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[1] *Hemami*

[2] A: Yes.

[3] Q: It describes implementing algorithms

[4] in software, correct?

[5] A: Yes.

[6] Q: It also describes implementing

[7] algorithms in hardware, correct?

[8] A: Yes.

[9] Q: And then it says, near the end,

[10] "Finally, an algorithm can be implemented using a

[11] combination of both hardware and software."

[12] Actually, it says, "both software and hardware."

[13] Is that right?

[14] A: Yes.

[15] Q: Going back to the '995 patent, I

[16] want to talk about compression hardware. But

[17] first, actually, I think we should turn to your

[18] definition of "compression."

[19] If you look on page 33 of your

[20] expert report —

[21] A: Yes.

[22] Q: — the bottom of paragraph, of the

[23] last paragraph on page 33, you state,

[24] "Fundamentally, compression in the Burst patents

[25] requires a reduction in the number of bits."

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[1] *Hemami*

[2] Do you see that?

[3] A: Yes.

[4] Q: And then you say, "or data

[5] compression." Do you see that?

[6] A: Yes.

[7] Q: Is it true that it's your opinion

[8] that a reduction in the number of bits is data

[9] compression?

[10] A: Reduction relative to what?

[11] Q: That's an excellent question. You

[12] wrote here, "Compression in the Burst patents

[13] requires a reduction in the number of bits," and

[14] you didn't specify as compared to what.

[15] A: So —

[16] Q: But let me finish the question.

[17] A: Sorry.

[18] Q: Is it accurate that your view is

[19] that compression — I'm sorry. Let me start

[20] again.

[21] Is it accurate that in your opinion,

[22] data compression means a reduction in the number

[23] of bits as compared to something?

[24] A: Yes.

[25] Q: And in the Burst patents, we

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[2] discussed two places where the digitization of

[3] data occurred. One was in column 4 and two

[4] paragraphs that you described the digitization of

[5] video, correct?

[6] A: Yes.

[7] Q: And the other was in column 5 in a

[8] portion of a paragraph which described the

[9] digitization of audio, correct?

[10] A: Yes. Yes.

[11] Q: In the context of the Burst patents,

[12] is data compression a reduction in the number of

[13] bits as compared to the number of bits in what was

[14] obtained as a result of one of those two

[15] digitization processes?

[16] A: Yes, I would agree with that

[17] statement.

[18] Q: So now we have a definition of

[19] "compression" or "data compression," correct?

[20] A: Yes.

[21] Q: Let's talk about the hardware that's

[22] identified in the Burst patents for performing

[23] that function of reducing the number of bits.

[24] Okay?

[25] A: Okay.

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[1] *Hemami*

[2] Q: Well, you look — would you agree

[3] with me that compression, i.e., reducing the

[4] number of bits, is a function?

[5] A: Yes.

[6] Q: Okay. Would you agree with me that

[7] the Burst patents describe hardware for performing

[8] that function?

[9] A: And that is what I was hesitating on

[10] earlier. The Burst patents provide us with a

[11] block diagram that has a compressor/decompressor

[12] box labeled on it.

[13] I understand that to mean in an

[14] implementation, there would be something inside

[15] the compressor/decompressor box which would not be

[16] a standalone computer, you know, a monitor and

[17] everything. It would be some amount of hardware

[18] which would be implementing compression algorithms

[19] in hardware, software or a combination of hardware

[20] and software.

[21] Q: I want to come back to that answer

[22] for a second. I first want to point you to the

[23] A.M.D. 7971 chip at the top of column 5 of the

[24] '995 patent.

[25] Is it true that that is hardware

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[1]  
[2] that performs the function of compression as  
[3] you've defined it?  
[4] **A:** It certainly performs compression of  
[5] the input signal that is given to it, the raw bits  
[6] that go in.  
[7] Now, let me say performs  
[8] compression, it performs a compression algorithm  
[9] on the data. There is no guarantee because as we  
[10] discussed, the data could be anything but that  
[11] data would come out smaller, okay?  
[12] We have a reasonable, probabilistic  
[13] expectation that most of the time, if we fed it  
[14] something that met the expectations for which the  
[15] algorithm was designed, that we would see  
[16] compression.  
[17] **Q:** Fair enough. And the algorithm was  
[18] designed for fax transmission. Is that right?  
[19] **A:** The algorithm was designed for  
[20] binary, two-dimensional signals which are signals  
[21] such as are encountered in fax transmission.  
[22] **Q:** So one of ordinary skill in the art  
[23] would expect the A.M.D. 7971 chip to perform  
[24] compression of binary image data that was fed into  
[25] it. Is that correct?

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[1] **A:** That met approximate statistical  
[2] characterizations for — when you say  
[3] "compression," it would be smaller if we fed in  
[4] data that had the right statistical  
[5] characteristics.  
[6] **Q:** And that would include ordinary  
[7] images?  
[8] **A:** That would include higher bit planes  
[9] of an "ordinary image." I am interpreting that to  
[10] mean either a gray scale image so we have, for  
[11] example, you have a black and white camera which  
[12] gives gray, gray scale or the color planes,  
[13] specific color planes of a color image.  
[14] **Q:** And it would also include text on a  
[15] black and white piece of paper?  
[16] **A:** Which had been scanned into binary  
[17] form, yes.  
[18] **Q:** And it would also include black and  
[19] white non-gray scale image on a piece of paper  
[20] that had been scanned in?  
[21] **A:** Sure. If you photocopy a picture,  
[22] that's right, you will get a black and white  
[23] representation which you could then scan.  
[24] **Q:** So for those types of data that

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[1]  
[2] you've listed, one of ordinary skill in the art  
[3] would expect the, or would understand the A.M.D.  
[4] 7971 to be hardware for performing compression in  
[5] the sense of reducing the number of bits?  
[6] **A:** Yes.  
[7] **Q:** Now, you also refer to the  
[8] compressor/decompressor 26, correct?  
[9] **A:** Yes.  
[10] **Q:** And you said that you would  
[11] interpret that as being some combination of  
[12] hardware and software. Is that correct?  
[13] **MR. PAYNE:** Objection. Form.  
[14] **A:** I think I said hardware — hardware,  
[15] what did I say? Hardware or hardware and  
[16] software? If that includes combination, software  
[17] running on hardware, all right.  
[18] There's not a squirrel in the box,  
[19] okay? There is some hardware that operates using  
[20] electrical signals, right?  
[21] **Q:** Right.  
[22] **A:** It is unquestionable that there is  
[23] hardware in the box.  
[24] Now, we can delineate whether the  
[25] hardware is general purpose hardware such as a CPU

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[1] or a DSP chip or whether it is custom-designed  
[2] hardware or a combination of both stock and  
[3] custom-designed hardware.  
[4] **Q:** Okay. Let's go back to, I believe,  
[5] let's see, it was page, I apologize, 16 of your  
[6] report. Do you have page 16?  
[7] **A:** I do.  
[8] **Q:** And there you describe implementing  
[9] compression algorithms in either software,  
[10] hardware or a combination of both software and  
[11] hardware, right?  
[12] **A:** Yes.  
[13] **Q:** Now, I take it from what you just  
[14] said that obviously the software has to run on  
[15] hardware?  
[16] **A:** On something, yes, yes.  
[17] **Q:** So when you wrote that an algorithm  
[18] can be implemented in software, what you meant was  
[19] software that runs on a general purpose processor.  
[20] Is that right?  
[21] **A:** Yes, or — yes, some type of  
[22] processor, maybe not fully general purpose but it  
[23] could be, for example, a DSP chip, which is  
[24] programmable but not what one would use for, say,  
[25]

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[1] Hemami

[2] word processing.

[3] Q: Okay. So the, so you understand the

[4] compressor/decompressor 26 in the '995 patent to

[5] be referring to at least hardware and potentially

[6] also software running on that hardware. Is that

[7] right?

[8] A: I think that's a good way to

[9] describe it, yes.

[10] Q: Is it your understanding that if the

[11] A.M.D. 7971 chip were used to implement a

[12] compression algorithm in the context of the Burst

[13] patents, that it would be used inside that box 26?

[14] A: Yes. Now, when, when you say "to

[15] implement a compression algorithm," it would be a

[16] component of the implementation of the compression

[17] algorithm. It would not be the sole — if you

[18] looked inside the box, there would be more than

[19] just —

[20] Q: — than just the A.M.D. 7971 chip?

[21] A: Than just the A.M.D. chip, yes.

[22] Q: Okay. So standing alone by itself,

[23] the A.M.D. 7971 chip can't do video compression,

[24] correct?

[25] A: Well, in the context of what is

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[2] described here, material needs to be moved around,

[3] frames, you know.

[4] In the context of a, designing a

[5] digital system, I would expect that there would be

[6] more than just a single chip there. There would

[7] be some type of supporting peripheral hardware,

[8] perhaps buffers, you know, various, various

[9] things. And I think as we discussed, it would

[10] most likely be more than one chip.

[11] Q: And you can tell that from the fact

[12] that the number of pixels per second that the chip

[13] can process is between 1 and 12 million and the

[14] number that it would need to process, given the

[15] video described in column 4 of the '995 patent, is

[16] between 50 and 60 million pixels per second?

[17] A: No, that's not actually the

[18] comparison I'm making.

[19] Q: Oh.

[20] A: The comparison that I'm making is

[21] knowing, you know — also it was well known that

[22] to represent good quality video, one did not need

[23] the entire collection of each color plane. One

[24] could use fewer color planes. So we would — the

[25] raw input data rate to which you are pointing to,

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[2] which is, I think, the 1.89. Is that the number?

[3] Q: I think that's right, 1.89.

[4] A: The 1.89 megabit per second, that

[5] number is already smaller when considering — that

[6] is certainly the size of a raw digitized frame.

[7] No question about it. But with respect to

[8] performing video compression, the size of the

[9] input would be smaller than that.

[10] We would not run all of the bit

[11] planes through a CCITT Group IV algorithm. We

[12] wouldn't even, we wouldn't keep all of the bit

[13] planes. We just don't need them.

[14] Q: Would eliminating some of those bit

[15] planes be part of the compression algorithm?

[16] A: In the context that eliminating bit

[17] planes is quantization, and quantization is

[18] certainly a step that we see in lossy compression.

[19] It is the bit plane elimination which is providing

[20] the loss which we are relying upon to get our file

[21] size as small as possible. So it's a quantization

[22] operation.

[23] In that context, yes, it would be

[24] part of the compression algorithm.

[25] Q: So in the context of the Burst

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[2] patent, it would be part of the compression

[3] algorithm. Is that right?

[4] A: Certainly.

[5] Q: Other than the

[6] compressor/decompressor 26 and the A.M.D. chip,

[7] did the Burst patents describe any hardware for

[8] performing the function of compression?

[9] A: Do they describe any hardware? The

[10] A.M.D. chip is the only specific item that we can

[11] go to Frye's and buy in terms of its description

[12] with respect to compression. Obviously, the CPUs

[13] and the RAM we can go buy, as well.

[14] Q: You said earlier that it was known

[15] to reduce the number of color bits. When you said

[16] that it was known, did you mean that it was known

[17] to a person of ordinary skill in the art in 1988

[18] or did you mean something else?

[19] A: That is what I mean, that it was

[20] understood, it was well known that if one was to

[21] take video and digitize it and then just, in this

[22] context say, do the simplest compression possible

[23] which is just quantization, no CCITT, no JPEG,

[24] nothing, just quantize.

[25] The natural question is how much can

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[1]  
[2] we quantize and the easiest way to quantize is to  
[3] remove bits and it was understood that there were  
[4] certain numbers of bits that we could just throw  
[5] away with respect to video for expected quality  
[6] levels.

[7] **Q:** And that was understood by a person  
[8] of ordinary skill in the art as you defined it in  
[9] 1988?

[10] **A:** Yes.

[11] **Q:** I'd like you to look at, in your  
[12] expert report beginning at page 5, actually,  
[13] probably beginning at page 4. You have a major  
[14] heading, "2. The Underlying Technology of the  
[15] Burst Patents." Do you see that?

[16] **A:** Yes.

[17] **Q:** And then within that there are a  
[18] number of sub-headings including, "Basic  
[19] Terminology" and then "Digital Communication  
[20] Technology and Networks" on page 5.

[21] Do you see that?

[22] **A:** Yes.

[23] **Q:** Now, this section 2 goes on for some  
[24] time. I believe it ends on page 26. Is that  
[25] accurate?

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[1] **A:** Yes. Is it? Yes.

[2] **Q:** In this section, and I'm going to  
[3] give you some specific examples and then ask you a  
[4] more general question but if you turn, for  
[5] example, to page 17, in section 2.3.4, "PCM and  
[6] DPCM Digital Audio Compression in 1988," do you  
[7] see that heading?  
[8]

[9] **A:** Yes.

[10] **Q:** In the first sentence there you  
[11] describe that, "both approaches described in the  
[12] previous section were known," that word "known."  
[13] Do you see that?

[14] **A:** Yes.

[15] **Q:** And then if you go down to the next  
[16] paragraph, you talk about how both PCM and DPCM  
[17] "were known for audio compression in 1988." Do  
[18] you see that?

[19] **A:** Yes.

[20] **Q:** I'm going to start by asking you  
[21] first about that, those specific uses of the word  
[22] "known."

[23] Were you intending to state there  
[24] that this was known to a person of ordinary skill  
[25] in the art as you've defined it?

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[1] **A:** Yes.

[2] **Q:** Was it your general intent in  
[3] writing section 2 of your expert report to  
[4] describe the underlying technology of the Burst  
[5] patents as it was known to a person of ordinary  
[6] skill in the art in 1988?

[7] **A:** It was my intention to describe the  
[8] state of the art in '88 as it would be understood  
[9] by somebody working in the area in such a manner  
[10] that somebody non-technical could hope to  
[11] understand most of what I wrote.

[12] **Q:** Do you recall including anything in  
[13] section 2 of your report that you believe would  
[14] not be known to a person of ordinary skill in the  
[15] art in 1988?

[16] **A:** I do not recall doing such a thing.  
[17] I made a conscious effort to attempt to not do  
[18] that.

[19] **Q:** Okay. So when you stated in section  
[20] 2 of your report that something was known, you  
[21] were you attempting to convey that it was known in  
[22] 1988 to a person of ordinary skill in the art?

