents, correct?
[10]   **A:** Yes.
[11]   **Q:** And the Burst patents describe using
[12] satellites, correct?
[13]   **A:** Yes.
[14]   **Q:** And they also describe using
[15] point-to-point microwave transmitters, correct?
[16]   **A:** Yes.
[17]   **Q:** Are those two the same thing?
[18]   **A:** Are they the same thing? Can you be
[19] more specific in your question?
[20]   **Q:** Sure.
[21] Both microwave, point-to-point
[22] microwave transmitters and satellites use the
[23] microwave band to transmit information, correct?
[24]   **A:** Yes.
[25]   **Q:** They both modulate microwaves,

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Hemami

[1]
[2] correct?
[3]   **A:** Yes.
[4]   **Q:** What are the differences at a high
[5] level between point-to-point microwave
[6] transmission and satellite transmission?
[7] Actually, let me withdraw that question. I'm
[8] going to ask it slightly differently.
[9]   Satellite transmission is generally
[10] not point to point, correct?
[11]   **A:** The satellite is used as a relay
[12] between the two points. So, yes, we would not
[13] call satellite, we would not call satellite
[14] transmission point to point.
[15]   **Q:** Are the structures that are used to
[16] do the transmission the same in point-to-point
[17] microwave transmission and satellite microwave
[18] transmission?
[19]   **A:** Which structures are you referring
[20] to?
[21]   **Q:** Let's start with the structure which
[22] actually transmits the signal.
[23]   Is it true that in a satellite, the
[24] structure that transmits the signal transmits it
[25] over a wide directional area?

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Hemami

[1]
[2]   **A:** The statement that you just made is
[3] not correct.
[4]   **Q:** Okay. I believe, and please correct
[5] me if I'm wrong, that one significant distinction
[6] between a satellite transmission and a
[7] point-to-point microwave transmission is that in
[8] point-to-point microwave transmission, the
[9] microwave beam from the microwave transmitter is
[10] relatively narrow when compared to the beam from
[11] the satellite and has to be specifically directed
[12] at the receiver in contrast to the satellite.
[13]   Is that generally true?
[14]   **A:** What you have stated with respect to
[15] the, the point to point using a very narrow beam
[16] is accurate. Clearly the narrower the beam, the
[17] more energy is concentrated in, in a region.
[18]   As far as satellite relay is
[19] concerned, I have to say I do not know — this
[20] depends if we're using the satellite to broadcast
[21] or to essentially target a particular individual
[22] reception point.
[23]   **Q:** Well, let's talk about that.
[24] Are you familiar with the DirecTV
[25] satellite system?

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Hemami

[1]
[2]   **A:** I am.
[3]   **Q:** In fact, you tendered an expert
[4] report on satellites that were part of that
[5] system, right?
[6]   **A:** That's correct.
[7]   **Q:** Those satellites are capable of
[8] sending signals in a broadcast fashion, right?
[9]   **A:** They do.
[10]   **Q:** And that's not a point-to-point
[11] microwave transmission, right?
[12]   **A:** Certainly from the satellite down is
[13] not point to point. That is a broadcast delivery.
[14]   **Q:** The antenna that creates the
[15] broadcast signal is a different kind of antenna
[16] than the one that is used for point-to-point
[17] microwave transmission, correct?
[18]   **A:** I do not know if that is correct.
[19]   **Q:** Okay. What level of knowledge do
[20] you have about the structure used to send
[21] microwave signals either from satellites or in
[22] point-to-point transmissions?
[23]   **A:** My level of knowledge pertains to or
[24] is at the level of being able to describe the
[25] sequence of events that has to occur, say at the

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Hemami

[1]
[2] level of a block diagram such that I can point to
[3] what occurs in each block of the diagram, this
[4] level of abstraction.
[5]   What I do not have knowledge in is
[6] antenna design and beam forming.
[7]   **Q:** Do you — let's put this in context.
[8] Can you pull out the '839 patent
[9] which is in front of you? I believe it is Exhibit
[10] 3 and if you could look at column 12 at line 10.
[11]   **A:** Yes.
[12]   **Q:** The '839 patent says that, "Both
[13] point-to-point microwave transceivers and
[14] satellite transceivers may be used."
[15]   Do you see that?
[16]   **A:** Yes.
[17]   **Q:** It appears that the Burst patent is
[18] drawing a distinction between a microwave
[19] transceiver and a satellite transceiver, correct?
[20]   (Telephone interruption)
[21]   **Q:** Sorry about that. Go ahead.
[22]   **A:** Nice ring.
[23]   **Q:** Do you want me to repeat the
[24] question?
[25]   **A:** No. I understand your question and

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[1] **Hemami**

[2] I would have to say I'm not sure about that.

[3]   **Q:** It certainly describes them as two

[4] different things in this sentence, correct?

[5]   **A:** There are two items in the sentence,

[6] yes.

[7]   **Q:** And one of them is a microwave

[8] transceiver, correct?

[9]   **A:** Yes.

[10]   **Q:** And the other one is a satellite

[11] transceiver, correct?

[12]   **A:** Yes.

[13]   **Q:** A satellite transceiver uses

[14] microwaves, correct?

[15]   **A:** It does.

[16]   **Q:** But at least some of the time, as

[17] we've just described, it uses a broadcast signal

[18] as opposed to a point-to-point signal, correct?

[19]   **A:** A satellite would do such a thing,

[20] yes.

[21]   **Q:** So one can distinguish between

[22] point-to-point microwave transceivers and

[23] satellite transceivers on the grounds that one is

[24] a point-to-point signal and one is a broadcast

[25] signal, correct?

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[1] **Hemami**

[2]   **A:** I, again, I, I'm not —

[3]   **Q:** I don't mean to ask you specifically

[4] about that, this sentence yet.

[5]   **A:** No, no, I understand that. I

[6] understand that. I'll tell you my hesitancy.

[7]   I believe that satellites are used

[8] to relay specific signals in a narrow band

[9] fashion. I believe that can be and is done.

[10]   **Q:** And that would be a point-to-point

[11] microwave transmission, right?

[12]   **A:** No. No. Point-to — in the

[13] context — what I'm disagreeing with in your

[14] characterization is that satellites always

[15] broadcast and what I'm saying is —

[16]   **Q:** Sure.

[17]   **A:** — I'm not sure that is correct.

[18] Now, in what you just — why don't

[19] you repeat what you just said about, "and that

[20] would be a point to point," just so I'm sure I —

[21]   **Q:** Okay. You're saying that satellite

[22] transceivers can send point-to-point signals or

[23] broadcast signals, correct?

[24]   **A:** No. So point-to-point microwave is

[25] a term of art, okay? This is my issue with your

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[1] **Hemami**

[2] phrasing here.

[3]   **Q:** Can I ask you about that?

[4]   **A:** Yes.

[5]   **Q:** The term of art, "point-to-point

[6] microwave transceivers," can that include a

[7] satellite transceiver?

[8]   **A:** My understanding of — now, a

[9] satellite, a satellite that would serve as a relay

[10] between two earth stations, certainly from a

[11] communication perspective, we would characterize

[12] the uplink as a point to point because there's no

[13] relay in between and the downlink as a point to

[14] point also because there's no relay. The two

[15] ground units are clearly not point to point

[16] because there is a, the satellite is relaying,

[17] right, there's something in the middle.

[18]   Now, having said that, the

[19] point-to-point microwave transmission, sorry,

[20] point-to-point microwave transceiver which we have

[21] here, there is a term which I've used in my

[22] report, "point-to-point terrestrial microwave,"

[23] which indicates that the "terrestrial" modifies

[24] that the microwave is not going into space.

[25]   Now, I think that it is fair that

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[1] **Hemami**

[2] certainly we would call from the ground station to

[3] the satellite, that is indeed a point-to-point

[4] link. I don't believe we would characterize the

[5] transmission via relay as point to point even

[6] though the individual constituent links were

[7] point-to-point microwave links, point-to-point

[8] links that used the microwave frequency band.

[9]   **Q:** Is it fair to say, based on what

[10] you've just said, that the point-to-point

[11] microwave transceiver described in lines 10 and 11

[12] of column 12 of the Burst patent can't be

[13] referring to a link through a satellite between

[14] two of the transceivers described in the Burst

[15] patents?

[16]   **A:** I don't think I would be comfortable

[17] saying "can't." You know, my reading of this is

[18] that a microwave terrestrial antenna and a

[19] satellite terrestrial antenna are different

[20] beasts. And the, the user or the person who's

[21] going to purchase the device, shall we say, you

[22] know, maybe wants to understand what the form

[23] factor is, you know, what the orientation is.