[23] **A:** Yes, as opposed to being some  
[24] esoteric idea that a Russian scientist had and  
[25]

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[1] published in some obscure Russian journal, yes.

[2] **Q:** Let's go back to page 17, the  
[3] section describing PCM and DPCM.  
[4] If you look back, that's within the  
[5] larger section 2.3 on page 12 which is titled,  
[6] "Video and Audio Sources and Compression." Do you  
[7] see that?  
[8]

[9] **A:** Yes.

[10] **Q:** Going down to page 17, did you  
[11] consider or do you consider both PCM and DPCM to  
[12] be compression?

[13] **A:** As, these are words that were used  
[14] in many different ways and still are.

[15] "PCM" technically stands for  
[16] "pulse-coded modulation" and is certainly used in  
[17] connection with describing transmission of  
[18] multiple, signals with multiple discrete output  
[19] levels over a channel. Okay?

[20] The use of the terms in a  
[21] compression sense is somewhat historic but  
[22] absolutely, PCM and DPCM were considered, they  
[23] were compression techniques for digital audio,  
[24] yes.

[25] **Q:** Was that something that was



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[1]  
[2] understood by a person of ordinary skill in the  
[3] art in 1988?  
[4] **A:** Yes, and I think it would even be  
[5] more understood by a person in '88 than  
[6] potentially by a young person today starting to  
[7] study compression.  
[8] **Q:** So if a person of ordinary skill in  
[9] the art in 1988 saw a reference to PCM or DPCM in  
[10] a paper, he or she would understand that to be  
[11] referring to some sort of compression technique.  
[12] Is that right?  
[13] **A:** We would have to look at the greater  
[14] context of, of the paper obviously, if it had to  
[15] do with some type of digital transmission and no  
[16] signal was being compressed or, you know,  
[17] compression was not the goal. Then one would  
[18] consider is this PCM in the context of digital  
[19] transmission, the origin of the term, is it a  
[20] modulation technique that we're talking about or  
[21] is it essentially a quantization technique which  
[22] is how it is used in the context of, of  
[23] compression of digital information.  
[24] **THE WITNESS:** I have to do  
[25] something terrible here. I know we

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[1] just started but I need a break.  
[2] **MR. BROWN:** No, that's fine.  
[3] If you need a break, you need a break.  
[4] **THE VIDEOGRAPHER:** The time is  
[5] now 1:19. Off the record.  
[6] (Recess taken)  
[7] **THE VIDEOGRAPHER:** The time is  
[8] now 1:22. On the record.  
[9] **BY MR. BROWN:**  
[10] **Q:** I believe that I understood you to  
[11] at least imply in your answer before we took the  
[12] break that PCM in the sense of quantization was  
[13] compression and PCM in the context of simply  
[14] modulation was not. Is that right?  
[15] **A:** Yes. Let me attempt to clarify  
[16] something I thought of in the bathroom. You know,  
[17] I do a lot of thinking in the bathroom.  
[18] Were — let us consider, for  
[19] example, the, the digitized video files which,  
[20] which are used as examples in the, in the patent  
[21] specifications. So the way that they're described  
[22] is 300 by 300, 7 bits per color, okay?  
[23] Now, if we then say, you know, I'm  
[24] only going to represent each pixel with two bits

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[1] per color, we have started off with 7, we have  
[2] deliberately eliminated 5, the effect of  
[3] quantization step size is 32.  
[4] This operation would be  
[5] colloquially, not colloquially but sort of  
[6] described in our parlance as "PCM coding" because  
[7] we are representing that data with a code which  
[8] now only takes on one of four values if I'm  
[9] keeping two bits, which corresponds to taking the  
[10] 728 level output and representing it in step sizes  
[11] of 32.  
[12] If, on the other hand, we had up  
[13] front when we digitized the information, said  
[14] instead of acquiring it at 7 bits that we would  
[15] acquire it at 2 bits per color, we would not say  
[16] that was compressed using PCM, okay? That was at  
[17] acquisition —  
[18] **Q:** Right.  
[19] **A:** — even though we would potentially  
[20] have the same or very similar representations.  
[21] **Q:** So I take it there's a distinction  
[22] between using PCM to quantize which you would call  
[23] compression and using PCM to digitize or acquire  
[24] the information which you would not call  
[25]

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[1] compression. Is that right?  
[2] **A:** I think that's, I think that's a  
[3] fair characterization.  
[4] **Q:** Now, let's talk about DPCM.  
[5] DPCM inherently codes the  
[6] differences between samples. Is that true?  
[7] **A:** Where "sample" is used in a flexible  
[8] manner, yes, between entities.  
[9] **Q:** Because of that, is it true that  
[10] DPCM is always compression?  
[11] **A:** This has a similar answer which  
[12] involves statistical characterizations of what  
[13] we're doing and you have to understand the  
[14] full-blown — if we were to draw a DPCM encoder,  
[15] it would have, not just a subtraction in it or —  
[16] **Q:** Right. Let me — I think I made an  
[17] error in my question and that lead you down the  
[18] wrong path and I used a strong "always" and maybe  
[19] I shouldn't have.  
[20] In the context of audio or video  
[21] data, if you apply DPCM to that data, is that  
[22] something that you would always call compression?  
[23] **A:** DPCM is a very broad term, okay? We  
[24] could use it to solely describe a compression  
[25]

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[1]  
[2] algorithm which, to finish my sentence, would have  
[3] a lot of little pieces in it, not just the  
[4] subtraction but a lot of other stuff which would  
[5] include, there would be a quantization box in  
[6] that.

[7] We could also put it elsewhere in a  
[8] larger system that is doing, for lack of a better  
[9] way to put it, pre-processing and post-processing  
[10] of maybe our raw samples. And it still goes in  
[11] and computes differences or compares values and  
[12] then codes the resulting comparison or difference.

[13] Q: But isn't it true that in both cases  
[14] it would be reducing the number of bits for audio  
[15] and video data?

[16] A: I would say it would be. It would  
[17] be employed with the intention that the greater  
[18] system employing it would reduce the number of  
[19] bits. There's no, as we discussed, guarantee that  
[20] for every instantiation, you would end up with  
[21] fewer bits.

[22] Q: But the expectation would be that in  
[23] the majority of instantiations, it would, in fact,  
[24] reduce the number of bits?

[25] A: For the particular data that you put

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[1] into it.

[2] Q: Let's turn to — well, it might be  
[3] simplest with your CV.

[4] You got your Bachelor's degree in  
[5] May of 1990. Is that correct?

[6] A: That's correct.

[7] Q: As of the time that you got your  
[8] Bachelor's degree, did you have any experience  
[9] working in the field of digital communication of  
[10] audio/video source information?

[11] A: I spent a summer working at Delco  
[12] Electronics in the advanced radio group. I think  
[13] the name is going to be wrong but it had  
[14] "advanced" in it and it involved radio, okay? And  
[15] some of the projects that were going on there at  
[16] the time that I worked on, in greater or smaller  
[17] portions, included spread spectrum communication  
[18] and also included digital radio.

[19] Q: Okay.

[20] A: Or DBS. I think we call it now DAB,  
[21] digital audio broadcast.

[22] Q: Did you have any other work  
[23] experience at the time you graduated in May of  
[24] 1990 in the area of digital communication of  
[25]

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[1] audio/video source information?

[2] A: Other than my experiences at Delco  
[3] which included two summers in that group and  
[4] obviously my course work which I have sort of  
[5] delineated at the undergraduate level doesn't  
[6] necessarily constitute experience, no.

[7] Q: Okay. As of May of 1990 when you  
[8] received your undergraduate degree, do you believe  
[9] that you met, yourself, met the definition of  
[10] ordinary skill in the art that you've put forth in  
[11] your expert report?

[12] A: I did not have the experience that I  
[13] listed that would go along with the Bachelor's  
[14] degree.

[15] Q: Your resume says that in April of  
[16] 1992, you got a Master's degree from Stanford,  
[17] correct?

[18] A: Yes.

[19] Q: And in your report, you said that,  
[20] "A person of ordinary skill in the art of the  
[21] Burst patents could have had a Master's degree in  
[22] electrical engineering with one year of experience  
[23] working on digital communication of audio/video  
[24] source information."  
[25]

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[1] As of 1992 when you got your  
[2] Master's degree in electrical engineering, did you  
[3] have the requisite level of experience to be a  
[4] person of ordinary skill in the art?

[5] A: At that point, I believe that I did.

[6] Q: So in your mind you became a person  
[7] of ordinary skill in the art as you've defined it  
[8] as of April of 1992. Is that right?

[9] A: Well, I don't think it was  
[10] instantaneous but, yes, progressing toward that  
[11] point, yes.

[12] Q: I noticed in the materials  
[13] considered in your report on page 64, that there  
[14] are a number of what appear to be books listed as  
[15] references 1 through 4. Do you see that?

[16] A: Yes.

[17] Q: And those are all published in '87,  
[18] '88 or '89. Is that right?

[19] A: That's right.

[20] Q: Did you refer to those texts for the  
[21] purpose of familiarizing yourself with the state  
[22] of the art in the area generally of digital  
[23] communication in the 1988 time frame?

[24] A: I would say that first off, I, I  
[25]

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[1] Hemami

[2] used two of those texts myself in classes in the

[3] 1989 to 1990 to perhaps '91 time frame. So and I

[4] acquired the other texts because of my research

[5] topic at Stanford and I recognized the need to

[6] understand more.

[7] So I used those texts both to

[8] refresh my own memory of my course work and also,

[9] lucky for me, the books that I had handy meshed

[10] very nicely with the time frame of, of the

[11] patents.

[12] Q: Can you tell me which of those two

[13] books you used in your course work?

[14] A: Yes. I used item 4, the Bernard

[15] Sklar text, in a digital communications course at

[16] the University of Michigan and all I can tell you

[17] is it was my senior year. I don't remember which

[18] semester it was. And I used the Lee and

[19] Messerschmitt text in, again, my first year at

[20] Stanford so I don't remember if that was '90 or

[21] '91, in a first year graduate-level course on

[22] digital telecommunications.

[23] Q: So I take it items 2 and 3 were

[24] texts that you acquired as part of your Master's

[25] work at Stanford, is that right?

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[1] Hemami

[2] A: I would just say "graduate work."

[3] Stanford doesn't, the Master's work is just

[4] classes at Stanford. So —

[5] Q: Oh, do you remember what year you

[6] acquired those texts? If you don't, that doesn't

[7] matter.

[8] A: I think that the short answer is no,

[9] I don't remember. It was early because I

[10] recognized that I needed to, I needed to have a

[11] better understanding of networks.

[12] Q: Let's turn to page 42 of your expert

[13] report and there's a paragraph on this page at the

[14] bottom which begins with the word "Finally." Do

[15] you see that?

[16] A: Yes.

[17] Q: And you state at the beginning of

[18] that paragraph that, "The proper construction and

[19] meaning of 'time-compressed representation' can

[20] only be gleaned from the Burst patents

[21] themselves." Do you see that?

[22] A: Yes.

[23] Q: And you go on to say, "That term did

[24] not have a single accepted use or meaning in

[25] 1988." Do you see that?

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[2] A: Yes.

[3] Q: And then you go on to describe ways

[4] in which "time compression" was used in 1988. Do

[5] you see that?

[6] A: I do.

[7] Q: And you give four examples there,

[8] correct?

[9] A: Yes.

[10] Q: I want to start with examples 2 and

[11] 3. So example 2, you talk about processing of

[12] speech in which it was made to sound as if the

[13] speaker had spoken more quickly than he or she has

[14] actually spoken. Do you see that?

[15] A: Yes.

[16] Q: And you, and then 3, 3 describes

[17] processing digital signals in which longer signals

[18] were represented by repeating copies of shorter

[19] signals. Do you see that?

[20] A: Yes.

[21] Q: Later on page 43, you state, "The

[22] patents are not in the area of speech processing

[23] (eliminating 2 and 3)." Do you see that?

[24] A: I do.

[25] Q: So the meanings that you listed

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[2] there as 2 and 3 are meanings of in the area of

[3] speech processing. Is that right?

[4] A: Yes.

[5] Q: And that's not the area of the

[6] patents, correct?

[7] A: Yes.

[8] Q: The area of the patents, as we

[9] discussed earlier, is digital communication of

[10] audio/video source information, in your view,

[11] correct?

[12] A: Yes.

[13] Q: All right. Now, meaning number 1

[14] that you provide is, "Reducing the duration of an

[15] analog signal relative to its original duration."

[16] Do you see that?

[17] A: Yes.

[18] Q: That is a meaning that is in the

[19] context of the transmission of audio/video source

[20] information, correct, not the digital transmission

[21] but the transmission of audio/video source

[22] information, correct?

[23] A: I'm sorry. Could you repeat the

[24] question?