[24]   If they don't have a line of sight

[25] on the ground to the, the other point, then they

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[1] **Hemami**
[2] must consider satellites. If they live in a
[3] forest, unless they can get the satellite
[4] antenna — well, if they live in a forest, they're
[5] sort of out of luck, but if they live in an area
[6] with overhanging trees where they can't get line
[7] of sight to the satellite then they need to
[8] consider perhaps the terrestrial.
[9]   **Q:** I thought you said that you would
[10] not consider a link between two places on the
[11] ground through a satellite to be a point-to-point
[12] link?
[13]   **A:** That is not, we would not call that
[14] a point-to-point link. We would say that that
[15] constituted two point-to-point links involving the
[16] satellite.
[17]   **Q:** Okay. I'd like to — we'll come
[18] back to the '839 patent. I want to talk about the
[19] '995 patent for a second and specifically I want
[20] to ask you some questions about the fax chip
[21] that's described in column 5 of the '995 patent.
[22]   Do you see in line 5 and 6 it
[23] describes the A.M.D. 7971 chip?
[24]   **A:** Yes.
[25]   **Q:** Are you familiar with that chip?

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[1] **Hemami**
[2]   **A:** I'm familiar with the chip to the
[3] extent that I read the data sheets that were part
[4] of the material that I reviewed.
[5]   **Q:** Okay. Do you have any familiarity
[6] with that chip other than through the data sheet
[7] that you reviewed?
[8]   **A:** With the chip itself? No.
[9]   **Q:** Have you ever used the chip?
[10]   **A:** I don't know. I mean, I may have
[11] used a fax machine that had the chip in it.
[12]   **Q:** Fair enough. Have you ever
[13] knowingly used that chip?
[14]   **A:** I can neither confirm nor deny that
[15] statement. No, most fax machines do not have a
[16] stamp on them as to what their internal engine is.
[17]   **Q:** So it's fair to say that you have
[18] never knowingly used that particular chip. Is
[19] that right?
[20]   **A:** I have never knowingly used that
[21] chip but, you know, I don't know how many
[22] manufacturers made those chips. It may well be
[23] that if 90 percent of the fax chips were made by
[24] A.M.D. and I sent faxes in 1988, then I probably
[25] used one.

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[1] **Hemami**
[2]   **Q:** Fair enough. Do you have any
[3] opinion about whether that chip can be used to do
[4] video compression?
[5]   **A:** I do.
[6]   **Q:** And what's your opinion?
[7]   **A:** It can.
[8]   **Q:** And why do you think that?
[9]   **A:** Because one can, one can use the
[10] chip to compress color video frames as described
[11] in the specification.
[12]   **Q:** Do you recall what the — well, I
[13] use the term "data rate." Does that — another
[14] word might be "throughput."
[15]   Do you know how much data the A.M.D.
[16] 7971 chip can handle in a particular amount of
[17] time?
[18]   **A:** So what are you calling "data"?
[19]   **Q:** Well, as I understand it, this is a
[20] fax chip, correct?
[21]   **A:** Yes.
[22]   **Q:** And it will receive information, I
[23] would assume, from a scanner, correct?
[24]   **A:** That, that is certainly one way we
[25] can certainly assume — well, the chip actually

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[1] **Hemami**
[2] gets its data from memory. It's not really our
[3] business where, how the data got to memory.
[4]   **Q:** Fine. So the chip gets data from
[5] somewhere, potentially memory, correct?
[6]   **A:** Yes.
[7]   **Q:** And what does it do to that data?
[8]   **A:** It takes the data and it puts it
[9] through the CCITT Group IV algorithm that it
[10] implements and then it outputs compressed data.
[11]   So here, when we say "data," to be
[12] clear, we are referring to a sequence of bits.
[13]   **Q:** So the 7971 chip implements a
[14] specific CCITT Group IV algorithm, correct?
[15]   **A:** Yes.
[16]   **Q:** The CCITT Group IV contains a number
[17] of different algorithms, correct?
[18]   **A:** I don't think so.
[19]   **Q:** Okay.
[20]   **A:** Well, what type of algorithm are we
[21] discussing? Can you be more specific?
[22]   **Q:** Can you give me a general
[23] description of what you understand the algorithm
[24] or algorithms in the CCITT Group IV to be?
[25]   **A:** My understanding of the CCITT Group

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Hemami

[1]
[2] IV compression algorithms is that they are
[3] compression algorithms for binary images, where a
[4] binary image is — I use the term "image" here
[5] sort of as a ray when I think of a rectangle —
[6] and in each position we have a zero or a 1. So it
[7] can only take on two values, zero or a 1. Hence,
[8] the word "binary."
[9]   **Q:** So this, the algorithm — I think
[10] you used the plural when you, in your description
[11] — the algorithms in CCITT Group IV process what
[12] you call binary images. Is that right?
[13]   **A:** Well, let's say the chip runs an
[14] algorithm. "Algorithm" is sort of a nebulous word
[15] but it processes binary data.
[16]   **Q:** What do you mean when you say
[17] "algorithm" is a nebulous word?
[18]   **A:** Well, algorithms have
[19] sub-algorithms. It depends on what level we're
[20] talking about.
[21]   You know, we could draw a block
[22] diaphragm, for example, of JPEG and talk about the
[23] entire JPEG algorithm or the cosine algorithm or
[24] various pieces. So it's, it's, it can refer to
[25] many levels of a particular task that we are

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Hemami

[1]
[2] trying to implement.
[3]   **Q:** If one builds an integrated circuit
[4] to implement an algorithm, one cannot later change
[5] that algorithm, correct?
[6]   **A:** That depends on how you build your
[7] integrated circuit.
[8]   **Q:** So you can build a programmable
[9] integrated circuit?
[10]   **A:** Sure.
[11]   **Q:** Is the CCITT Group IV algorithm or
[12] any of the algorithms within it capable of
[13] processing images that are not binary images?
[14]   **A:** A single pass-through the — well,
[15] how am I going to put this?
[16]   The algorithm could be used, can be
[17] used to process color images but we have to run it
[18] in parallel —
[19]   **Q:** So you need —
[20]   **A:** — in some manner.
[21]   **Q:** You need more than one chip, in
[22] other words?
[23]   **A:** Not necessarily.
[24]   **Q:** You could feed the data in serial
[25] fashion through the same chip?

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Hemami

[1]
[2]   **A:** Yes.
[3]   **Q:** But the data that you need to feed
[4] through the chip has to be a binary image, as you
[5] put it?
[6]   **A:** That is correct.
[7]   **Q:** So if you broke a color image into a
[8] series of binary images, you could then feed those
[9] images in succession through the chip. Is that
[10] right?
[11]   **A:** That is correct.
[12]   **Q:** Or alternatively, you could feed
[13] those binary images in parallel through a number
[14] of different chips?
[15]   **A:** Or even in parallel through the same
[16] chip.
[17]   **Q:** Is the 7971 A.M.D. chip that's
[18] described here capable of processing data in
[19] parallel?
[20]   **A:** For the, the data, the color image
[21] data as it is described here, and as we would
[22] expect color video data to be, yes.
[23]   **Q:** What do you mean by that?
[24]   **A:** So what's given in the specification
[25] is, the example that's given is a frame that is of

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Hemami

[1]
[2] size 300 by 300 with each pixel defined by 21
[3] bits. And this 300 by 300 is a reasonable frame
[4] size for digitized video, you know, as opposed to
[5] say, 10,000 by 10,000 or 3 by 3. This is a
[6] reasonable number. That is completely what one
[7] would expect.
[8]   **Q:** Here it says that each pixel is
[9] defined by 21 bits, correct?
[10]   **A:** Yes.
[11]   **Q:** Could you break that into 21
[12] different 300 by 300 binary images?
[13]   **A:** Yes.
[14]   **Q:** And at that point, you could feed
[15] those 21 binary images through the 7971 chip, is
[16] that right?
[17]   **A:** That's correct.
[18]   **Q:** Or through a series of parallel
[19] chips?
[20]   **A:** Or in parallel through one chip,
[21] yes.
[22]   **Q:** Okay.
[23]   **A:** You could feed some number of them
[24] in paralegal through one chip.
[25]   **Q:** Is the A.M.D. 791, I'm sorry, 7971

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Hemami

[1]
[2] chip capable of processing nonbinary images?
[3]   A: Well, it's a bit of a —
[4]   Q: You're right. Let me try it
[5] differently.
[6]   Is it, is the chip, this A.M.D. 7971
[7] chip capable of directly processing nonbinary
[8] images?
[9]   A: What does —
[10]   MR. PAYNE: Objection to form.
[11]   A: What does "directly processing"
[12] mean?
[13]   Q: Sure. I think we just described how
[14] you can use this chip to process a 21 bit color
[15] image, correct?
[16]   A: Well, you described it.
[17]   Q: Fair enough. It's accurate to say
[18] that the A.M.D. 7971 chip can process a 21 bit per
[19] pixel color image by breaking it into 21 separate
[20] binary images, correct?
[21]   A: Yes, that is an accurate statement.
[22]   Q: Okay. Would it be possible to send
[23] a 300 by 300 frame with 21 bits for each pixel
[24] through the A.M.D. processor without breaking it
[25] into 21 separate frames?