[25] Q: Sure. What I'm trying to do is I

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*Hemami*

[1] think we can easily eliminate meanings 2 and 3  
[2] that you've listed here as meanings of "time  
[3] compression" that aren't relevant to the Burst  
[4] patents because they're in a different field,  
[5] correct?  
[6] **A:** Yes.  
[7] **Q:** Okay. I want to focus on 1 and 4.  
[8] **A:** Okay.  
[9] **Q:** And you've said that, "The  
[10] information being compressed in the Burst patents  
[11] is digital (eliminating 1)." Do you see that?  
[12] **A:** Yes.  
[13] **Q:** Okay. Now, we spoke before that the  
[14] area of the Burst patents as you defined it was  
[15] digital communication of audio/video source  
[16] information, correct?  
[17] **A:** Yes.  
[18] **Q:** Now, the meaning number 1 that you  
[19] provided there as known in 1988 was in the field  
[20] of communication of audio/video source  
[21] information, just not digital communication,  
[22] correct?  
[23] **A:** No. Actually, for example, the —  
[24] well, where is it now, your definition here of  
[25]

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*Hemami*

[1] burst transmission. If you recall, I didn't like  
[2] this definition because the analog signals are  
[3] simply being increased in frequency which is the  
[4] same as definition 1 here, same idea.  
[5] **Q:** So hang on. Let's just back up  
[6] because I want to make sure I'm following what  
[7] you're saying.  
[8] You were referring to an exhibit we  
[9] previously marked as Exhibit 80. Is that right?  
[10] **A:** 80, right.  
[11] **Q:** And in Exhibit 80, there's a  
[12] definition of "burst transmission," correct?  
[13] **A:** Yes.  
[14] **Q:** And that definition refers to  
[15] releasing messages at 10 to 100 or more times the  
[16] normal speed, correct?  
[17] **A:** Yes.  
[18] **Q:** And you're saying that that  
[19] definition is the same meaning as you've given in  
[20] number 1 in your list here. Is that right?  
[21] **A:** So as we discussed with respect to  
[22] the burst transmission, I said this is for analog,  
[23] radio transmission of analog messages, okay,  
[24] released at 10 or 100 times the normal speed is a  
[25]

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*Hemami*

[1] reduction in duration of 10 or 100 times of the  
[2] analog signal.  
[3] That is the same as item 1 here,  
[4] "reducing the duration of an analog signal  
[5] relative to its original duration." So, whereas  
[6] these references here — sorry. Let me look up  
[7] what are 14 and 15. I believe —  
[8] **Q:** Why don't I get them out and mark  
[9] them?  
[10] **A:** Well, I believe one of them is  
[11] Haskell.  
[12] **Q:** I think you're right.  
[13] **A:** And the other one actually is for,  
[14] I'm sorry. One of them is for speech. The other  
[15] is Haskell and then we have the graph reference.  
[16] So, in fact, item 1 is, even those examples are  
[17] not limited to audio/video source information.  
[18] **Q:** And you say that because one of them  
[19] includes speech?  
[20] **A:** Yes.  
[21] **Q:** And you don't consider speech to be  
[22] audio/video source information?  
[23] **A:** Speech, as I — let me not flip and  
[24] talk at the same time.  
[25]

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*Hemami*

[1] **Q:** Let me just ask a question.  
[2] There's a clear distinction between  
[3] speech processing and the communication of speech,  
[4] correct?  
[5] **A:** The processing that you will do of  
[6] the speech may be dependent on how you are going  
[7] to communicate it.  
[8] **Q:** Sure. Let me try it slightly  
[9] differently then.  
[10] There's a distinction between the  
[11] field of speech processing and the field of  
[12] communication of audio and video information?  
[13] **A:** That, my understanding of audio and  
[14] video information in the context of what is in the  
[15] Burst patents in terms of programming movie  
[16] content that somehow represents — well, now we're  
[17] getting into something else, you know, a work, a  
[18] piece that all sits together and provides us with  
[19] some type of information or meaning in a  
[20] pre-designed manner.  
[21] **Q:** But would you agree that speech  
[22] falls within the meaning of audio/video source  
[23] information as that term is used in the Burst  
[24] patents?  
[25]



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*Hemami*

[1]  
[2] **A:** "Speech" in what context? Can you,  
[3] can you be more specific in your question?  
[4] **Q:** Sure. Suppose you had a book on  
[5] tape or someone read a book into a tape.  
[6] Would you consider that to be  
[7] audio/video source information within the meaning  
[8] of the Burst patents?  
[9] **A:** Now, I would say a book on tape is  
[10] different from the meaning of "speech" as you  
[11] phrased it in "speech audio/video source  
[12] information."  
[13] "Speech" as source content for a  
[14] signal processing person is a different beast than  
[15] audio/video information. And let's even get rid  
[16] of "video." I think we don't have to argue that  
[17] "video" and "speech" are different, maybe with the  
[18] exception of for deaf people.  
[19] **Q:** Are you referring to the distinction  
[20] between wide-band audio and narrow-band audio that  
[21] you describe in your report?  
[22] **A:** Yes. If one is going to design  
[23] systems to operate on general audio content, then  
[24] that system, the decisions that are made, that's  
[25] going to be different decisions, different design

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*Hemami*

[1] choices, a different outcome than if we only must  
[2] deal with speech signals. This is why "hold"  
[3] music doesn't sound so good on the phone  
[4] sometimes.  
[5] **MR. BROWN:** I'm going to mark  
[6] as Exhibit 81 a copy of the Haskell  
[7] patent, number 4,300,161.  
[8] (Document bearing Bates Nos.  
[9] APBU00000763 through 769 was marked as  
[10] Deposition Exhibit No. 81 for  
[11] identification, as of this date.)  
[12] **MR. BROWN:** And as 82 a copy  
[13] of an article by Dennis H. Morgan, et  
[14] al. entitled, "Time Compression  
[15] Multiplexing for Loop Transmission of  
[16] Speech Signals."  
[17] (Document entitled "Time  
[18] Compression Multiplexing for Loop  
[19] Transmission of Speech Signals" was  
[20] marked as Deposition Exhibit No. 82  
[21] for identification, as of this date.)  
[22] **Q:** Exhibits 81 and 82 are what you  
[23] marked respectively as references 15 and 14 in  
[24] your expert report, correct?  
[25]

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[1]  
[2] **A:** 15 is Haskell so 15 is 81, yes.  
[3] **Q:** And 14, what you marked as reference  
[4] 14 in your expert report is Exhibit 82, correct?  
[5] **A:** Yes, yes, that's correct.  
[6] **Q:** And you put brackets after your  
[7] number 1 on page 42 and cited 14 and 15, correct?  
[8] **A:** Yes.  
[9] **Q:** And by that you intended to indicate  
[10] that in Exhibits 81 and 82, the phrase "time  
[11] compression" was used in the sense that you  
[12] articulated in your number 1 on page 42, right?  
[13] **A:** Yes.  
[14] **Q:** In other words, in the sense of  
[15] reducing the duration of an analog signal relative  
[16] to its original duration?  
[17] **A:** Yes.  
[18] **Q:** And you said that is the same thing  
[19] as releasing a message at 10 to 100 or more times  
[20] its normal speed? Well, I'm sorry, the numbers  
[21] are probably wrong.  
[22] Releasing a message at more than its  
[23] normal speed?  
[24] **A:** I, I made the equivalence with  
[25] transmitting an analog radio message faster than

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*Hemami*

[1] its, they use "normal speed," yes, whatever,  
[2] normal speed.  
[3] **Q:** Okay. And that's also the same  
[4] thing as increasing the frequency of that signal,  
[5] right?  
[6] **A:** Yes.  
[7] **Q:** All three of those are ways of  
[8] describing the same physical occurrence?  
[9] **A:** Yes.  
[10] **Q:** And that physical occurrence is  
[11] what's described time compression in Exhibits 81  
[12] and 82. Is that correct?  
[13] **A:** Yes.  
[14] **Q:** And that is one of the senses in  
[15] which time compression was used by those of skill  
[16] in the art in 1988, correct?  
[17] **A:** Yes.  
[18] **Q:** The field of the Haskell patent, as  
[19] indicated by its title, is the multiplexing of  
[20] video signals which applies to transmission of  
[21] video signals, correct?  
[22] **A:** Well, presumably one would want to  
[23] multiplex them to transmit them. Yes, he probably  
[24] says such a thing in the, yes. "Efficiently  
[25]

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[1] utilizing bandwidth in a communication system in  
[2] the abstract," which certainly implies  
[3] transmission.  
[4] **Q:** So the Haskell patent falls into the  
[5] area of communication of audio/video source  
[6] information, correct?  
[7] **A:** Well, I don't believe he explicitly  
[8] deals with audio. I believe that his example —  
[9] everything he refers to is a plurality of scan  
[10] lines. I believe that he is, he is discussing,  
[11] now using the word "video" to explicitly refer to  
[12] the visual content as opposed to the audio  
[13] content.  
[14] **Q:** Okay. Let's back up for a second.  
[15] When I say, "audio/video," I meant  
[16] to say, "audio and/or video" which would include  
[17] video only, audio only and both.  
[18] That definition has been agreed to  
[19] by the parties in this case. I was assuming, and  
[20] perhaps I shouldn't have been, that when you used  
[21] the phrase "audio/video," you meant the same  
[22] thing.  
[23] **A:** So —  
[24] **Q:** Can you clarify for me what you mean

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*Hemami*

[1] when you used the phrase "audio/video" in your  
[2] expert report?  
[3] **A:** Well, I make clear when I use the  
[4] term "video" to solely refer just to the video  
[5] content and when it is the general content, audio  
[6] and/or video, then I've just used "audio/video  
[7] source information."  
[8] **Q:** You testified before that the area  
[9] of the Burst patents, the field of the Burst  
[10] patents, I can't remember which words you used,  
[11] was digital communication of audio/video source  
[12] information. Do you recall that?  
[13] **A:** Yes.  
[14] **Q:** In that context, did you mean audio  
[15] and/or video?  
[16] **A:** Yes.  
[17] **Q:** Okay.  
[18] **A:** So in response, then, to your  
[19] age-old question, the answer — this is just video  
[20] and, yes, it falls into the category of audio  
[21] and/or video.  
[22] **Q:** Communication?  
[23] **A:** Sorry. Communication, yes. The  
[24] source content is audio and/or video.  
[25]

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*Hemami*

[1] **Q:** Okay. So Haskell we know is in the  
[2] area of audio or video communication of source  
[3] content, correct?  
[4] **A:** Yes.  
[5] **Q:** Look at Exhibit 82.  
[6] **A:** Yes.  
[7] **Q:** This refers to using time  
[8] compression multiplexing for telephone loop  
[9] communications. Do you see that?  
[10] **A:** Yes.  
[11] **Q:** And that is the transmission of  
[12] narrow band audio, correct?  
[13] **A:** That is correct. That is what the,  
[14] the loop gives us that information.  
[15] **Q:** Would this fall within the field of  
[16] the Burst patents as you've defined it, setting  
[17] aside the question of whether it's analog or  
[18] digital?  
[19] **A:** In terms of the field, communication  
[20] of audio/video source information, no.  
[21] **Q:** And is that because it describes  
[22] narrow-band audio as opposed to wide-band audio?  
[23] **A:** It is for speech, yes.  
[24] **Q:** But it is for the communication of

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*Hemami*

[1] audio information, correct?  
[2] **MR. PAYNE:** Objection. Form.  
[3] **A:** I would say, actually, I mean, I  
[4] would say it is for the communication of speech.  
[5] To be accurate, I think one, one of skill would  
[6] say "speech" because audio, without any modifiers,  
[7] one tends to think of as broader than simply just  
[8] speech.  
[9] **Q:** So a person of ordinary skill in the  
[10] art in 1988 seeing "audio" alone without  
[11] qualifiers would associate that with wide-band  
[12] audio, is that right?  
[13] **A:** I don't think that they would limit  
[14] it to speech.  
[15] **Q:** It could include speech?  
[16] **A:** It, certainly from the standpoint  
[17] that if we look at a general wide-band audio  
[18] content, say, from a television program, somebody  
[19] speaking may be part of that but the content  
[20] itself has a very different source model and must  
[21] be treated differently.  
[22] **Q:** Let's look at your definition number  
[23] 4 on page 43.  
[24] **MR. BROWN:** Before we get too  
[25]

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[1] **Hemami**  
[2] far into that, let's mark Exhibit 83  
[3] which is a copy of an article  
[4] entitled, "The UK D-MAC/Packet  
[5] Standard for DBS" by Gardiner.  
[6] (Document entitled "The UK  
[7] D-MAC/PACKET Standard for DBS" by Paul  
[8] Gardiner was marked as Deposition  
[9] Exhibit No. 83 for identification, as  
[10] of this date.)  
[11] **Q:** Exhibit 83 is the reference that you  
[12] identified as 17 in your expert report, correct?  
[13] **A:** Yes.  
[14] **Q:** And your citation of the number 17  
[15] in paragraph number 4 on page 43 of your expert  
[16] report shows that in your view, Exhibit 83 uses  
[17] the phrase "time compression" to refer to  
[18] increasing the digital signalling rate as you've  
[19] set forth in that paragraph. Is that right?  
[20] **A:** Yes.  
[21] **Q:** Or more specifically to read, the  
[22] complete sentence without the parenthetical,  
[23] "Increasing the digital signalling rate of a  
[24] digital signal transmitted over a digital  
[25] communications link to reduce the transmission

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[1] **Hemami**  
[2] time." Is that right?  
[3] **A:** Yes.  
[4] **Q:** So if we look at this article, let's  
[5] look at page, the second page of the article which  
[6] has 129 in the top right?  
[7] **A:** Yes.  
[8] **Q:** There's a figure there in the  
[9] right-hand column. Do you see that?  
[10] **A:** Yes.  
[11] **Q:** And beneath the figure, it says,  
[12] "The effective time compression is to produce a  
[13] corresponding increase in the bandwidth  
[14] requirement." Do you see that?  
[15] **A:** Yes.  
[16] **Q:** So it then refers to, "A luminent  
[17] signal with 5.75 megahertz bandwidth requirement  
[18] being time compressed by a factor of 3 to 2." Do  
[19] you see that?  
[20] **A:** Yes.  
[21] **Q:** And it says, "It now occupies 8.625  
[22] megahertz worth of bandwidth." Do you see that?  
[23] **A:** Yes.  
[24] **Q:** So 5.75 multiplied by the factor of  
[25] 3 to 2 is 8.625, correct?

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[1] **Hemami**  
[2] **A:** I believe so.  
[3] **Q:** So what this is describing is  
[4] sending the same bits in a shorter period of time  
[5] using more bandwidth, correct?  
[6] **A:** I believe the operation by which  
[7] this would be achieved is, it is performed  
[8] digitally.  
[9] What is described is sort of an  
[10] analog description but they, if you read the first  
[11] sentence at the bottom of that page you have in  
[12] front of you, "Time compression is carried out by  
[13] a sampling process." So that is achieved by the,  
[14] the understanding of time compression as I have  
[15] described in, in item 4.  
[16] **Q:** The term "bandwidth" applies to both  
[17] analog signals and digital signals, correct?  
[18] **A:** It is used with respect to both  
[19] signals. It doesn't have the same meaning.  
[20] **Q:** In both contexts, doesn't it  
[21] correlate to the amount of data that you can send  
[22] in a unit time?  
[23] **A:** Well, what is an analog amount of  
[24] data?  
[25] **Q:** That would depend, I would imagine,

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[1] **Hemami**  
[2] on the modulation technique used, correct?  
[3] **A:** No. Actually, if we had a measure  
[4] of what analog data was, we would be much farther  
[5] along with respect to compression theory of  
[6] digital signals in general.  
[7] **Q:** Yes, that goes into an area of, that  
[8] I don't think we need to go into.  
[9] All right. Let's put it this way.  
[10] Exhibit 83 is describing sending a digital signal  
[11] using an analog carrier, correct? Well, let me  
[12] try that again. Strike that.  
[13] Exhibit 83 is describing sending a  
[14] digital signal using a satellite, right?  
[15] **A:** Yes. Yes. I think that that's a, I  
[16] think that's a good statement.  
[17] **Q:** The first sentence of the abstract  
[18] says that it's referring to "direct broadcasting  
[19] by satellite (DBS)," correct?  
[20] **A:** Yes, it does.  
[21] **Q:** And you've said before that  
[22] satellite transmission involves microwave  
[23] transmission, correct?  
[24] **A:** Satellites communicate in the  
[25] microwave band, yes.