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Hemami

[1]
[2]   A: Well, in fact — now, let me think.
[3] Okay. I would have to look at the
[4] data sheet to — I don't want to rely on doing
[5] math in my head or remembering the data sheet but
[6] as far as that A.M.D. chip is concerned, remember,
[7] it doesn't know that the bits that we are pushing
[8] into it, whether they came from our 21 bit color
[9] image or whether they came from a scanner or
[10] whether somebody accidentally unplugged the
[11] machine prior to turning it back in and those bits
[12] that it's going to process are just whatever state
[13] the memory powered back up in.
[14]   So we can feed it any bits we want.
[15] It will not, it will not explode. It will not
[16] raise a red flag saying, you know, this data
[17] doesn't —
[18]   Q: Understood. You can feed any bits
[19] you want into the chip is what you're saying, is
[20] that right?
[21]   A: Yes.
[22]   Q: Okay.
[23]   THE VIDEOGRAPHER: I need to
[24] change the tape.
[25]   MR. BROWN: Do I have five

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Hemami

[1]
[2] minutes, three minutes?
[3]   THE VIDEOGRAPHER: You have
[4] about one minute.
[5]   MR. BROWN: Let's change the
[6] tape.
[7]   THE VIDEOGRAPHER: The time is
[8] now 11:04. This marks the ending of
[9] tape number one. Off the record.
[10]   (Recess taken)
[11]   THE VIDEOGRAPHER: The time is
[12] now 11:05. This marks the beginning
[13] of tape number two. On the record.
[14]   BY MR. BROWN:
[15]   Q: Before we took that brief break, I
[16] think you said that the algorithm or algorithms in
[17] the CCITT Group IV processed binary images,
[18] correct?
[19]   A: They're intended to process binary
[20] images. The, the chip was designed with binary
[21] images in mind.
[22]   Q: That's exactly where I was going.
[23] You've anticipated me perfectly.
[24]   So even though they're designed to
[25] process binary images, you can feed other data

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Hemami

[1]
[2] into them, right?
[3]   A: Well —
[4]   Q: There's nothing to stop you?
[5]   A: First off, you can feed any data
[6] into it.
[7]   Q: Right.
[8]   A: Now, we would hope that we would
[9] feed data that had something in common with a
[10] binary image if we wanted to use the chip in such
[11] a manner to achieve compression.
[12]   Q: Let's talk generally about
[13] compression and I think that the reason for what
[14] you just said is that different kinds of data have
[15] different patterns of bits in them that make
[16] different algorithms more and less effective at
[17] compressing them. Is that true?
[18]   A: I think that's a laymen's
[19] understanding, which if I were explaining it to
[20] somebody on a bus, that is probably what I would
[21] say to them.
[22]   Q: Excellent. Let's suppose you were
[23] explaining this to a Federal judge who is an
[24] extremely intelligent and accomplished woman.
[25]   How would you clarify and deepen

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[1]   *Hemami*
[2] that explanation?
[3]   **A:** I would state that compression
[4] algorithms, some compression algorithms are
[5] designed for specific statistical characteristics
[6] of input data. A compression person or a signal
[7] processing person would describe one important
[8] statistical characteristic as correlation.
[9]   I like to explain correlation to
[10] nonstatistically-oriented people as if I gave you,
[11] say, if I drew a signal on a white board or I gave
[12] you an image or I gave you the Dow Jones
[13] Industrial Average closing over a series of days,
[14] and I went in and removed or erased a pixel from
[15] the image or a sample from the audio or a closing
[16] from the Dow Jones sequence and handed it to you
[17] and said, "What do you think goes there?" You
[18] would be able to make a fairly accurate — and
[19] when I say "accurate," I mean if we repeated this
[20] many, many, many times and computed some error
[21] measure, most of the time you would pick something
[22] that is very correct.
[23]   Now, obviously, September 11th
[24] something strange happens, you know. There are
[25] things we cannot predict from surrounding data but

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[1]   *Hemami*
[2] correlation is a characteristic of data that
[3] somehow data close together in space or time or
[4] however we are presenting the data is related to
[5] each other in a manner that you, as a human, might
[6] be able to understand what it is.
[7]   Even if you can't, there are
[8] mathematical techniques that we can employ to
[9] repeat and maybe even do better than, certainly
[10] sometimes definitely do better than your educated
[11] guess as a human.
[12]   **Q:** So let's use an example. The patent
[13] talks about, in the context of video, comparing
[14] the pixels that have changed between successive
[15] frames of a video, correct?
[16]   **A:** Yes.
[17]   **Q:** And the reasoning there is that in
[18] video, not all pixels will change between two
[19] successive frames, correct?
[20]   **A:** Yes.
[21]   **Q:** So for example, if you have the
[22] video of a talking head on CNN, the pixels in the
[23] background are unlikely to change very much
[24] between frames. Is that right?
[25]   **A:** That's correct.

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[1]   *Hemami*
[2]   **Q:** And that is an example of
[3] correlation as you've just described, correct?
[4]   **A:** Yes.
[5]   **Q:** So what would be correlated is the
[6] pixels between successive frames. Is that right?
[7]   **A:** Yes. We would expect a large number
[8] in which you've described of the pixels between
[9] correlated, I'm sorry, between nearby frames.
[10]   **Q:** Sure. Let's take another example.
[11] If someone were to take a digital
[12] picture of you sitting here right now, it would
[13] include your jacket, right? And the color in your
[14] jacket, while quite nice and subtly different in
[15] various places —
[16]   **A:** Oh, yes.
[17]   **Q:** — it's generally the same
[18] throughout your jacket. Is that right?
[19]   **A:** Well, I'll go with your example,
[20] yes.
[21]   **Q:** I mean I recognize that maybe the
[22] jacket isn't ideal because there's green and red.
[23] It's a very nice jacket.
[24]   **A:** I would actually use the jacket in
[25] my class as an example of perhaps you can't

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[1]   *Hemami*
[2] predict so well from one point to another.
[3]   **Q:** Well, then, you know what? Let's
[4] not use your jacket.
[5]   **A:** You could use the lovely background.
[6]   **Q:** That might not work very well
[7] either.
[8]   **A:** How about the wall?
[9]   **Q:** Let's suppose that you picked up a
[10] blank white piece of paper and you held it up to
[11] the camera —
[12]   **A:** Here we go.
[13]   **Q:** — and then you took a picture.
[14] There would be, I think you'd agree, a high amount
[15] of correlation between the pixels within the area
[16] that represents the blank white piece of paper, is
[17] that right?
[18]   **A:** Absolutely.
[19]   **Q:** And generally in images, it's
[20] possible to find areas where there is correlation
[21] between pixels that are located in similar places.
[22] Is that right?
[23]   **A:** Yes. I mean, but the fact that we
[24] can see is sort of evidence that in most images,
[25] you know, adjacent things tend to be very

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[1]   *Hemami*
[2] correlated.
[3]   **Q:** And image compression takes
[4] advantage of that fact, correct?
[5]   **A:** Yes.
[6]   **Q:** Or at least it can?
[7]   **A:** Yes. Yes. I would say general
[8] image compression algorithms, for example, that we
[9] can't predict what every single picture that
[10] someone is going to take is. JPEG, for example,
[11] exploits this fact.
[12]   **Q:** Okay. Now, let's take a very
[13] different example. Let's talk about a database
[14] file that's a binary file on a computer.
[15]   That file will also have correlation
[16] within it, correct?
[17]   **A:** Maybe, maybe not. It depends how
[18] it's stored and what the file is and what format
[19] it is.
[20]   **Q:** Fair enough. We don't necessarily
[21] need that for the, for the case.
[22]   What I wanted to ask you is it true
[23] that the efficiency and performance of any given
[24] compression algorithm depends on whether the data
[25] that's provided actually has the type of

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[1]   *Hemami*
[2] correlation that it was designed to handle?
[3]   So, for example, if you have a video
[4] compression algorithm which one would expect to
[5] look for, so to speak, correlation between pixels
[6] and successive frames and you created, using some
[7] video authoring tool, a bizarre kaleidoscope where
[8] no pixels remain the same between successive
[9] frames, the performance of that algorithm would
[10] degrade immensely, right?
[11]   **A:** If the algorithm is designed for
[12] what we would call natural images, then if you
[13] gave it an arbitrary collection of frames
[14] consisting of an arbitrary collection of pixels,
[15] we would expect that the compression would not be
[16] as good as if you fed it, say, footage of a
[17] football game.
[18]   **Q:** Right. So is it generally true in
[19] compression that the performance of the algorithm
[20] is related to whether the data it is receiving
[21] contains the types of correlations that the
[22] algorithm is designed to handle?
[23]   **A:** Well, what type of compression are
[24] you talking about?
[25]   **Q:** Let's use video compression.

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[1]   *Hemami*
[2]   **A:** There are some compression
[3] algorithms for which what you said is not true.
[4] And for video compression, video compression
[5] algorithms designed for natural video, we would
[6] expect that if we fed it video with different
[7] statistical characteristics, it would not do as
[8] well.
[9]   **Q:** Let's take the specific example of
[10] the 7971 chip here.
[11]   Would you expect that chip to
[12] perform better for black and white fax images than
[13] for color video images?
[14]   **A:** How do you define "better"?
[15]   **Q:** Well, I'm probably not very good at
[16] that. You're a compression expert, true?
[17]   **A:** Yes.
[18]   **Q:** How would you define a "better
[19] compression" performance?
[20]   **A:** Well, the question that you have
[21] asked is, is a little bit awkward and I will
[22] oblige you by telling you why.
[23]   The CCITT Group IV algorithm is a
[24] lossless algorithm for binary images. So the
[25] array that you send in of 1's and zeroes arranged

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[1]   *Hemami*
[2] in an image format will come out as exactly the
[3] same array of 1's and zeroes, modulo the options
[4] and the chip. You know, you can set the, you can
[5] set up the border if you would like.
[6]   I think there's some, there's some
[7] options for, shall we say, presentation of the
[8] output of the fax on the page, okay? But if we're
[9] talking about just the bits that refer to the
[10] single array, the array of binary images that went
[11] in, those bits will come out exactly the same.
[12]   Now, a video compression algorithm,
[13] we don't need the output video or the decompressed
[14] video to be pixel for pixel equivalent to the
[15] original. Now, you could argue maybe for fax.
[16] You don't need it. We're all able to read lousy
[17] faxes, right? You know, that's clearly not a
[18] pixel for pixel equivalent. But as far as the
[19] chip is concerned, it produces the same binary
[20] image decompressed as it decompressed.
[21]   **Q:** I don't mean to interrupt you. I
[22] was trying to understand how you would define
[23] "better compression."
[24]   **A:** Okay. Okay. So with respect to the
[25] fax, okay, we're talking about a lossless — so

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Hemami

[1]
[2] with respect to binary, single binary image, we're
[3] talking about lossless compression. So the only
[4] metric that we have is the size.
[5]   **Q:** The size of what?
[6]   **A:** The size of the compressed file,
[7] okay?
[8]   Now, with respect to the video, we
[9] can produce output video of varying qualities and
[10] the varying qualities correspond to varying sizes
[11] of the compressed file. And the designer of the
[12] system or whoever, you know, however this is being
[13] used, can make design choices as to tradeoffs
[14] involved on what size of file we want and what
[15] quality of output video we want.
[16]   **Q:** Is it possible to use the A.M.D.
[17] 7971 chip to do lossy compression?
[18]   **A:** Yes.
[19]   **Q:** How do you do that?
[20]   **A:** We simply do not feed it all of the
[21] 21 bit planes.
[22]   **Q:** So it's possible to use the chip
[23] within a work flow that produces a lossy
[24] compression. Is that right?
[25]   **A:** Work flow?

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Hemami

[1]
[2]   **Q:** Okay. We'll avoid that word if you
[3] don't like it.
[4]   Is it true that the loss, in the
[5] example you just gave, is injected by something
[6] other than the A.M.D. chip?
[7]   **A:** That is accurate.
[8]   **Q:** Is the A.M.D. chip itself capable of
[9] implementing a lossy compression?
[10]   **A:** That I don't know. I'd have to
[11] reread the, the chip description.
[12]   **Q:** But your understanding sitting here
[13] today of the algorithm it runs is that it's a
[14] lossless algorithm. Is that right?
[15]   **A:** My understanding of the algorithm is
[16] based on the standard document. So I, when I
[17] discuss this chip, I am — it has options, it does
[18] things that allow for, I think what CCITT Group IV
[19] maybe considered not falling within the standard
[20] but the engine is a CCITT Group IV standard. So,
[21] you know, I don't know if CCITT Group IV allows
[22] for putting borders on pages or some of the other
[23] options that the chip has.
[24]   **Q:** Okay. So when you say that the chip
[25] performs a lossless algorithm, what you meant is

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Hemami

[1]
[2] that it performs a CCITT Group IV algorithm which
[3] are generally lossless algorithms?
[4]   **A:** Yes.
[5]   **Q:** Are there any lossy CCITT Group IV
[6] algorithms?
[7]   **A:** To my knowledge, no.
[8]   **Q:** All right. Let's talk about the
[9] next paragraph which says that, "The compression
[10] algorithm can simply record data corresponding to
[11] only those pixels which change color from one
[12] frame to the next."
[13]   Do you see that?
[14]   **A:** Yes.
[15]   **Q:** Is that a lossy or lossless
[16] algorithm or both? I shouldn't put it that way.
[17]   Does that describe a lossless
[18] algorithm, does that describe a lossy algorithm or
[19] could it be describing either?
[20]   **A:** At that point of the sentence, it
[21] could be describing either.
[22]   **Q:** Okay. In the context of the
[23] paragraph as a whole, is the answer any different?
[24]   **A:** So the question is — can you put
[25] the whole question together for me?

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Hemami

[1]
[2]   **Q:** Sure. You said that at that point
[3] in the sentence, it could be describing either a
[4] lossy algorithm or a lossless algorithm.
[5]   The paragraph that runs from column
[6] 5, line 9 through — actually, I don't mean to ask
[7] you about the entire paragraph.
[8]   From column 5, line 9 through column
[9] 5 line 18, the sentence that ends with,
[10] "90 percent." Do you see that?
[11]   **A:** "90," yes.
[12]   **Q:** Does that portion of the '995 patent
[13] describe a lossy compression process, a lossless
[14] compression process or could it be describing
[15] either?
[16]   **A:** I read this as it could be
[17] describing either. It's, it's up to the system
[18] designer.
[19]   There is a general approach to video
[20] compression described here. The system designer
[21] would make specific decisions based on their
[22] requirements.
[23]   **Q:** Okay. Now, is it true that — well,
[24] there's only one thing that's actually described
[25] here which is recording data corresponding to

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Hemami

[1]
[2] those, only those pixels which change color from
[3] one frame to the next, right?
[4]   **A:** Yes.
[5]   **Q:** Now, that could be done in different
[6] ways. Is that right?
[7]   **A:** Yes.
[8]   **Q:** There are multiple different ways of
[9] encoding which pixels change color from one frame
[10] to the next in a video compression algorithm. Is
[11] that true?
[12]   **A:** That's true.
[13]   **Q:** Okay. And this patent doesn't
[14] differentiate between any of those ways. Is that
[15] true?
[16]   **A:** No. No. I don't think, I don't
[17] think it does. I mean, again, these are sort of,
[18] these are design issues, how one chooses to follow
[19] through on the suggestion.
[20]   **Q:** Right. All this patent says is that
[21] what you should do in the algorithm is record data
[22] corresponding to only those pixels which change
[23] color from one frame to the next. Is that right?
[24]   **A:** Well, I think that the broader
[25] suggestion — I don't think it says that's what

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[1]
[2] you should do. It says that, the broader — this
[3] is suggesting in sort of jargon inter-frame
[4] coding, that rather than dealing with each
[5] individual frame as a standalone entity, for
[6] example, as the scene adaptive coder did, let us
[7] instead consider multiple frames at a time and see
[8] what we can do with respect to exploiting temporal
[9] correlation. So this 10 percent of the pixels
[10] changing from one frame to the next, this is an
[11] approximation, right?
[12]   You know, you could have frames
[13] where you have more. You can have frames where
[14] you have less. How a designer chooses to address
[15] changing pixels is, you know, this is a class of
[16] compression algorithms and there are many ways to
[17] implement specifics.
[18]   **Q:** Is the terminology that you would
[19] use to describe the class of compression
[20] algorithms that's referred to in lines 9 through
[21] 17 of column 5 inter-frame compression algorithms?
[22]   **A:** Yes. "Inter" as opposed to "intra."
[23]   **Q:** And the CCITT Group IV compression
[24] algorithm or algorithms that we were describing
[25] before are intra-frame compression algorithms,