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*Hemami*

[1]  
[2] **Q:** And the specific satellite bands  
[3] that are described in this article are referred to  
[4] in the introduction in the second paragraph as  
[5] within the band of 11.7 to 12.5 gigahertz. Do you  
[6] see that?

[7] **A:** Yes, I do.

[8] **Q:** And is that in the microwave band?

[9] **A:** It is. Actually, let me, let me  
[10] check that, not having memorized the entire  
[11] frequency allocation chart from the FCC.

[12] If I said it was, it is.

[13] **Q:** Can you tell me where you're  
[14] looking?

[15] **A:** Yes. Page 10 —

[16] **Q:** Okay.

[17] **A:** — under 2.2.4, the very first  
[18] sentence ends with a parenthetical which says,  
[19] "The microwave frequency range starts at  
[20] frequencies of 1 gigahertz." And these are indeed  
[21] greater than 1 gigahertz, so I stand by my answer.

[22] **Q:** So this article is describing  
[23] satellite microwave transmission, correct?

[24] **A:** Yes.

[25] **Q:** And it's describing digital

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*Hemami*

[1] transmission of information from the satellite,  
[2] right?

[4] **A:** Yes.

[5] **Q:** And it's describing time compressing  
[6] that digital information, correct?

[7] **A:** It is, yes.

[8] **Q:** And it says that the effect of that  
[9] on the example they choose, a lumen signal with  
[10] 5.75 megahertz of bandwidth, when it's time  
[11] compressed by a factor of 3 to 2 is to increase  
[12] the bandwidth that it takes by the same factor,  
[13] correct?

[14] **A:** They are describing sort of an  
[15] increase in the bandwidth that the analog signal  
[16] would consume if we took the time compressed  
[17] digital signal as it is described here and put it  
[18] through a D to A converter.

[19] **Q:** When you are sending a — well, I'm  
[20] not — when you're sending a satellite, a digital  
[21] signal from a satellite, does it have to go  
[22] through a D to A converter before it's sent?

[23] **A:** Let me try to explain in an easier  
[24] to understand manner than my last —

[25] **MR. PAYNE:** Let him put a

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*Hemami*

[1]  
[2] question on the table, though.

[3] Is that your question?

[4] **MR. BROWN:** You want me to ask  
[5] another question is what you're  
[6] saying, Les?

[7] **MR. PAYNE:** Well, I can't tell  
[8] what she's doing, quite frankly, if  
[9] she's going back to another question,  
[10] so —

[11] **Q:** Okay. I can't quite remember either  
[12] what I was asking but it seems to me that the  
[13] article is describing using a certain amount of  
[14] bandwidth to send a digital signal. Is that true?

[15] **A:** What these two paragraphs describe  
[16] is, the paragraph underneath Figure 4 is a  
[17] description of time compression in the classical  
[18] analog sense of definition 1, okay?

[19] We see the analog signal in the  
[20] figure directly above the paragraph, right?  
[21] That's an analog signal. We don't see a bunch of,  
[22] a bunch of samples there. That is described here,  
[23] this paragraph describes time compression in a  
[24] similar manner that, simply referring to — this  
[25] probably isn't the right way to answer a question

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[1] — pictures where we have a signal that occupies a  
[2] lot of space and time and then we just squash it  
[3] and that same signal now occupies less space in  
[4] time.

[6] **Q:** You're referring to the squashed and  
[7] pre-squashed signal on Figure 1 in Exhibit 82?

[8] **A:** Yes, simply as a, as a visual. I'm  
[9] not saying that we're doing speech or anything  
[10] here, right? Here we have a wide signal and a  
[11] narrow signal.

[12] That paragraph is effectively  
[13] describing the squashing that one would wish to do  
[14] on the luminence signal which is illustrated, the  
[15] analog luminence signal which is illustrated in  
[16] the figure.

[17] The second paragraph, which begins  
[18] with the single line at the bottom of the page,  
[19] now, how do we do this squashing operation, right?  
[20] It's all well and good for me to move my hands  
[21] around but we can't do that.

[22] It is carried out digitally. So in,  
[23] in carrying out the operation digitally, this is  
[24] exactly increasing the digital signalling rate.

[25] **Q:** And is it true that it says that the



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- [1]  
[2] luminence is sampled at a rate of 13.5 megahertz  
[3] in that paragraph that you're referring to?  
[4] **A:** Yes.  
[5] **Q:** And it then says in the next  
[6] sentence, "The time compressed MAC vision signal  
[7] is defined in terms of a number of samples at a  
[8] clock rate of 20.25 megahertz." Do you see that?  
[9] **A:** Yes.  
[10] **Q:** And 20.25 megahertz is a factor of 3  
[11] to 2 larger than 13.5 megahertz, right?  
[12] **A:** I think it is without doing the math  
[13] in my head.  
[14] **Q:** I have a calculator on my computer.  
[15] According to the calculator on my computer 13.5  
[16] times 1.5 is 20.25.  
[17] **A:** That's a relief. Okay.  
[18] **Q:** So what this is describing is  
[19] effectively reading the bits which were sampled at  
[20] 13.5 megahertz out of wherever they were stored at  
[21] a clock rate that is a factor of 3 to 2 larger  
[22] than the sampling rate. Is that right?  
[23] **A:** I would say reading the samples out,  
[24] the samples consist of bits.  
[25] **Q:** So, in effect, what you have is

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- [1] samples going into some form of a buffer or  
[2] storage at the rate of 13.5 megahertz and then at  
[3] some later point, coming out of that buffer at a  
[4] rate of 20.25 megahertz?  
[5] **A:** Yes.  
[6] **Q:** Which is 150 percent faster?  
[7] **A:** Yes.  
[8] **Q:** And that's what you're describing as  
[9] the meaning of "time compression" in the digital  
[10] sense which is item number 4 in your list here,  
[11] correct?  
[12] **A:** I've lost my list. What page are we  
[13] on again?  
[14] **Q:** 42 and 43.  
[15] **A:** Yes.  
[16] **MR. BROWN:** Let's mark as  
[17] Exhibit 84 a portion of a book called  
[18] "Data Communication Principles" that  
[19] bears production numbers APBU414882  
[20] through 414945.  
[21] (Document bearing Bates Nos.  
[22] APBU00414882 through 945 was marked as  
[23] Deposition Exhibit No. 84 for  
[24] identification, as of this date.)  
[25]

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- [1]  
[2] **Q:** Exhibit 84 is what you referred to  
[3] in your expert report on page 43 as, "The Gitlin  
[4] Reference Cited by Apple." Is that right?  
[5] **A:** Yes.  
[6] **Q:** And if you look at page 609 of  
[7] Exhibit 84 —  
[8] **A:** Yes.  
[9] **Q:** — and on page 609, there's a figure  
[10] and a paragraph describing time compression  
[11] multiplexing, correct?  
[12] **A:** Yes.  
[13] **Q:** And that figure and description use  
[14] the same, use "time compression" in the same sense  
[15] that we were just discussing and that you've  
[16] described as item number 4 in your expert report,  
[17] namely increasing the digital signalling rate to  
[18] reduce the transmission time, correct?  
[19] **A:** Yes. I think the figure, it has  
[20] very nice pictures on it of the actual binary  
[21] signal getting squashed in time, shall we say.  
[22] **Q:** Are you referring to the top line,  
[23] so to speak —  
[24] **A:** Yes.  
[25] **Q:** — of the figure?

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- [1] **A:** Yes. The top most, top left and  
[2] then immediately to the right of that, the two  
[3] graphics depicting, probably what we would call  
[4] transitions between the two states twice.  
[5] **Q:** And I think you just described that  
[6] as a digital signal being squished in time. Is  
[7] that correct?  
[8] **A:** That would be the very, very "person  
[9] on the bus" description level of what's going on.  
[10] **Q:** Okay. And that is the sense in  
[11] which you're, which you've defined as number 4 on  
[12] your list here. Is that right?  
[13] **A:** Yes. I mean, these pictures suggest  
[14] an implicit time dimension and because the  
[15] horizontal access is shorter then we have reduced  
[16] the time duration for the same number of  
[17] transitions.  
[18] **Q:** The, Exhibit 84 is titled, "Data  
[19] Communications Principles," correct?  
[20] **A:** The book that the chapter came from,  
[21] yes.  
[22] **Q:** Good catch.  
[23] And the chapter specifically, this  
[24] is a chapter on echo cancellation, right?  
[25]

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- [1]  
[2] **A:** Yes.  
[3] **Q:** But within this "Data Communications  
[4] Principles" book is a description of time  
[5] compression in the sense that you've described it  
[6] as number 4 on your list, correct?  
[7] **A:** Yes.  
[8] **Q:** And this book is in the area of  
[9] communication of data generally, right?  
[10] **A:** I, I haven't actually seen the book.  
[11] I've only seen this, this chapter so —  
[12] **Q:** Fair enough.  
[13] Going to Exhibit 83 —  
[14] **A:** Sorry. Okay.  
[15] **Q:** — which is the satellite article we  
[16] were describing earlier that you've reviewed in  
[17] its entirety, correct?  
[18] **A:** I have.  
[19] **Q:** And this describes the transmission,  
[20] or I should say communication of video, correct?  
[21] **A:** It does, yes.  
[22] **Q:** And specifically the digital  
[23] communication of video, correct?  
[24] **A:** I believe so, yes.  
[25] **Q:** So at least Exhibit 83 is an example

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- [1] of the use of the term "time compression" in the  
[2] same field as the Burst patents, correct?  
[3] **A:** With respect to the fact that  
[4] digital, digital audio/video information is being  
[5] transmitted, yes.  
[6] Now, here, of course, we don't have  
[7] any compression, data compression.  
[8] **Q:** There's time compression in  
[9] Exhibit 83 but not data compression. Is that your  
[10] testimony?  
[11] **A:** Yes.  
[12] Sorry. Let me — there's no data  
[13] compression in Exhibit 83. There is time  
[14] compression in the sense of my definition 4,  
[15] reducing the, increasing the digital signalling  
[16] rate.  
[17] **Q:** And the four definitions that you  
[18] provided in your report are all definitions of  
[19] time compression that were known in 1988, correct?  
[20] **A:** That is my understanding. Now, I  
[21] believe that — yes, yes. That's correct. That's  
[22] correct.  
[23] **Q:** And numbers 2 and 3 are in the area  
[24] of speech processing and not the area of the Burst

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- [1] patents, correct?  
[2] **A:** That is right.  
[3] **Q:** And definition number 1 you believe  
[4] to be inapplicable because it refers to analog  
[5] signals as opposed to digital signals. Is that  
[6] right?  
[7] **A:** It refers to the explicit time  
[8] compression and signalling of analog signals, yes.  
[9] **Q:** And that's the reason you believe  
[10] that definition is not applicable to the Burst  
[11] patents, is that right?  
[12] **A:** That is correct.  
[13] **Q:** When a digital signal is  
[14] transmitted, let's take the example of a satellite  
[15] microwave transmission, it is converted into an  
[16] analog waveform, correct?  
[17] **A:** Yes.  
[18] **Q:** For microwave transmission is the  
[19] modulation of the waveform amplitude modulation or  
[20] frequency modulation?  
[21] **A:** I do not know.  
[22] **Q:** Do you know whether increasing the  
[23] digital signalling rate of a digital transmission  
[24] would have the effect of increasing, by the same

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- [1] factor, the frequency of the analog waveform  
[2] carrying the digital signal?  
[3] **A:** Carrier frequencies are fixed.  
[4] **Q:** Fair enough. Do you know whether  
[5] increasing the digital signalling rate of a  
[6] digital signal by a factor of, say, 5 would have  
[7] the effect of increasing the frequency of the  
[8] modulation on the analog carrier wave by the same  
[9] amount?  
[10] **A:** That depends on how the guts of the  
[11] microwave transceiver, how the microwave  
[12] transceiver itself is designed.  
[13] If you have a transceiver with a big  
[14] knob on it and you can say, "Input data rate is  
[15] this," then presumably — although I think we all  
[16] have experiences of equipment and software where  
[17] we choose an option and nothing happens — one  
[18] would presume that if such a knob was on our  
[19] hypothetical transceiver or transmitter, we would  
[20] be able to dial up that our input data rate was  
[21] something and that the system would be able to  
[22] handle, through whatever choice of modulation,  
[23] such a increase in data rate but I don't, I don't,  
[24] you know, that's a — that's a question that is

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**Hemami**

[1] difficult to answer in the abstract, you know.  
[2] There is a specific unit.  
[3] It has, they have picked some or  
[4] maybe multiple signalling techniques. Obviously  
[5] what's in the sky, you can't easily reconfigure a  
[6] satellite once it's up there. It's going to have,  
[7] you know, some, some things you just can't do with  
[8] it so I don't know.  
[9] **THE VIDEOGRAPHER:** Counsel,  
[10] you have 8 minutes.  
[11] **MR. BROWN:** Okay.  
[12] **Q:** You've listed four meanings of  
[13] "time compression" that were known in 1988.  
[14] Are you aware of any others?  
[15] **A:** Yes.  
[16] **Q:** Are you aware of any others in the  
[17] area of communication of audio/video information?  
[18] **A:** Now, are you — sorry, I think I  
[19] need to ask you to repeat your question. If  
[20] you're referring to references or what — can you  
[21] just repeat the question?  
[22] **Q:** Sure. I don't mean to limit my  
[23] question to references. I mean the question I  
[24] want to ask you about is whether you're aware of  
[25]