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[1]
[2] correct?
[3]   **A:** Were we to use it for our color
[4] image as we described, yes, we would call that an
[5] intra-frame compression algorithm.
[6]   **Q:** And what would you call it in the
[7] context it was originally designed for, the fax
[8] compression context?
[9]   **A:** I, I would still call it intra-frame
[10] from the standpoint it's, it's — clearly a fax is
[11] not a video, you know. What we consider a fax, a
[12] binary image, per se, could have come from a video
[13] frame but it is not itself a video frame unless
[14] you happen to be recording with a binary camera,
[15] some type of artistic video.
[16]   It operates on a single plane of
[17] data. Perhaps that's a good way to differentiate
[18] it.
[19]   **Q:** Earlier you said that the 7971 fax
[20] chip doesn't know where the bits that it receives
[21] came from. Do you remember that?
[22]   **A:** Yes.
[23]   **Q:** Do you know the rate at which that
[24] chip can process bits?
[25]   **A:** The data sheet gives a rate of 1 to

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[1]
[2] 12 megahertz for pixel processing rates.
[3]   **Q:** And by "pixel" in this case, because
[4] we're talking about a binary image, that's a
[5] single bit, is that right?
[6]   **A:** That's correct. That's correct.
[7]   **Q:** So it can process 1 to 12, you said
[8] megahertz?
[9]   **A:** That's the word they use. I mean I
[10] take that to mean megapixels, mega binary pixels
[11] per second.
[12]   **Q:** Which means millions of pixels per
[13] second. Is that right?
[14]   **A:** That's right.
[15]   **Q:** And I believe you said that in order
[16] to process the video that's described in the
[17] column 4 of the '995 patent, one would need to
[18] break that, the 21 bits representing the color in
[19] the images into 21 separate —
[20]   **A:** Planes.
[21]   **Q:** — planes.
[22] And there's a calculation here which
[23] multiplies the number of pixels in a frame by the
[24] number of bits to give you 1.89 megabits per
[25] frame. Do you see that?

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[1]

[2]　**A**: Yes.

[3]　**Q**: Did you check that calculation?

[4]　**A**: Yes, I did.

[5]　**Q**: And is it accurate?

[6]　**A**: I — well, you know, I don't

[7] remember that I checked the 1.89. I certainly

[8] checked the 51 gigahertz. So if this is

[9] consistent with — sorry, gigabyte storage size.

[10] If this is consistent with the 51 gigabyte storage

[11] size, then I believe that it's correct.

[12]　**Q**: Let's assume that it's correct.

[13]　**A**: Okay.

[14]　**Q**: All right. Whether this data is in

[15] the form of 21 separate frames or a single frame

[16] with 21 bits of depth for each pixel, it's going

[17] to have the same amount of data, is that right?

[18]　**A**: Yes.

[19]　**Q**: So let's assume the amount of data

[20] is 1.89 megabits. Is that right?

[21]　**A**: Uh-huh.

[22]　**Q**: Okay. That means that the A.M.D.

[23] chip that's described here would be capable of

[24] processing that data in real time given the

[25] processing rate that you described. Is that

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Hemami

[1]

[2] right?

[3]　**A**: What you have just stated is

[4] inaccurate at several levels.

[5]　**Q**: Okay. Please explain.

[6]　**A**: So first off, one of ordinary skill

[7] would understand that we don't need 7 bits per

[8] color for good quality, NTSC quality video.

[9]　**Q**: Okay. You know what? That's fair

[10] and I'm not, I don't mean to ask you about what

[11] you could do in between because I understand it's

[12] possible to do things to the bits in between

[13] having 21 bits per pixel representing the color

[14] and feeding it into the fax chip. Okay? But bear

[15] with me for a second.

[16]　Let's assume that you were going to

[17] take the frames with 21 bits per pixel without

[18] doing any compression on the color and feed it

[19] into the fax chip. Are you with me?

[20]　**A**: Yes.

[21]　**Q**: Okay. At that point, assuming the

[22] math in the patent is correct, you would need 1.89

[23] megabits per frame, right?

[24]　**A**: Yes.

[25]　**Q**: And the patent describes 30 frames

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Hemami

[1]

[2] per second, right?

[3]　**A**: Yes.

[4]　**Q**: So that would be in excess of 50 and

[5] less than 60 megabits per second, right?

[6]　**A**: You're taking — yes, yes, 1.89

[7] times 30.

[8]　**Q**: Which is somewhere between 50 and

[9] 60?

[10]　**A**: Some large number, yes.

[11]　**Q**: That's higher than the data rate of

[12] the fax chip that you just described?

[13]　**A**: Indeed, it is.

[14]　**Q**: So before the data was fed into that

[15] fax chip, it would need to be compressed to make

[16] it possible for the fax chip to process it in real

[17] time. Is that right?

[18]　**A**: No.

[19]　**Q**: Why not?

[20]　**A**: Well, no. We wouldn't compress it

[21] first. We would simply run several chips in

[22] parallel if we wanted to do lossless video

[23] compression which no one of ordinary skill would

[24] implement and I don't believe is described in the

[25] specification either.

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Hemami

[1]

[2]　**Q**: Okay. Does the specification ever

[3] describe using multiple A.M.D. chips in parallel?

[4]　**A**: Well, the specification states,

[5] "Various algorithms may be employed in the

[6] compression process," to which I'll just put a

[7] little asterisk and say knowing that one would

[8] throw away some lower bit planes, right, would

[9] fall in the category of "various," and then as an

[10] example, compression algorithms like CCITT Group

[11] IV.

[12]　Now, that doesn't say run it once.

[13] It is simply — just as a discrete cosine

[14] transform can be described as an algorithmic part

[15] of JPEG, there's no suggestion that we run it once

[16] per image. It's a block that's in there that we

[17] are going to run as part of the algorithm.

[18]　**Q**: Sure. So the algorithm —

[19]　**A**: So I don't read this to suggest that

[20] one is limited to a single chip.

[21]　**Q**: And that's because, like you said,

[22] the algorithm referred to could require using

[23] multiple chips in parallel. Is that right?

[24]　**A**: The compression algorithm for video,

[25] you know, cannot simply be, we can't just slap

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Hemami

[1]
[2] down the 7971 chip and say, there, we're done,
[3] right? This requires design.
[4]   So as I, you know, as I mentioned, a
[5] designer or a video person would know that we
[6] didn't need lower bit planes and could, would make
[7] an intelligent design decision about not
[8] processing those because the visual impact will be
[9] negligible or zero. And similarly, the designer
[10] sees a suggestion here for a compression algorithm
[11] in conjunction with the hardware chip and this is
[12] a, you know, they can use it. But to say that
[13] one, we have to have only one, I don't read it
[14] that way.
[15]   Q: What you've said so far is that the
[16] specification doesn't say you have to only use one
[17] chip, right?
[18]   A: Yes.
[19]   Q: My question was does it ever say
[20] expressly that you can use more than one chip?
[21]   A: It says nothing about any numbers of
[22] chips. Neither that you can use only one or that
[23] you must use more than one.
[24]   Q: Okay. What it does say is that the
[25] CCITT Group IV compression algorithms are

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Hemami

[1]
[2] available on a single integrated circuit and it
[3] provides the example of the A.M.D. 7971, correct?
[4]   A: Yes.
[5]   Q: And doesn't provide any other
[6] examples of chips that can do compression,
[7] correct?
[8]   A: Well, there are other chips that are
[9] referred to in the specification. The chip
[10] itself, certainly we could program it to do
[11] compression. In the context of the Burst patent,
[12] no.
[13]   Q: Okay. So you're referring to the
[14] CPU. Is that right?
[15]   A: Yes.
[16]   Q: And so it refers to microprocessors
[17] and I believe at the bottom of column 5 around
[18] line 50 through 55 it gives examples of
[19] microprocessors, right?
[20]   A: Right.
[21]   Q: And it would be possible to program
[22] those chips to do compression, correct?
[23]   A: Yes.
[24]   Q: But the Burst patent makes clear
[25] that the compression is not done by the CPU,