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**Hemami**

[1] any meanings that were ascribed to the phrase  
[2] "time compression" in 1988 other than the ones  
[3] that you've listed in your expert report?  
[4] **A:** Yes. Time compression was also used  
[5] with respect to radar.  
[6] **Q:** Okay. And how was it used in the  
[7] context of radar?  
[8] **A:** So and I'm going to give sort of a  
[9] bus type description here because I'm not a radar  
[10] expert but radar operates by essentially sending  
[11] out a very narrow pulse and then waiting and  
[12] receiving the reflection of the pulses and thereby  
[13] measuring, between propagation delay and various  
[14] other effects, how far away an object is. And,  
[15] you know, one can also image an object.  
[16] If you just imagine how this  
[17] operation, one would like those pulses that one is  
[18] transmitting, that one is sort of flooding the air  
[19] with to be skinny because the narrower the pulses  
[20] are, the better we can limit the relative distance  
[21] of the object it has bounced off of when we  
[22] receive the pulse back, okay?  
[23] So obviously if something is flying  
[24] towards you, you would like to know to relatively  
[25]

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**Hemami**

[1] good precision how far away it is and how fast it  
[2] is moving.  
[3] Narrower pulses provide better  
[4] resolution with respect to time. So in radar, the  
[5] term "time compression" is used to actually shape  
[6] those pulses and "shaping" there means let's give  
[7] them very efficient time frequency products.  
[8] **Q:** You'd agree that radar is outside  
[9] the field of the Burst patents, correct?  
[10] **A:** I would definitely agree with that  
[11] statement, yes.  
[12] **Q:** Okay. Are you — and we've already  
[13] established that numbers 2 and 3 are outside the  
[14] field of the Burst patents?  
[15] **A:** Yes.  
[16] **Q:** Are you aware of any definitions  
[17] that you haven't, definitions of the term "time  
[18] compression" that would have been known in 1988  
[19] that fall within the field of the Burst patents  
[20] that you haven't listed here?  
[21] **A:** I am not aware of any that I haven't  
[22] listed. I attempted to be thorough in finding the  
[23] uses because, as I state, it's not a term, it's a  
[24] term that didn't have a single accepted use or  
[25]

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**Hemami**

[1] meaning and I wanted to make sure that I cast a  
[2] broad net and that I didn't miss anything. Now,  
[3] obviously here I missed the radar definition.  
[4] **Q:** So definitions 1 and 4 that you've  
[5] listed here are the only definitions of "time  
[6] compression" that you are aware of that fall  
[7] within the field of the communication of  
[8] audio/video information. Is that right?  
[9] **A:** Some of the references in items 1  
[10] and 4.  
[11] **MR. PAYNE:** Objection. Form.  
[12] **Q:** You'd agree that the term "time  
[13] compression" is used in the sense you've described  
[14] as 1 and 4 in your expert report in the field of  
[15] communication of audio or video information?  
[16] **A:** Yes.  
[17] **Q:** And that was known by a person of  
[18] ordinary skill in the art in 1988?  
[19] **A:** What was known?  
[20] **Q:** That those two meanings as you've  
[21] described them were used in that field?  
[22] **A:** I don't know that one of ordinary  
[23] skill would know that.  
[24] **Q:** Okay.  
[25]

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- [1]  
[2] **A:** I do not, I don't think I believe  
[3] that one of ordinary skill would necessarily know  
[4] the use of time compression in these contexts for  
[5] audio/video source information.  
[6] **Q:** So you think someone of ordinary  
[7] skill in the art would not know those meanings or  
[8] you're not sure one way or the other?  
[9] **A:** I, I think that it would depend on  
[10] where the ordinary skill came from to some extent.  
[11] I think we discussed earlier that there were, we  
[12] could have somebody without an electrical  
[13] engineering degree who was a techy person who, you  
[14] know, worked in the context of broadcasting or  
[15] something that, that might follow these.  
[16] Now, let me say that, you know, the  
[17] Haskell, the Haskell patent, there is a very, very  
[18] similar paper, that IEEE technical paper in  
[19] content to the Haskell patent. I don't know to  
[20] what extent that was, that was done.  
[21] **Q:** This much I think is fairly simple.  
[22] Exhibit 80, which is The Modern Dictionary of  
[23] Electronics —  
[24] **A:** The burst transmission.  
[25] **Q:** Correct. That contains a definition

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*Hemami*

- [1] of "burst transmission" that corresponds to your  
[2] definition 1, correct?  
[3] **A:** Yes. Yes.  
[4] **THE VIDEOGRAPHER:** Counselor,  
[5] you have two minutes.  
[6] **Q:** And the edition that contains, that  
[7] was published in 1984 as it says on the second  
[8] page of Exhibit 80, correct?  
[9] **A:** Yes.  
[10] **Q:** So at least that definition you'd  
[11] agree would be known to a person of ordinary skill  
[12] in the art in 1988, correct?  
[13] **A:** I don't know very many people who  
[14] read the dictionary and when I read — I mean I  
[15] think I'm a pretty educated person and when I pick  
[16] up a technical dictionary, I always find terms  
[17] that I don't know, some of which are amusing and  
[18] some of which are just there. So —  
[19] **Q:** Well, I guess let me ask you  
[20] directly, then.  
[21] Do you agree that definition number  
[22] 1 which appears in the Modern Dictionary of  
[23] Electronics would have been known to a person of  
[24] ordinary skill in the art, as you've defined it,  
[25]

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*Hemami*

- [1] in 1988?  
[2] **A:** I think some people would and some  
[3] people wouldn't. If I have to make a blanket  
[4] statement then, then I guess the answer has to be  
[5] "no" because we need to take into account the  
[6] people that wouldn't.  
[7] **Q:** And what about 4?  
[8] Would some people know that  
[9] definition and some people not know that  
[10] definition?  
[11] **A:** Well, certainly based on the fact  
[12] that that definition appears in even textbooks at  
[13] the time involving digital communication with  
[14] respect to full duplex transmission, both the  
[15] chapter that you gave me and the Lee and  
[16] Messerschmitt text, which I have, describe time  
[17] compression in the context of full duplex sharing  
[18] of a channel so that two people can talk at the  
[19] same time.  
[20] I think that it is more likely that  
[21] people would understand that interpretation of  
[22] time compression, item 4 as opposed to item 1.  
[23] **THE VIDEOGRAPHER:** Excuse me,  
[24] Counsel. I need to change the tape.  
[25]

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*Hemami*

- [1] **MR. BROWN:** Let's do it.  
[2] **THE VIDEOGRAPHER:** The time is  
[3] now 2:24. This marks the ending of  
[4] tape number three. Off the record.  
[5] (Recess taken)  
[6] **THE VIDEOGRAPHER:** The time is  
[7] now 2:32. This marks the beginning of  
[8] tape number four. On the record.  
[9] **BY MR. BROWN:**  
[10] **Q:** Going back to the list on page 42  
[11] and 43, number 1, you're meaning number 1 for time  
[12] compression. Do you see that?  
[13] **A:** Yes.  
[14] **Q:** Is that data compression?  
[15] **A:** "Reducing the duration of an analog  
[16] signal relative to its original duration," no,  
[17] there's no data compression there.  
[18] **Q:** Number 4. Is that data compression?  
[19] **A:** Increasing the digital signalling  
[20] rate is not data compression.  
[21] **Q:** Your reference 14, which is  
[22] Exhibit 82?  
[23] **A:** Yes.  
[24] **Q:** I believe that this reference has  
[25]



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**Hemami**

- [1] not been cited by either Burst or Apple. Is that  
[2] true to the best of your knowledge?  
[3] **A:** To the best of my knowledge, yes.  
[4] **Q:** Did you find this reference on your  
[5] own?  
[6] **A:** I did.  
[7] **Q:** The Haskell reference is cited prior  
[8] art to the Burst patents, correct?  
[9] **A:** Yes.  
[10] **Q:** You state here that the graph  
[11] reference was cited by Apple?  
[12] **A:** Yes.  
[13] **Q:** Is that how you found the graph  
[14] reference?  
[15] **A:** Well, I actually own that book so  
[16] when I saw the text on the, the chart, I went  
[17] upstairs and pulled it off my shelf.  
[18] **Q:** When do, did you acquire that book,  
[19] if you remember?  
[20] **A:** During the DirecTV case.  
[21] **Q:** Oh. That's the Pegasus/DirecTV case  
[22] we discussed earlier today, correct?  
[23] **A:** Yes, so most likely in 2001.  
[24] **Q:** Turning to number 4, reference

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**Hemami**

- [1] number 1 there is a text that you owned  
[2] independently of this case, correct?  
[3] **A:** Reference 1 is —  
[4] **Q:** The Lee book —  
[5] **A:** Lee and Messerschmitt, yes, that's  
[6] correct.  
[7] **Q:** — which I believe you said you  
[8] acquired as a student?  
[9] **A:** Yes.  
[10] **Q:** So that's a reference you had  
[11] independent of this case?  
[12] **A:** Yes.  
[13] **Q:** 17, which is Exhibit 83, the  
[14] Gardiner article?  
[15] **A:** Yes.  
[16] **Q:** That one I also believe was not  
[17] cited by the parties to this case.  
[18] Is this a reference that you found  
[19] on your own?  
[20] **A:** Yes, it is.  
[21] **Q:** And then the Gitlin reference, the  
[22] chapter of which is marked as 84, I believe that's  
[23] a book that you do not own. Is that correct?  
[24] **A:** That is correct.

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**Hemami**

- [1] **Q:** And you came upon that reference  
[2] because it was cited by Apple in this case?  
[3] **A:** Yes.  
[4] **Q:** Did you do some sort of search in  
[5] order to find Exhibits 83 and 82?  
[6] **A:** Yes.  
[7] **Q:** And can you just generally describe  
[8] the search that you did?  
[9] **A:** I used the IEEE's online database  
[10] called IEEE Explore and I searched on variations  
[11] of "time compression."  
[12] **Q:** So for example, "time compress"  
[13] would be included?  
[14] **A:** Yes, I don't remember because, you  
[15] know, one has to be a little bit flexible when  
[16] searching databases. I don't know which ones  
[17] actually worked —  
[18] **Q:** Fair enough.  
[19] **A:** — but appropriate variations that  
[20] somebody would think of when doing such a search.  
[21] **Q:** I'm just going to mark a series of  
[22] other references which I will, I'll represent to  
[23] you are references that were cited in  
[24] Mr. Halpern's expert report and let's start with

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**Hemami**

- [1] the Arnon patent, 4,467,473 which is 85.  
[2] (Document bearing Bates Nos.  
[3] APBU00000807 through 813 was marked as  
[4] Deposition Exhibit No. 85 for  
[5] identification, as of this date.)  
[6] **Q:** Have you reviewed Exhibit 85 prior  
[7] to today?  
[8] **A:** Yes, I have.  
[9] **MR. BROWN:** I'm going to mark  
[10] as Exhibit 86 a copy of the Roberts  
[11] patent, 2,987,614.  
[12] (Document bearing Bates Nos.  
[13] APBU00000726 through 730 was marked as  
[14] Deposition Exhibit No. 86 for  
[15] identification, as of this date.)  
[16] **Q:** Have you reviewed Exhibit 86, the  
[17] Roberts patent, prior to today?  
[18] **A:** Yes, I have.  
[19] **Q:** Had you reviewed Exhibit 86 prior to  
[20] preparing your expert report?  
[21] **A:** No.  
[22] **Q:** Had you reviewed Exhibit 85 prior to  
[23] preparing your expert report?  
[24] **A:** I don't remember.

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*Hemami*

- [1]  
[2] **Q:** Are you aware that Exhibit 86 is  
[3] cited prior art to the Burst patent?  
[4] **A:** Yes.  
[5] **Q:** Are you aware that Exhibit 85 is  
[6] cited prior part to the Burst patent?  
[7] **A:** Yes.  
[8] **MR. BROWN:** I'm going to mark  
[9] as Exhibit 87 a copy of the Abraham  
[10] patent, 4,521,806.  
[11] (Document bearing Bates Nos.  
[12] APBU00001613 through 1628 was marked  
[13] as Deposition Exhibit No. 87 for  
[14] identification, as of this date.)  
[15] **Q:** Have you reviewed Exhibit 87 prior  
[16] to today?  
[17] **A:** Yes, I have.  
[18] **Q:** Had you reviewed Exhibit 87 prior to  
[19] preparing your expert report?  
[20] **A:** I do not remember.  
[21] **Q:** Are you aware that Exhibit 87 is  
[22] cited prior art to the Burst patents?  
[23] **A:** Yes.  
[24] **Q:** If you look at Exhibit 87, in the  
[25] "Summary of the Invention" section in column 1, at

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- [1] line, I would say roughly 40 through 50, it refers  
[2] to signals that are time compressed for broadcast  
[3] through a leased cable communication path. Do you  
[4] see that?  
[5] **A:** Yes.  
[6] **Q:** Does the Abraham patent, Exhibit 87,  
[7] use time compressed in the sense of either 1 or 4  
[8] in your expert report on pages 42 and 43?  
[9] **A:** Okay. I would like to take just a  
[10] minute to remind myself of what this is.  
[11] **Q:** Sure. Take — for this question and  
[12] any other question, take whatever time you need to  
[13] read whatever you need to read.  
[14] It may help, and I don't promise  
[15] anything, but it may help to refer to column 3 at  
[16] lines 42 through about 64.  
[17] (Pause)  
[18] **Q:** You might also, I don't mean to  
[19] interrupt, but look at column 4, lines 25 through  
[20] about 33.  
[21] **A:** Okay.  
[22] **MR. PAYNE:** What was that  
[23] again, please?  
[24] **MR. BROWN:** Four, 25 through

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- [1]  
[2] 33.  
[3] (Pause)  
[4] **A:** Sorry. Now, you mentioned 25 to 33,  
[5] yes?  
[6] **Q:** The reason I thought that might be  
[7] helpful is because it says that, "The message  
[8] signal sources are digitized and compressed  
[9] time-wise for transmission," through line 94,  
[10] "during time compressed transmission periods of  
[11] relatively short duration as compared to real-time  
[12] duration."  
[13] **A:** Okay. So why don't I say at this  
[14] point, I think I recall this and I may reserve the  
[15] right to go back and read some more.  
[16] **Q:** Okay. But the question that I  
[17] intended to ask you about this is whether the  
[18] Abraham patent, Exhibit 87, uses "time  
[19] compression" in the sense of either 1 or 4 and  
[20] certainly my view is that it uses it in sense  
[21] number 4 as you've defined it on page 43 of your  
[22] report but I'm asking your opinion.  
[23] **A:** Yes. In this patent, audio-visual  
[24] information is digitized and then time compressed  
[25] in the manner or in the definition of number 4,

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- [1] sort of similar to the Gardiner reference, simply  
[2] clocking things out faster for this particular,  
[3] just from the sheer standpoint of clocking things,  
[4] yes. That's item 4.  
[5] **Q:** So do you agree that Exhibit 87,  
[6] which is described transmitting audio/video signal  
[7] sources over television networks uses the phrase  
[8] "time compression" as you've described it in  
[9] Exhibit 4?  
[10] **MR. PAYNE:** Objection —  
[11] **Q:** Let me break that into two pieces.  
[12] Do you agree that the Exhibit 87,  
[13] the Abraham patent, describes transmitting  
[14] audio/video signals over television channels?  
[15] **A:** Is it television channels?  
[16] **Q:** It's certainly what it seems to me  
[17] to be saying. You can read the background  
[18] section.  
[19] **A:** Oh, cable path. So it seems that  
[20] they're using the cable to transmit the  
[21] information. So I would say yes, they are  
[22] transmitting audio-visual information over that  
[23] cable path.  
[24] **Q:** And that's a television cable path,

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[2] correct?

[3] A: Leased cable communication path.

[4] Q: Okay. It's not, it's not terribly

[5] important.

[6] You agree that Abraham discloses the

[7] transmission of audio/video source information,

[8] correct?

[9] A: Yes.

[10] Q: And you agree that in the Abraham

[11] reference, the term "time compression" is used in

[12] the sense that you've defined it as number 4 in

[13] your expert report on page 43?

[14] A: With respect to the fact that the

[15] Abraham patent is transmitting bits, those bits

[16] are clocked out at a faster rate.

[17] Q: Which is time compression in the

[18] sense you've defined it in, as number 4?

[19] A: Well, I wouldn't say I've defined it

[20] in number 4. I've given number 4 as one of the

[21] uses in which it appeared in the 1988 time frame.

[22] Q: And Exhibit 87 is another example of

[23] that, correct?

[24] MR. PAYNE: Objection. Form.

[25] A: I don't know if I would say it's an

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[2] example. I would say they employed that, so to

[3] the, to the extent that an example employs

[4] something.

[5] Q: Okay. Let's look at Exhibit 85. So

[6] Exhibit 85 is titled, "Time Compression Multiplex

[7] Digital Transmission System." Do you see that?

[8] A: Yes.

[9] Q: And it's talking about a two-wire

[10] telephone loop in the abstract. Do you see that?

[11] A: Yes.

[12] Q: If you flip to column 1 of the

[13] patent —

[14] A: Okay.

[15] Q: — it describes TCM systems at line

[16] 32, do you see that, which it earlier defined as

[17] "time compression multiplex"?

[18] A: Yes.

[19] Q: And it says that typically in such

[20] systems, the digital information signal to be

[21] transmitted, it's divided into discrete portions

[22] and each portion compressed with respect to time

[23] to form a so-called "burst" occupying less than

[24] one-half the time of the original portion.

[25] Do you see that?

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[2] A: Yes.

[3] Q: That is, again, using the phrase

[4] "time compressed." Actually, here it's compressed

[5] with respect to time, not actually time compressed

[6] in the sense which you've set forth as number 4 on

[7] page 33 of your expert report, correct?

[8] A: So here I think I would clarify that

[9] that in particular, item 4 points out that the

[10] origin or the meaning of the signal is irrelevant.

[11] It's simply viewed as a sequence of 1's and zeros

[12] and in this sentence, you know, to the extent that

[13] it's simply a digital information signal, there

[14] are no attributes ascribed to it, that is a nice

[15] correspondence.

[16] I would also like to specify,

[17] though, that in — this sentence is describing

[18] "time compression multiplexing," okay? And the

[19] description that I've given in 4 involves simply

[20] just increasing the digital signal. It's a sub,

[21] sub-step, shall we say.

[22] Q: It's true that the use of "time

[23] compression" that you've described as number 4 is

[24] a technique that is used as part of time

[25] compression multiplexing, correct?

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[2] A: Yes.

[3] Q: And Exhibit 85, the Arnon patent,

[4] uses the phrase "compressed with respect to time"

[5] to refer to that technique which you've set forth

[6] at number 4 of your expert report on page 43?

[7] A: Right, increasing the signalling

[8] rate.

[9] Q: Okay. I have previously marked as

[10] Exhibits 101, 102, 103 and 104, the file histories

[11] to the Burst patents. I'm going to hand them to

[12] you. It's a thick stack. We won't go through it

[13] all.

[14] What I would like you to, to turn to

[15] is Exhibit 101 which is the '995 file history.

[16] And before we get into the file history, have you

[17] reviewed the Burst patents to determine whether

[18] the phrase "time compressed," "time compression"

[19] or variants of that phrase appear anywhere in the

[20] patents other than the claims?

[21] A: Yes.

[22] Q: And what did you find?

[23] A: In the patents themselves, I don't

[24] see "time compression" or "time compressed" in the

[25] specifications themselves. Obviously, we see that

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[1] term shows up in the claims.  
[2] **Q:** Hang on just a second. It turns out  
[3] my copy of the file history is in my other bag.  
[4] Did you review the originally filed  
[5] claims of the '995 patent?  
[6] **A:** Yes. In the context of trying to  
[7] understand the patents, I reviewed the application  
[8] and the evolution thereof.  
[9] **Q:** Okay. So you understand that the  
[10] initial application, the first application that  
[11] Richard Lang filed is the application that's  
[12] behind tab 1 of the '995 File History, correct?  
[13] **A:** If you say so. I mean, I don't  
[14] remember if that's what it is.  
[15] **Q:** Okay. Well, I will represent that  
[16] that is true. You can see behind tab 1 of the  
[17] '995 file history, there's a mail room stamp in  
[18] the top left corner. Do you see that?  
[19] **A:** I do.  
[20] **Q:** And it says, "December 27, 1988."  
[21] **A:** Yes.  
[22] **Q:** And if you go back to the '995  
[23] patent, you can see that it has a file date of  
[24] December 27, 1988. Do you see that?  
[25]

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[1] **A:** Yes. Yes.  
[2] **Q:** And if you go to another one of the  
[3] patents, pick whichever one you want, you'll see  
[4] that that's the earliest date on those patents.  
[5] **A:** Okay.  
[6] **Q:** So behind tab 1 there are page  
[7] numbers on the bottom of the page. If you go to  
[8] page 21 — are you there?  
[9] **A:** Yes.  
[10] **Q:** And you'll see that those, page 21  
[11] contains the first claim of this patent  
[12] application. Do you see that?  
[13] **A:** I do.  
[14] **Q:** Then the claims go on after that?  
[15] **A:** Yes.  
[16] **Q:** Have you reviewed the claims in this  
[17] original application to determine whether the  
[18] phrase "time compressed" or "time compression"  
[19] appears in the claims?  
[20] **A:** I do not know the answer to that  
[21] specific question. I did read these as part of  
[22] reviewing the application. What question I had in  
[23] my mind at the times I specifically went through  
[24] this one, I do not remember.  
[25]

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[1] **Q:** Okay. Why don't you read claim 1 to  
[2] yourself and let me know when you're finished.  
[3] (Pause)  
[4] **A:** Okay.  
[5] **Q:** Claim 1 describes increasing the  
[6] digital signalling rate as you've set that forth  
[7] in — let me take a step back.  
[8] Do you see the last part of claim 1  
[9] just says "transmitting said first digital signals  
[10] to said output port at a speed greater than the  
[11] speed of the analog video signals received by the  
[12] first means"? Do you see that?  
[13] **A:** I do.  
[14] **Q:** Do you agree that claim 1 describes  
[15] "time compression" in the sense that you've  
[16] defined it in number 4 of your expert report on  
[17] page 43?  
[18] **A:** I, I'm not sure what a "speed of  
[19] analog video signal is." So as a reviewer, I  
[20] would say this is written in such a manner that  
[21] it's difficult for me to understand what he's  
[22] intending there.  
[23] **Q:** Right. So he's comparing the speed  
[24] of the digital data signals to the speed of the  
[25]

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[1] analog video signals, right?  
[2] **A:** I don't know what a "speed of a  
[3] digital data signal" is and I don't know what a  
[4] "speed of an analog video signal" is.  
[5] **Q:** Is the digital signalling rate that  
[6] you've used in number 4 on page 43 of your expert  
[7] report the speed of a digital data signal?  
[8] **A:** That is not a term that, that we  
[9] would use.  
[10] **Q:** "Speed" is not a term you would use?  
[11] **A:** No.  
[12] **Q:** Do you mean by your answer that it  
[13] is true that "speed" is a term you would not use?  
[14] **A:** "Speed" is a term that I would not  
[15] use to describe either digital or analog — well,  
[16] let me think. How would we use "speed"?  
[17] I guess people — do people say,  
[18] "What speed is your modem?" Perhaps they do.  
[19] Certainly in any technical discussion I wouldn't  
[20] use that word. Maybe that's a good way to put it.  
[21] If somebody walked up to me on the  
[22] street with a modem and asked me, you know, what  
[23] speed it was, I think I can probably give them an  
[24] answer based on the box.  
[25]



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- [1]  
[2] Now, having said that, speed of an  
[3] analog video signal, speed is a rate, right,  
[4] whether it's feet per minute or —  
[5] **Q:** Right.  
[6] **A:** — something per minute.  
[7] **Q:** And you've said in paragraph 4 that  
[8] you're increasing the digital signalling rate  
[9] which seems to me to be the same thing as  
[10] increasing the speed of a digital data signal.  
[11] **A:** In an unpleasantly worded manner,  
[12] yes, I would say that but now, "greater than the  
[13] speed of the analog video signal," it's unclear to  
[14] me there what speed of a video analog signal is  
[15] purely from reading the claim.  
[16] **Q:** If you look at claim 4 of the  
[17] patent, I'm sorry, of the patent, of the  
[18] application. Do you see that?  
[19] **A:** Yes.  
[20] **Q:** It refers to "a first means which  
[21] sequentially compresses said first digital data  
[22] signal into a second data signal."  
[23] Do you see that?  
[24] **A:** Yes.  
[25] **Q:** You understand from that claim

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- [1] language that the second digital data signal is  
[2] different from the first digital data signal?  
[3] **A:** Yes.  
[4] **Q:** Do you understand that to be  
[5] referring to "data compression" in the sense that  
[6] you've defined it?  
[7] **A:** I guess — my understanding in  
[8] reading the claims in a patent are that they must  
[9] be interpreted in light of the specification.  
[10] **Q:** Right.  
[11] **A:** I am, I guess, applying the same  
[12] idea here in that, if memory serves me  
[13] correctly — and maybe I should check this.  
[14] Yes, he's got the discussion of data  
[15] compression in the initial application. So having  
[16] read the specification associated with the first  
[17] set of claims, it would be clear that that  
[18] "compresses" is the data compression operation.  
[19] **Q:** So you read claim 4 of the '995  
[20] application in the context of the application to  
[21] be referring to data compression, correct?  
[22] **A:** I do and I would suggest that,  
[23] because I would have read this thing sequentially  
[24] starting at page 1 and ending at page 21, in spite

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**Hemami**

- [1] of my unhappiness with the "speed of analog video  
[2] signals" in claim 1, it would be, yes, that  
[3] "compresses" to me clearly refers back to the data  
[4] compression which was discussed in the  
[5] specification.  
[6] **Q:** And by that "compresses," you mean  
[7] the word "compresses" in claim 4 of the '995  
[8] application?  
[9] **A:** Yes. Now, let me, let me, having  
[10] said that, say that at this point, I am  
[11] sequentially reading the claims and there may be a  
[12] claim later that may cause me to think is that  
[13] really what was meant there —  
[14] **Q:** Sure.  
[15] **A:** — and then go back and, you know, I  
[16] would like to understand the whole thing as a  
[17] whole when all is said and done.  
[18] **Q:** But having read only claim 1 and  
[19] claim 4 of the application, it's your opinion in  
[20] light of what the application which you've  
[21] previously read that the word "compresses" in  
[22] claim 4 is referring to data, correct?  
[23] **A:** I believe so.  
[24] **Q:** And certainly in data compression in

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**Hemami**

- [1] the sense that you've defined it, namely reducing  
[2] the number of bits, when you data compress a data  
[3] signal, the resulting signal is a different signal  
[4] from the one you started with, correct?  
[5] **A:** If we are just discussing purely at  
[6] the bit level, if we did a bit-for-bit compare, we  
[7] would have a different, a different signal.  
[8] **Q:** Obviously it's intended to represent  
[9] the same information, correct?  
[10] **A:** I agree.  
[11] **Q:** But the bits are different?  
[12] **A:** Yes.  
[13] **Q:** Let's talk about the use of the word  
[14] "transmission" in the Burst patents. I want to  
[15] take you to the '839 patent if you don't mind.  
[16] **A:** Can I put this away?  
[17] **Q:** For now, yes.  
[18] If you look at the abstract of the  
[19] '839 patent, do you have that?  
[20] **A:** I do.  
[21] **Q:** Do you see there that it refers to  
[22] transferring programs onto a hard copy magnetic  
[23] media and transmitting such programs to a remote  
[24] location. Do you see that?