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Hemami

[1]
[2] correct?
[3]   A: The compression is done by the
[4] compressor/decompressor, yes.
[5]   Q: And are any examples of the hardware
[6] for the compressor/decompressor given in the Burst
[7] patents other than this A.M.D. 7971 chip?
[8]   A: There are no other examples of
[9] specific hardware for the compressor/decompressor
[10] given in the patent.
[11]   Q: Does the — strike that.
[12] Do the Burst patents describe any
[13] intra-frame compression algorithm other than the
[14] CCITT Group IV algorithm or algorithms?
[15]   A: The compression as described at the
[16] bottom of page 4, the general statement which
[17] starts on line 65 says, "Various algorithms may be
[18] employed in the compression process which enable
[19] the representation of a series of numbers by a
[20] reduced number of digits." The CCITT Group IV
[21] material follows after as an example.
[22]   So to one of ordinary skill, that
[23] "various algorithms" sentence suggests that there
[24] are things out there and you can go pick something
[25] but if you're too lazy to do so or you would like

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Hemami

[1]
[2] a kick in the rear, I'm going to provide you with
[3] just one example to get you thinking.
[4]   Q: Fair enough. So there's a statement
[5] in here that various algorithms can be used.
[6]   Is it true that the only example of
[7] an intra-frame compression algorithm that's
[8] provided in the Burst patents is the CCITT Group
[9] IV algorithm or class of algorithms?
[10]   A: That, that is the only example.
[11]   Q: Okay. We've talked before about the
[12] text between lines 9 and about 18 in column 5 as
[13] describing the, a class of inter-frame compression
[14] algorithms. Is that right?
[15]   A: Yes.
[16]   Q: So that text — well, other than
[17] that text, does the Burst patents provide any
[18] other examples of inter-frame compression
[19] algorithms?
[20]   A: That text represents the suggestion
[21] or the reference to the class, the class I would
[22] say, not a class, but the class of inter-frame
[23] compression algorithms.
[24]   Q: The distinction you drew between
[25] "the class" and "a class," does that mean that you

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[1]   *Hemami*

[2] view that paragraph that we just — well, it's not

[3] a paragraph — that text between lines 9 and 18 in

[4] column 5, as referring to the entire class of

[5] inter-frame compression algorithms?

[6]   A: So the class of inter-frame

[7] compression algorithms for video is anything that

[8] uses more than one frame, okay? So it's a very

[9] broad term.

[10]   Q: Fair enough. I'm just trying to

[11] understand why you drew a distinction between "a

[12] class" and "the class."

[13]   A: Because in your previous sentence,

[14] you said "a class" and I wanted to make it clear

[15] that inter-frame — you know, you're either using

[16] multiple frames or you're not.

[17]   Q: Okay. And in your view — well,

[18] let's back up.

[19]   This text describes a compression

[20] algorithm that can simply record data

[21] corresponding to only those pixels which change

[22] color from one frame to the next.

[23]   Is that true of all inter-frame

[24] compression algorithms?

[25]   A: No. I can think of one example

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[1]   *Hemami*

[2] where it's not but we are still using multiple

[3] frames.

[4]   Q: Okay. So the text in column 5 of

[5] the '995 patent refers to a very large sub-class

[6] of inter-frame compression algorithms that doesn't

[7] include all inter-frame algorithms but includes

[8] most of them. Is that right?

[9]   A: Well, let's also be clear that, you

[10] know, every single human on earth could design a

[11] compression algorithm and then we could design

[12] another one and another one and there's sort of an

[13] infinite number of compression algorithms.

[14]   There are a lot of hypothetical

[15] things that you could do that may or may not work

[16] better or worse that would still qualify as

[17] compression algorithms, but may not be anything

[18] that anybody would really care about so I would

[19] say, let's — from the standpoint of any type of

[20] video compression algorithm that somebody would

[21] attempt to use in a commercial product.

[22]   So this somehow suggests that it

[23] looks good enough and provides performance good

[24] enough that somebody somewhere would be willing to

[25] fork over money for it, okay? From that

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[1]   *Hemami*

[2] perspective, I think we can say the inter-frame

[3] compression algorithms are going to do something

[4] that compares pixels across one or more frames.

[5]   Q: Okay. Is it fair to say that by

[6] referring to algorithms that record data

[7] corresponding to only those pixels which change

[8] color from one frame to the next, the '995 patent

[9] is referring to all, I think you used the phrase

[10] "commercially viable" or at least this idea of

[11] commercially viable compression.

[12]   A: Let's go with the idea of

[13] "commercially viable." I think people have

[14] different opinions as to what is commercially

[15] viable and I'm certainly not a marketing expert

[16] but —

[17]   Q: Fair enough. Let's try it a little

[18] bit differently then.

[19]   Is it true that the text in column 5

[20] that we've been discussing between lines 9 and 18

[21] refers to any of the algorithms that could

[22] feasibly be used commercially for inter-frame

[23] video compression?

[24]   A: Any of the algorithms — let's say

[25] — "any" is a very all encompassing but —

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[1]   *Hemami*

[2]   Q: That, that's fine. I'll ask it

[3] slightly differently. Would "most" work?

[4]   A: Let's go with "most."

[5]   Q: Okay. Is it true that the text in

[6] column 5 between lines 9 and 18 that describes —

[7] well, let me back up because I think you've

[8] already said that.

[9]   Is it true that the text in column 5

[10] between lines 9 and 18 is referring to a class of

[11] inter-frame compression algorithms that would

[12] include most of the commercially viable video

[13] inter-frame compression algorithms?

[14]   MR. PAYNE: Object to form.

[15]   A: And you say "the commercially

[16] available," which suggests to me that you have

[17] something in mind.

[18]   Q: Maybe I better reframe the question.

[19] I might have misspoken.

[20]   Is it true that the text in column 5

[21] between lines 9 and 18 would be understood by a

[22] person of ordinary skill in the art to refer to

[23] any one of a class which includes most of the

[24] commercially viable video compression algorithms

[25] that use inter-frame compression?

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Hemami

[1]
[2]   **A:** I think that mischaracterizes my
[3] intended, my intended description of
[4] "commercially viable."
[5]   **Q:** Okay.
[6]   **A:** What I meant by "commercially
[7] viable" — let's see if I can come up with a
[8] better description — something that provides
[9] reasonable quality and reasonable performance
[10] where reasonable art design parameters.
[11]   I didn't mean to suggest that this
[12] was written in a way to encompass some algorithms
[13] that existed such that the patentee would be able
[14] to immediately go out and jump on people. That is
[15] not what I meant to suggest when I went toward the
[16] "commercially viable."
[17]   I was trying to exclude crazy things
[18] that somebody might put together for a paper in
[19] Hawaii because they wanted to go but one would
[20] never actually consider such an algorithm were one
[21] to attempt to build a system that could be used
[22] outside of the laboratory and the lecture
[23] presentation room in Hawaii.
[24]   **Q:** Okay. So let's try it one more
[25] time.

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Hemami

[1]
[2]   Excluding unreasonable compression
[3] algorithms, is it true that the text between lines
[4] 9 and 18 of column 5 in the '995 patent describes
[5] the class of inter-frame compression algorithms
[6] for video?
[7]   **A:** I think that's fair.
[8]   **MR. PAYNE:** Are you at a good
[9] stopping point?
[10]   **MR. BROWN:** If you want to
[11] take a break, I'm happy to take a
[12] break. I could keep going but let's
[13] take a break. I certainly don't want
[14] to —
[15]   **THE VIDEOGRAPHER:** The time is
[16] now 11:44. Off the record.
[17]   (Recess taken)
[18]   **THE VIDEOGRAPHER:** The time is
[19] now 11:53. On the record.
[20]   **THE WITNESS:** Oh, can we go
[21] off the record?
[22]   **MR. BROWN:** Sure. Let's go
[23] off the record for a second.
[24]   (Discussion off the record)
[25]   **MR. BROWN:** Okay. Back on.

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Hemami

[1]
[2]   **THE VIDEOGRAPHER:** Well, I
[3] didn't actually get a chance to go off
[4] the record.
[5]   **MR. BROWN:** Well, that's fine.
[6] We'll keep going.
[7]   **BY MR. BROWN:**
[8]   **Q:** If you look at the '995 patent,
[9] between lines 28 and 35, there's a paragraph
[10] beginning, "In one embodiment."
[11]   Do you see that?
[12]   **A:** Yes.
[13]   **Q:** That paragraph describes sampling
[14] the audio portion of the program, correct?
[15]   **A:** Yes.
[16]   **Q:** And it describes digitizing the
[17] audio. Is that right?
[18]   **A:** Yes.
[19]   **Q:** Sampling is part of the digitizing
[20] process, correct?
[21]   **A:** Yes.
[22]   **Q:** It says in the patent that it is
[23] digitized by digital to analog conversion. Do you
[24] see that?
[25]   **A:** Yes.