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[1]  
[2] **A:** Yes.  
[3] **Q:** In the '839 patent, the hard copy  
[4] magnetic media is identified as blocks 23,  
[5] correct?  
[6] **A:** Yes.  
[7] **Q:** Okay. If it helps, I'll refer you  
[8] to column 3, lines 51 through 58 — really 55.  
[9] **A:** Yes.  
[10] **Q:** So it refers there to, "storage  
[11] media 23 is a magnetic tape." Do you see that?  
[12] **A:** Yes.  
[13] **Q:** And then it says, "Alternatively,  
[14] AVRUI1 may operate with other types of storage  
[15] media including, but not limited to, other  
[16] magnetic tape formats." Do you see that?  
[17] **A:** I do.  
[18] **Q:** That certainly is hard copy magnetic  
[19] media, correct?  
[20] **A:** Hard copy magnetic media as opposed  
[21] to soft copy?  
[22] **Q:** Let's go back to the abstract.  
[23] If you look at the abstract, it's  
[24] describing the capability of the improved video  
[25] recorder transceiver, right?

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[1] It says it has expanded  
[2] functionality and then it refers to it as a  
[3] VCR-ET, correct?  
[4] **A:** Yes.  
[5] **Q:** Now, I never tried to figure out  
[6] what "VCR-ET" stands for, have you?  
[7] **A:** I have.  
[8] **Q:** In column 3 at line 42 it says that  
[9] video, it refers to an "audio/video recorder  
[10] editor/transceiver." Do you see that?  
[11] **A:** Yes.  
[12] **Q:** So is it your understanding that  
[13] "VCR-ET" refers to a "video recorder  
[14] editor/transceiver"?  
[15] **A:** It was my understanding that the  
[16] VCR-ET was whatever this invention was.  
[17] **Q:** Okay. You'd agree with me, though,  
[18] that video recorder editor transceiver has the  
[19] initials VCR-ET?  
[20] **A:** It does, it does. Somehow I always  
[21] thought it was "enhanced transmission."  
[22] **Q:** Okay. But you'll see here that it  
[23] refers to the capabilities of the VCR-ET in the  
[24] abstract.  
[25]

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[1] Let's go back to the abstract for a  
[2] second. It talks about storing video, right?  
[3] **A:** Yes.  
[4] **Q:** It talks about editing such  
[5] programs?  
[6] **A:** Yes.  
[7] **Q:** It talks about transferring such  
[8] programs onto hard copy and magnetic media, right?  
[9] **A:** Yes.  
[10] **Q:** And then it refers to transmitting  
[11] them to a remote location.  
[12] **A:** Yes.  
[13] **Q:** So at least in, in that context,  
[14] would you agree that the hard copy magnetic media  
[15] it's referring to is the box 23 in Figure 2 which  
[16] is the, the VCR tape that we looked at earlier?  
[17] **A:** The V — I would agree with that.  
[18] The VCR tape is one example as given in column 3.  
[19] **Q:** Okay. If you look at column 6, it's  
[20] describing various types of memory at line 33. Do  
[21] you see that? Or maybe it actually starts at —  
[22] **A:** Starting with, "One type" or  
[23] earlier?  
[24] **Q:** I think it actually starts earlier  
[25]

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[1] at 28. Do you see that?  
[2] **A:** Yes.  
[3] **Q:** And then it describes, going down to  
[4] about line 45, different memory technologies.  
[5] **A:** Yes.  
[6] **Q:** It gives various examples including  
[7] optical disk memories, bubble memories and  
[8] magnetic disks, correct?  
[9] **A:** Yes.  
[10] **Q:** And that is all in the context of  
[11] describing what can be used in memory 13, correct?  
[12] **A:** I agree.  
[13] **Q:** And certainly the general, one  
[14] general idea of the apparatus described in this  
[15] patent is that it allows you to put a VCR tape  
[16] into a VCR, copy it onto memory 13 and then copy  
[17] it back onto a different VCR tape, correct?  
[18] **A:** Yes.  
[19] **Q:** So one of the things that the  
[20] apparatus described in the Burst patents can  
[21] accomplish is copying one VCR tape to another  
[22] without using two VCRs or two decks?  
[23] **MR. PAYNE:** Objection. Form.  
[24] **Q:** Correct?  
[25]

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[1] **A:** I agree.  
 [2] **Q:** Okay. In your opinion, are  
 [3] examples, other than magnetic tape, given for  
 [4] storage media 23?  
 [5] **A:** I, I believe that they are.  
 [6] **Q:** Are you referring, for example, to  
 [7] the CD-ROM that's referred to on column 3, line  
 [8] 60?  
 [9] **A:** Well, in fact, I think, I believe —  
 [10] here we go. Column 3, line 60 suggests that an  
 [11] alternate form for storage media is CD-ROM and  
 [12] then goes on to, of course, mention that you  
 [13] couldn't store or write on the CD-ROM.  
 [14] Now, then we further go on to column  
 [15] 4 and it says that, "The VCR-ET can use optical  
 [16] disks as media 23," and then discusses two types  
 [17] of optical disks.  
 [18] **Q:** So media 23 can be optical disks or  
 [19] magnetic tape, right?  
 [20] **A:** I don't know that it would be  
 [21] limited to those but certainly those are the  
 [22] examples that are given in columns 3 and 4.  
 [23] **Q:** Now, in the embodiment that's shown  
 [24] in Figure 2, the drive that holds either the  
 [25]

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[1] magnetic tape or the optical disk is shown as part  
 [2] of the transceiver apparatus, correct?  
 [3] **A:** Yes.  
 [4] **Q:** If you look at the embodiment shown  
 [5] in Figure 3, in that embodiment, item 23 is shown  
 [6] as part of a separate device, which I believe is  
 [7] described as a conventional VCR in the  
 [8] specification, correct?  
 [9] **A:** I, I would just like to check.  
 [10] **Q:** Sure.  
 [11] **A:** I believe that what you said about  
 [12] conventional VCR that that is accurate.  
 [13] **Q:** The description in Figure 3 starts  
 [14] at column 11, line 9.  
 [15] **A:** So, yes. We see that in this  
 [16] embodiment, it is suggested to be a conventional,  
 [17] commercially available VCR.  
 [18] **Q:** And it says specifically that the  
 [19] AVR11 is not integral with the VCU12, 13 or 14.  
 [20] Do you see that?  
 [21] **A:** Yes.  
 [22] **Q:** And so that's a separate box that's  
 [23] shown at the top of Figure 3?  
 [24] **A:** Yes.  
 [25]

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[1] **Q:** And it's a — now, in the context of  
 [2] that embodiment, if you see at line 31, it talks  
 [3] about transmitting —  
 [4] **A:** Sorry. We're still on column 11?  
 [5] **Q:** I'm sorry. Yes. Column 11, line  
 [6] 31. The specification refers to transmitting by  
 [7] the fiber optic port to another VCR-ET, correct?  
 [8] **A:** Yes.  
 [9] **Q:** And if you go down to line 66 — I'm  
 [10] sorry. I'm looking at the wrong column. My  
 [11] apologies. Let's go to column 9 at line 66.  
 [12] There it refers to downloading the  
 [13] stored program from memory 13 onto recording media  
 [14] 23, correct?  
 [15] **A:** Yes.  
 [16] **Q:** And then in the next sentence, it  
 [17] talks about reloading the program for media 23  
 [18] into memory at a future time, right?  
 [19] **A:** Yes.  
 [20] **Q:** And then later on, it talks about,  
 [21] at line 6 of column 10, it refers to the hard copy  
 [22] in compressed digital format. Do you see that?  
 [23] **A:** Yes.  
 [24] **Q:** And that is referring back to the  
 [25]

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**Hemami**

[1] copy on media 23, right?  
 [2] **A:** Yes.  
 [3] **Q:** And it says there that that hard  
 [4] copy could later be transmitted by an appropriate  
 [5] independent transmitter. Do you see that?  
 [6] **A:** Yes.  
 [7] **Q:** So would you agree that at least in  
 [8] that, those paragraphs that we have discussed, the  
 [9] patent uses "transmission" in a sense different  
 [10] from, for example, "downloading"?  
 [11] **MR. PAYNE:** Objection to form.  
 [12] **A:** Okay. So, sorry. We went through  
 [13] several things. First, we talked about — can you  
 [14] clarify your question?  
 [15] **Q:** Sure, absolutely.  
 [16] It seems to me that the patent  
 [17] refers, uses the word "transmitting" to refer to  
 [18] sending something to a remote location, as it says  
 [19] in the abstract, and uses other language such as  
 [20] "transfer" or "download" to refer to moving  
 [21] information onto, for example, media 23.  
 [22] Is that consistent with your  
 [23] reading?  
 [24] **A:** No. I would disagree with that  
 [25]

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**Hemami**

[1]  
[2] characterization because I recall at least another  
[3] instance where the word "transmit" is used in the  
[4] specification but when we read what's going on, it  
[5] is a transfer between units within the VCR-ET.

[6] So I do not believe that the  
[7] specifications have a consistent use of  
[8] delineation between "transfer" and "transmit."

[9] **Q:** Okay. So you agree that it is true  
[10] that at least some of the time the patent refers  
[11] to "transmit" in the sense of send to a remote  
[12] location, correct, for example, in the abstract?

[13] **A:** Those words appear in the abstract,  
[14] "remote location using a second VCR-ET."

[15] **Q:** And you'll agree that the patent at  
[16] least some of the time uses the word "transfer" or  
[17] "download" to talk about moving something onto  
[18] media 23 which is a local drive, correct?

[19] **MR. PAYNE:** Objection to form.

[20] **A:** The only section I would say that  
[21] that definitively occurs is exactly in this  
[22] paragraph you point out.

[23] I didn't — if I may borrow an  
[24] answer from Mr. Halpern, I didn't go through the  
[25] patents with the idea in mind of tabulating

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**Hemami**

[1] "download," "transfer," "transmit" and trying to  
[2] draw some conclusions about whether those words  
[3] were used in a rigid manner or in a more perhaps  
[4] colloquial manner.

[6] **Q:** Fair enough. You'd agree, though,  
[7] that in the context of Figure 3, the conventional  
[8] VCR I believe is labeled 11 at the top of the  
[9] picture, is not remote from the VCR-ET that is  
[10] within the box labeled 60, correct?

[11] **A:** Well, this gets back to the, what  
[12] "remote" refers to. "Remote" is a, as I think I  
[13] pointed out in my report, a term of  
[14] nondefiniteness. And perhaps I can, perhaps I can  
[15] locate that or you can oblige me by telling me  
[16] where I made that statement.

[17] **Q:** Well, I assume you made it in the  
[18] context of your discussion of the word  
[19] "transmitting."

[20] **A:** I think you are correct, yes. I'll  
[21] try page 48.

[22] **Q:** Maybe page 49.

[23] **A:** Yes. Sorry. I was giving the  
[24] general index.

[25] **Q:** I guess the question I have for you

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**Hemami**

[1]  
[2] is fairly simple.

[3] Do you consider Figure 3 to show  
[4] that unit 11, which is the conventional VCR, is  
[5] remote from unit 60?

[6] **A:** Is the — well, so I think that, I  
[7] think — actually, now I, I'm a little bit behind  
[8] you. I've put some pieces together.

[9] The context of the download and  
[10] where the device elsewhere shows up which is  
[11] archived for later viewing and transmitted by an  
[12] independent transmitter, this wouldn't work with  
[13] that VCR instantiation.

[14] This wouldn't work with Figure 3  
[15] because this description in column 9 discusses  
[16] essentially making a digital hard copy. And I  
[17] think we would agree that the VCR, the  
[18] conventional, commercial VCR in the alternate  
[19] embodiment, which is in Figure 3, is not going to  
[20] record, create for us a digital, a hard copy of  
[21] the program in digital format, reading from column  
[22] 10.

[23] **Q:** Have a look at your expert report on  
[24] page 49.

[25] In the last paragraph, you discuss

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**Hemami**

[1] the prosecution history in the Izeki patent,  
[2] correct?

[4] **A:** Yes.

[5] **MR. BROWN:** Let's mark the  
[6] Izeki patent. Did we mark that  
[7] yesterday, Les?

[8] **MR. PAYNE:** It's part of  
[9] Halpern's report.

[10] **MR. BROWN:** I think it's  
[11] better to have, I think it's better to  
[12] have a separate exhibit. I just don't  
[13] want to mark the same thing twice. So  
[14] let's mark the Izeki patent as  
[15] Exhibit 88.

[16] (Document bearing Bates Nos.  
[17] APBU00001613 through 1628 was marked  
[18] as Deposition Exhibit No. 88 for  
[19] identification, as of this date.)

[20] **Q:** Do you recognize Exhibit 88?

[21] **A:** I do.

[22] **Q:** Is Exhibit 88 the Izeki patent that  
[23] you referred to in page, the last paragraph of  
[24] page 49 of your expert report?

[25] **A:** Yes.



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*Hemami*

- [1]
- [2] **Q:** And you recall that the applicant
- [3] distinguished the Izeki reference during the
- [4] prosecution of the Burst patents, correct?
- [5] **A:** Yes.
- [6] **Q:** And one of the things that the
- [7] applicant or that Burst said about Izeki is that
- [8] Izeki does not disclose transmission, correct?
- [9] **A:** Yes.
- [10] **Q:** Now, it appears that in the final
- [11] paragraph of 49, you're drawing a distinction
- [12] between external devices and internal devices. Is
- [13] that correct?
- [14] (Pause)
- [15] **A:** I think that's a fair statement.
- [16] **Q:** So if your definition of
- [17] "transmitting" is as shown in the Burst's proposed
- [18] construction column, correct, on page 48 of your
- [19] report?
- [20] **A:** Sorry. The question was what?
- [21] **Q:** Your proposed, or your, the
- [22] definition that you believe is correct for the
- [23] word "transmitting" is what is set forth in the
- [24] column that's entitled "Burst's Proposed
- [25] Construction" on page 48, right?