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Hemami

[1]
[2]   **Q:** That's backwards, right? It should
[3] be analog to digital conversion?
[4]   **A:** Good, good catch. Yes.
[5]   **Q:** But in any event, after the analog
[6] to digital conversion which it describes as
[7] occurring at a sampling rate of 88,000 per second.
[8] Do you see that?
[9]   **A:** Yes.
[10]   **Q:** Presumably that means samples per
[11] second. Is that right?
[12]   **A:** Well, it says sample rate. Yes,
[13] samples per second.
[14]   **Q:** Well, do you think that means 88,000
[15] of something other than samples per second?
[16]   **A:** No, no, but, that, that's fine.
[17]   **Q:** Well, I want to make sure I
[18] understand what you think that means.
[19]   **A:** No. No. I was —
[20]   **Q:** What does 88,000 per second mean?
[21]   **A:** No, it's, it's exactly samples per
[22] second. I mean, I read that as a replacement for
[23] hertz. A hertz is one over a second and instead
[24] of writing hertz, he wrote over second. It is
[25] 88,000 samples per second.

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[1]   **Hemami**

[2]   **Q:** And he writes one byte per sample.
[3] Do you see that?
[4]   **A:** Yes.
[5]   **Q:** That's 8 bits, right?
[6]   **A:** Yes.
[7]   **Q:** He says that yields CD quality
[8] sound. Do you see that?
[9]   **A:** Yes.
[10]   **Q:** CD quality sound is actually 16 bits
[11] per sample, correct?
[12]   **A:** What is colloquially referred to as
[13] CD quality sound currently represents 16 bits per
[14] sample, yes.
[15]   **Q:** And there's a, a new format out.
[16] I'm not exactly sure what it's called but it uses
[17] 24 bits per second, right?
[18]   **A:** It's per sample, I think.
[19]   **Q:** I'm sorry.
[20]   **A:** And if you say so because I am not
[21] aware of that format.
[22]   **Q:** So are you aware of, I believe it's
[23] called the SACD format? Are you aware of that
[24] format?
[25]   **A:** No.

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[1]   **Hemami**

[2]   **Q:** Fair enough.
[3] The sampling rate for CDs is 44,100
[4] samples per second, correct?
[5]   **A:** That's right.
[6]   **Q:** So here he has double, slightly less
[7] than double that rate and slightly, and exactly
[8] half of the bits per sample. Is that right?
[9]   **A:** That's right.
[10]   **Q:** So this is, it's, in fact, true that
[11] the total number of bits described here is
[12] approximately the same as in CD quality sound. Is
[13] that right?
[14]   **A:** Approximately, because of the, it
[15] would be 88,200 if it were exactly, yes.
[16]   **Q:** Okay. The next sentence states,
[17] "The sampling rate could be dropped to reduce
[18] memory requirements." Do you see that?
[19]   **A:** Yes.
[20]   **Q:** Would you consider dropping the
[21] sampling rate as described there to be
[22] compression?
[23]   **A:** Generally, we do not — well, I
[24] think it, it, that perhaps describes — excuse me.
[25]   That perhaps depends on the system

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[1]   **Hemami**

[2] description. I think generally I would not
[3] consider that to be compression but I can
[4] certainly imagine contexts in which it was
[5] described as such in that it would produce less
[6] data, smaller file sizes than without reducing the
[7] sampling rate.
[8]   **Q:** Here it's certainly described,
[9] implicitly at least, as reducing file sizes,
[10] right?
[11]   **A:** Well, it says memory requirements.
[12]   **Q:** So it reduces the amount of memory
[13] needed to store the audio data, right?
[14]   **A:** Required to store the, the raw
[15] samples, the raw digitized samples, yes.
[16]   **Q:** But you wouldn't consider that —
[17] well, I'm going to make sure I understand.
[18]   Would you or would you not consider
[19] that sentence, in the context of the Burst
[20] patents, to be describing compression?
[21]   **A:** I don't believe I would describe
[22] dropping a sampling rate as compression because
[23] this is actually oversampled. So from very solid,
[24] a very solid signal processing argument, one can
[25] reduce the sampling rate and still exactly

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[1]   **Hemami**

[2] represent the data.
[3]   **Q:** The next sentence says, "The audio
[4] data can be compressed with conventional
[5] algorithms, e.g., a Fibonacci delta compression
[6] algorithm." Do you see that?
[7]   **A:** Yes.
[8]   **Q:** The Fibonacci delta compression
[9] algorithm indeed compresses audio data, correct?
[10]   **A:** It does.
[11]   **Q:** Does — strike that.
[12] We've now talked about four specific
[13] places where compression algorithms are referred
[14] to in the '995 patent. One is column 4 at around
[15] line 66 where it says, "Various algorithms may be
[16] employed."
[17]   **A:** Yes.
[18]   **Q:** Another is the CCITT Group IV
[19] compression algorithm at the top of column 5,
[20] correct?
[21]   **A:** Yes.
[22]   **Q:** And within that, the example of the
[23] 7971 chip is provided. Is that right?
[24]   **A:** Yes.
[25]   **Q:** Another class of algorithms is

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[1]   *Hemami*
[2] identified in column 5 between lines 9 and 18,
[3] correct?
[4]   **A:** Yes.
[5]   **Q:** And then down at line 35, the
[6] Fibonacci delta compression algorithm is
[7] described?
[8]   **A:** As well as in the previous line,
[9] "compressed with conventional algorithms."
[10]   **Q:** So the Burst patent we've just seen
[11] describes various algorithms at the bottom of
[12] column 4, the CCITT Group IV algorithm at the top
[13] of column 5, a class of intra —
[14]   **A:** Inter.
[15]   **Q:** "Inter," excuse me. A class of
[16] inter-frame algorithms in column 5 between lines 9
[17] and 18 and then both various, various conventional
[18] algorithms and the Fibonacci delta compression
[19] algorithm at lines 34 and 35, correct?
[20]   **A:** Yes.
[21]   **Q:** Besides those, does the Burst
[22] patents describe any other compression algorithms?
[23]   **A:** Well, in the context of mentioning
[24] compression, it appears in the objectives. With
[25] respect to describing algorithms, you have

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[1]   *Hemami*
[2] identified the sections of the specification that
[3] solely concentrate on the data compression
[4] algorithms.
[5]   **Q:** So in terms of identifying
[6] algorithms that can be used, the sections I just
[7] identified is a complete list of what is contained
[8] in the Burst patents, correct?
[9]   **A:** Well, I guess I would like to go
[10] back and check and make sure that the word
[11] "algorithm" in the context of compression doesn't
[12] appear earlier, unless you would like to represent
[13] to me that it does not.
[14]   **Q:** Why don't you check? I will run a
[15] word search on "algorithm" and we will see what
[16] happens.
[17]   **A:** Now, do you trust your OCR?
[18]   **Q:** No, and nor should you but I will
[19] tell what you it provides. So please go check.
[20]   **A:** All right.
[21]   (Pause)
[22]   **A:** How are you doing?
[23]   **Q:** I'm about to start running the
[24] search. How are you doing?
[25]   **A:** I asked you first.

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[1]   *Hemami*
[2]   **Q:** According to my search, which as you
[3] point out depends on the validity of the OCR, the
[4] first appearance of the word "algorithm" is in
[5] column 4 at line 66.
[6]   **A:** Okay. So if we are tracking the
[7] word "algorithm," you know, taking into account
[8] that I'm not as fast as your machine and I don't
[9] want to sit here and go through every single word
[10] in my head, the, I would suggest that the
[11] objectives we refer to, sorry, the specification
[12] refers to utilizing a data compression technique.
[13]   Now, granted, the word "algorithm"
[14] is not there, but utilizing a data compression
[15] technique would suggest to one of ordinary skill
[16] that there was a compression algorithm in use in
[17] some manner.
[18]   Similarly, I think references to
[19] decompression in the context of, if those appear
[20] in the context of editing, that also suggests that
[21] obviously you can't decompress if you haven't
[22] compressed.
[23]   **Q:** Sure. And maybe the way to do this
[24] since you're talking about places that suggest an
[25] algorithm might be in use, that was not the intent

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[1]   *Hemami*
[2] of my question.
[3]   What I really want to get at is —
[4] and I do want to take the time that we need to
[5] make sure that we have a complete list but what I
[6] want is a complete list of the algorithms and
[7] classes of algorithms that are disclosed for doing
[8] compression in the Burst patents. And so if you
[9] can take the time you need to give me that
[10] complete list?
[11]   **A:** I believe that what you have said is
[12] accurate. I think that sort of from a standpoint
[13] of being consistent between the audio and the
[14] video, we may want to include the paragraph that
[15] includes the digitization of the video.
[16]   You clearly cannot compress video
[17] unless it has been digitized. So to the extent
[18] that the audio paragraph discusses A to D
[19] conversion, you know, the paragraph that precedes
[20] the, "if each frame contains." Also, it describes
[21] an equivalent process.
[22]   **Q:** Let's make sure we're clear. You're
[23] talking about the paragraph in column 4 between
[24] lines, approximately 47 and 62. Is that right?
[25]   **A:** Okay. I am talking about not only

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[1] **Hemami**

[2] that paragraph, but also the paragraph above that

[3] discusses the format for the video.

[4] **Q:** The paragraph that begins at

[5] approximately line 32?

[6] **A:** Yes, "The video signals defining."

[7] **Q:** Is it accurate to say that the

[8] paragraphs between lines 32 and 62 in column 4 of

[9] the '995 patent describe the digitization of

[10] video?

[11] **A:** Yes.

[12] **Q:** I believe, going back to audio, that

[13] you told me that the digitization of the audio was

[14] not something that you would call compression. Is

[15] that true?

[16] **A:** It is not something that I would

[17] call compression, but it does define what it is

[18] that we will compress.

[19] If we're going to take one sample

[20] per second or 88,000 samples per second, that

[21] impacts decisions that will be made about what

[22] algorithms will be used and how fast things need

[23] to be, how many chips one would need, for example.

[24] **Q:** Is it similarly true for video that

[25] you believe that the digitization of video that's

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[1] **Hemami**

[2] described in paragraph, I'm sorry, lines 32

[3] through 62 in column 4 is not itself compression

[4] of the video?

[5] **A:** Digitization itself is not

[6] compression.

[7] **Q:** So is it accurate to say that what

[8] is described between lines 32 and 62 in column 4

[9] is not describing compression of video?

[10] **A:** It does not describe compression but

[11] "it makes implications about" is almost too weak.

[12] It has strong implications.

[13] What is performed in those two

[14] paragraphs has strong implications for specific

[15] design decisions and performance of the

[16] algorithms. So from the standpoint — you know,

[17] if you just said, "Can you compress video for me,"

[18] my first question might be what is the frame rate,

[19] what is the bit depth, what is the format. That's

[20] integral in describing what is, what is done.

[21] **Q:** So in the case of both audio and

[22] video, the digitization process is not itself

[23] compression but it has strong implications on the

[24] choices that one makes when one subsequently does

[25] the compression, is that accurate?

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[1] **Hemami**

[2] **A:** Yes. It can have strong

[3] implications and it certainly informs a designer

[4] as to which choices he or she may make or may

[5] choose to ignore.

[6] **Q:** Okay. What led us down that tangent

[7] was an attempt to get a complete list of the

[8] places where compression algorithms are described

[9] in the '995 patent and I had given you a list,

[10] which I believe you told me was accurate and I

[11] just want to confirm that. So here's the

[12] question.

[13] Is it accurate that the complete

[14] list of compression algorithms that's described in

[15] the '995 patent is, one, the various algorithms at

[16] lines 65 and 66 on column 4, two, the CCITT Group

[17] IV compression algorithms at the top of column 5,

[18] three, the class of inter-frame compression

[19] algorithms described between lines 9 and 18 in

[20] column 5 and, four, the conventional algorithms

[21] described as being used with audio data at line 34

[22] of column 5 and the Fibonacci delta compression

[23] algorithm in line 35 of column 5?

[24] **A:** Yes.

[25] **MR. BROWN:** Les, what time is

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[1] **Hemami**

[2] it?

[3] **MR. PAYNE:** It's about 12

[4] after. Are you at a good place?

[5] **MR. BROWN:** This is a good

[6] place to stop for lunch. It's close

[7] to 12:15. I think we should do that.

[8] **THE VIDEOGRAPHER:** The time is

[9] now 12:11. This marks the ending of

[10] tape number two. Off the record.

[11] (Luncheon recess: 12:11 p.m.)

[12]

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[25]

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[1]   *Hemami*
[2]   **AFTERNOON SESSION**
[3]   THE VIDEOGRAPHER: The time is
[4] now 12:51. This marks the beginning
[5] of tape number three. On the record.
[6]   SHEILA S. H EMAMI, having been
[7] previously sworn, resumed and testified
[8] further as follows:
[9] EXAMINATION (Cont'd)
[10]   **BY MR. BROWN:**
[11]   **Q:** I want to go back to your CV for a
[12] moment. On page 69, there is a heading there
[13] which we discussed earlier, "Other Expert Witness
[14] Consulting," which I believe you said would be
[15] more accurately phrased as, "Other Expert Witness
[16] Testimony," correct?
[17]   **A:** Yes.
[18]   **Q:** Was that section of your CV added
[19] particularly for the purpose of presenting your CV
[20] in the context of this expert report?
[21]   **A:** Yes.
[22]   **Q:** Did you do anything else to your CV
[23] particularly for the purpose of including it as an
[24] attachment to your expert report?
[25]   **A:** I have multiple CVs. I have one for

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[1]   *Hemami*
[2] the department which includes every single
[3] committee I've ever sat on in my life.
[4]   I have another one which doesn't
[5] include departmental level but which includes all
[6] of the invited lectures I've given around the
[7] world and I think it would be fair to say I
[8] synthesized this CV by removing things that I
[9] didn't feel would be relevant, like departmental
[10] committees and also the very, I don't think I
[11] included my list of lecture, you know, invited
[12] presentations which is quite lengthy and not, I
[13] didn't feel was relevant.
[14]   Let me see if there's anything else
[15] that's — I also, I think they — material gets
[16] listed in different orders depending on who the,
[17] who's consuming the CV so I may have, this may be
[18] a rearranged order of headings that are common
[19] relative to say the CV I give to my department.
[20]   **Q:** Okay. But is it true that the only
[21] material that was added as opposed to rearranged
[22] is the section "Other Expert Witness Consulting"?
[23]   **A:** That is accurate.
[24]   **Q:** Okay. Let's go to page 16 of your
[25] expert report.

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[1]   *Hemami*
[2]   There's a paragraph, it's the last
[3] paragraph on this page which begins, "Any
[4] compression procedure is described by an
[5] algorithm." Do you see that?
[6]   **A:** Yes.
[7]   **Q:** And you go on to give a definition
[8] of "algorithm" in that sentence, correct?
[9]   **A:** Yes.
[10]   **Q:** Is that the sense in which you've
[11] been using the word "algorithm" in the testimony
[12] you've given so far today?
[13]   **A:** So here I say it is "broadly defined
[14] as a procedure for solving a problem or
[15] accomplishing some end."
[16]   So I believe that in the context of
[17] a compression algorithm as we have used it to
[18] refer to putting something in and getting
[19] something out which is smaller, the first
[20] definition, "procedure for solving a problem" is
[21] appropriate.
[22]   "Accomplishing some end" is
[23] accurate, I think, for, I think, I maybe described
[24] a sub-algorithm or an algorithm can consist of
[25] sub-parts, each individually, which we could say

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[1]   *Hemami*
[2] was an algorithm or implemented an algorithm. So
[3] I think that this is accurate.
[4]   **Q:** Okay. Is it true that this sentence
[5] in your expert report accurately defines the
[6] meaning of "algorithm" to you in the context of
[7] this case and the Burst patents?
[8]   **A:** Well, when I wrote it, I was writing
[9] it for the, for the paragraph, you know. I put it
[10] in because I wanted to discuss algorithm, excuse
[11] me, implementations. So, therefore, I wanted to,
[12] since "algorithm" is potentially a technical term,
[13] I wanted to provide some context for what I meant
[14] by "algorithm."
[15]   **Q:** And what you mean by "algorithm" is
[16] a broad concept that includes a procedure for
[17] solving a problem or accomplishing some end. Is
[18] that right?
[19]   **A:** Yes, where the problem or end may be
[20] at a very large scale or at a very minute scale,
[21] say, to rearrange numbers in a sequence or along a
[22] grand path of doing some broader exercise.
[23]   **Q:** The paragraph goes on to describe
[24] ways in which algorithms can be implemented,
[25] correct?