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*Hemami*

- [1]
- [2] **A:** Yes.
- [3] **Q:** And that definition is "sending to
- [4] an external device that is capable of playback and
- [5] is selected by a user"?
- [6] **MR. PAYNE:** Objection. Form.
- [7] **A:** Yes. That, you've read the second
- [8] chunk there.
- [9] **Q:** Okay. Why is it that the device
- [10] that the transmission is directed to has to be an
- [11] external device in your view?
- [12] **A:** Well, this was delineated in the
- [13] Izeki, I'm sorry, in the file history that
- [14] discusses the differences between the Burst
- [15] application and the prior art labeled as Izeki,
- [16] that these were internal. Transferring over an
- [17] interface to a — let me read it instead of going
- [18] off with my memory here.
- [19] "An interface for transferring files
- [20] to a master tape is not transmission away."
- [21] **Q:** Okay. Let's look — you're citing
- [22] to the '705 file history for the sentence you just
- [23] quoted from, right?
- [24] **A:** Yes.
- [25] **Q:** So why don't you pull out the '705

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*Hemami*

- [1]
- [2] file history and maybe I can help you find the
- [3] right tab.
- [4] **A:** I believe this —
- [5] **MR. PAYNE:** We marked this
- [6] from yesterday if you plan to use it.
- [7] **MR. BROWN:** I prefer using the
- [8] file history as a whole since I'm
- [9] thinking that's where we're going to
- [10] wind up. I think it might just be
- [11] easier that way.
- [12] **Q:** It's tab 19 and I think you were
- [13] referring to page 15 within tab 19. Maybe I'm
- [14] wrong.
- [15] **A:** This doesn't seem to have it.
- [16] Actually, it's not 15 but we're getting close.
- [17] **Q:** Here we go. Let's try tab 37. So
- [18] is that page 15 of tab 37, APBU652, is that the
- [19] page you're referring to in your report?
- [20] **A:** Yes.
- [21] **Q:** Okay. And it's your view that in
- [22] that sentence, Burst distinguished the Izeki
- [23] reference on the ground that the master tape in
- [24] the Izeki reference is an internal device as
- [25] opposed to an external device? Is that right?

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*Hemami*

- [1]
- [2] **A:** Well, the Izeki invention is a unit
- [3] that has the premastering, I guess they call it
- [4] the premastering unit. It's integrated within the
- [5] system. It's an integral part of the system.
- [6] It's not a separate entity.
- [7] In the figures and in the
- [8] description, this is a, their editing apparatus is
- [9] a single entity. This is a piece of that
- [10] identity.
- [11] **Q:** Is the Izeki reference and the
- [12] applicant's distinguishing of the Izeki reference
- [13] the reason you included the phrase "external
- [14] device" in your definition?
- [15] **A:** Partially, yes.
- [16] **Q:** Is there another reason?
- [17] **A:** Well, also in the reading of the
- [18] specifications, the unit which is receiving the
- [19] transmitted information is described as for
- [20] example another VCR-ET, not that separate VCR
- [21] which is part of the VCR-ET unit in Figure 3, for
- [22] example, but a separate device.
- [23] **Q:** And because of that description in
- [24] the specification, in conjunction with the
- [25] statement that you referred to in your report

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*Hemami*

[1]  
[2] about Izeki and the file history, you concluded  
[3] that transmitting in the Burst patents was limited  
[4] to sending to external devices. Is that correct?

[5] **A:** External —

[6] **Q:** Go ahead.

[7] **A:** Shall I talk?

[8] **MR. PAYNE:** Objection to form.

[9] I just, I want to be — there's a  
[10] couple of different definitions on  
[11] page 48. You keep on saying  
[12] "transmitting" and I just want to make  
[13] sure we're talking about the same  
[14] constructions. That's my concern,  
[15] Nick.

[16] **MR. BROWN:** There's I think  
[17] three constructions here and each of  
[18] them say "sending to an external  
[19] device capable of playback," correct?

[20] **MR. PAYNE:** No. The top one  
[21] doesn't and you keep on referring to  
[22] the top one in your questions.

[23] **MR. BROWN:** Oh.

[24] **MR. PAYNE:** I'm not trying to  
[25] be — I just want to make sure the

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*Hemami*

[1] record's clear. That's all.

[2] **MR. BROWN:** I don't intend to  
[3] be referring to the top one. Let's  
[4] just clarify that with Dr. Hemami.

[5] **Q:** So, Dr. Hemami, you've proffered  
[6] three definitions for phrases that include the  
[7] word "transmitting," right?

[8] **A:** Yes. Three definitions for phrases.

[9] **Q:** And for "transmitting," Burst's  
[10] proposed construction is "no construction  
[11] required. Alternatively, sending." Do you see  
[12] that?

[13] **A:** Yes.

[14] **Q:** Okay. So when I'm talking to you  
[15] about transmitting, I'm talking to you about the,  
[16] the other definitions that you've offered here and  
[17] I'm going to try and understand why you included  
[18] the phrase "external device capable of playback."

[19] All right. Let's start with just  
[20] external device.

[21] **A:** Well, now, I mentioned that there  
[22] was at least one other place in the specifications  
[23] where the word "transmitting" was used where, if  
[24] one were to go through and be, and tabulate where  
[25]

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*Hemami*

[1]  
[2] transmit and where transfer occurs, one might  
[3] decide to change that word.

[4] So here I wanted to be clear that in  
[5] spite of the fact that "transmit" is used in some  
[6] location in the specification to refer to what we  
[7] might more actually call a "transfer," that indeed  
[8] internal transfers, even though they might be  
[9] called "transmit" in one or two paragraphs, are  
[10] not transmitting to a selected destination or  
[11] transmitting away or transmission away in the  
[12] context of this three, these three items.

[13] **Q:** Okay. You said several things  
[14] there. I want to make sure I understand.

[15] First, I think you said that there  
[16] was one and maybe more than one location in the  
[17] patent where the word "transmit" might have been  
[18] used to describe something that would be more  
[19] accurately called a "transfer." Is that right?

[20] **A:** Yes.

[21] **Q:** And in those one or two locations,  
[22] you're referring to the transfer of information  
[23] within a device, right?

[24] **A:** Within a VCR-ET.

[25] **Q:** Okay. So a more appropriate use of

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*Hemami*

[1] the word "transmit" is to refer to sending  
[2] something to an external device. Is that right?

[3] **A:** Yes.

[4] **Q:** And that's your sense of how the  
[5] word "transmit" is used by a person of ordinary  
[6] skill in the art in 1988, right?

[7] **A:** Were they to read the Burst patents,  
[8] I believe they would understand "transmission" in  
[9] the context of two units which are separate,  
[10] external to each other and communicating  
[11] information.

[12] **Q:** Okay. You also have this phrase  
[13] "capable of playback" in there. Do you see that?

[14] **A:** Yes.

[15] **Q:** Why is it that you think these  
[16] elements where you include the phrase "capable of  
[17] playback" require or have the limitation of  
[18] requiring that the device that receives the  
[19] transmission be capable of playback?

[20] **A:** The descriptions in the  
[21] specification involve, when something is  
[22] transmitted away from the VCR-ET, it goes to a  
[23] unit which can use the information.

[24] Now, you know, we're talking about a  
[25]

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**Hemami**

[1]  
[2] destination unit, not the satellite in the middle,  
[3] right? The satellite just takes bits in and spits  
[4] bits out but the destination is something that can  
[5] do something with the, with the material. You  
[6] know, the VCR-ET was not proposed as an archiving  
[7] mechanism. We don't —

[8] **Q:** Did you — or let me just put it  
[9] this way.

[10] Is there anything in the file  
[11] history that lead you to the phrase, "capable of  
[12] playback" or was that based solely on your  
[13] interpretation of the specification?

[14] **A:** Let me see what I wrote in my  
[15] report.

[16] (Pause)

[17] **A:** So I think on page 49 of my report,  
[18] I do refer to something in the '995, at the very  
[19] top, four lines from the top, something in the  
[20] '995 file history that suggests that, what I just  
[21] said but in the context of in the file history,  
[22] destination devices are expected to be able to  
[23] play back the information.

[24] **Q:** Okay. Let's look at that. That  
[25] would be tab 7 of the '995 history. I think

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**Hemami**

[1] you're referring to pages 18 to 20?

[2] **A:** Yes.

[3] **Q:** Can you just point me to what, the  
[4] portion that you thought supported the view —

[5] **A:** Yes.

[6] **Q:** — that the receiving device has to  
[7] be capable of playback?

[8] (Pause)

[9] **A:** So the quote at the top of line 49  
[10] of my report that begins at the end of the first  
[11] line, "Any of various types of destination devices  
[12] via any number of transmission mediums," occurs at  
[13] the bottom of page 18 of the APBU, lots of zeros,  
[14] 89.

[15] **Q:** But there's nothing about playback  
[16] in that sentence, is there?

[17] **A:** There is nothing about playback in  
[18] the sentence but this unit is something that can  
[19] play back the material. This is a feature of the  
[20] unit that — what has been patented here is not an  
[21] audio/video relay system which would simply store  
[22] in forward without the capability to play back.

[23] The fact that the unit can play back  
[24] is, is in each unit. I mean, it's part of the  
[25]

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**Hemami**

[1] feature. I think in the description of a  
[2] traditional VCR and the enhanced features of this,  
[3] the fact that it's capable of playing the material  
[4] is, it may be implicit. We may not, you know, we  
[5] just expect a VCR to be able to play.

[6] **Q:** Okay. Well, let's talk about the  
[7] word "transmit" as it would be used by a person of  
[8] ordinary skill in the art in 1988, separate from  
[9] the patent for a moment, okay?

[10] You agree that you can transmit  
[11] information to a satellite, right?

[12] **A:** Yes.

[13] **Q:** And that would be a common sense in  
[14] which a person of ordinary skill in the art would  
[15] use the word "transmit" in 1988. Is that right?

[16] **A:** I think we would say "transmit over  
[17] a satellite" as opposed to "transmit to."

[18] "Transmit to" makes it sound as if maybe we're  
[19] configuring the satellite and actually uploading  
[20] configuration material, in which case we would  
[21] "transmit to."

[22] **Q:** But certainly the word  
[23] "transmission" is used in the context of sending  
[24] information to a satellite, right?  
[25]

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**Hemami**

[1] **A:** That would be inaccurate now,  
[2] "transmission."

[3] **Q:** And it's used in the context of  
[4] sending information over point-to-point microwave  
[5] links, terrestrial point-to-point microwave links?

[6] **A:** Yes.

[7] **Q:** And a satellite is not capable  
[8] ordinarily of playing back the information that it  
[9] receives, right?

[10] **A:** To the best of our understanding,  
[11] yes. We don't know what the aliens are doing.

[12] **Q:** And the same thing is true for  
[13] microwave transmitters, right?

[14] **A:** Yes.

[15] **Q:** So the word "transmission" itself to  
[16] a person of ordinary skill in the art would not  
[17] imply that the device that received the  
[18] transmission was capable of playback, correct?

[19] **A:** If you presented one of ordinary  
[20] skill in the art with a black box and told them  
[21] that it was capable of transmission, I don't think  
[22] they would leap to the conclusion that the black  
[23] box could play back, whatever "play back" meant.

[24] **Q:** Right. Playback is a different  
[25]

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*Hemami*

[1]  
[2] function from transmitting, right?  
[3] **A:** I agree.  
[4] **Q:** I, while you were answering an  
[5] earlier question, looked through pages 18 and 19  
[6] and I did not see the word "playback." And  
[7] frankly, I don't see anything in pages 18 and 19  
[8] which would suggest, just from within those two  
[9] pages, that play back was associated by the  
[10] patentee with the act of transmission.

[11] I understand your argument that the  
[12] specification describes transmitting to another  
[13] VCR-ET and VCR-ET can provide playback.

[14] Is there something else that you're  
[15] relying on in support of your insertion of the  
[16] phrase, "capable of playback" into the definitions  
[17] on page 48 of your report?

[18] **A:** The operation of the device involves  
[19] transmission to other devices of a similar ilk.

[20] In the patent it is described as,  
[21] "other VCR-ETs" and here we have various types of  
[22] destination devices.

[23] Now, in light of reading the, what  
[24] was at the time the application and the associated  
[25] claims, the devices involved in transmission are

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*Hemami*

[1] these devices, devices that can offer the feature  
[2] of playback.

[4] **Q:** And when you're talking about the  
[5] devices, you're talking about the devices that are  
[6] described in the specification of the patent,  
[7] correct?

[8] **A:** Yes.

[9] **Q:** Let's turn to the '705 file history  
[10] and I want to turn you to tab 19. Specifically,  
[11] I'd like to turn you to pages 6 and 7 of tab 19,  
[12] which are APBU551 and 552.

[13] Are you there?

[14] **A:** Yes.

[15] **Q:** And at the bottom of page 551, Burst  
[16] is discussing the Izeki reference, correct?

[17] **A:** Yes.

[18] **Q:** And that discussion goes on to page  
[19] 7, APBU552, right?

[20] **A:** Yes.

[21] **Q:** And on page 7 or page 552 depending  
[22] on what page number you're using, they state that,  
[23] "Element 80 of Izeki, et al., cited by the  
[24] Examiner as being the equivalent of Applicant's  
[25] claimed output means is nothing more than an

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*Hemami*

[1] interface to a storage device such as a magnetic  
[2] tape," right?

[4] **A:** Yes.

[5] **Q:** And then they say, "Neither  
[6] Interface 80 of Izeki et al. nor any other element  
[7] described in that reference has the capability of  
[8] the Applicant's specifically claimed output means  
[9] to serially transmit a time compressed  
[10] representation," and it goes on.

[11] Do you see that?

[12] **A:** Yes.

[13] **Q:** Now, I'd like to turn you to tab 25.

[14] **A:** Is it important that this material  
[15] stays —

[16] **Q:** In order?

[17] **A:** Yes.

[18] **Q:** It is so let me give you a flag.  
[19] Would that help?

[20] **A:** Yes.

[21] **MR. PAYNE:** Has something  
[22] changed? The order wasn't changed,  
[23] right?

[24] **THE WITNESS:** No, he just  
[25] wants me to flip and my concern is do

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*Hemami*

[1] I still need this open and if I do,  
[2] then do I take it out and things will  
[3] get out of order, so I'll just flag  
[4] along the side of the page.

[6] **MR. BROWN:** Do you want —

[7] **MR. PAYNE:** I'm fine. Which  
[8] tab again, please?

[9] **MR. BROWN:** So we were at tab  
[10] 19. We're going to go to tab 25.

[11] **MR. PAYNE:** Request to  
[12] withdraw.

[13] **MR. BROWN:** I make the request  
[14] to withdraw.

[15] **Q:** Tab 32. And tab 32 is at page 8.  
[16] Are you there?

[17] **A:** Yes.

[18] **Q:** So here Burst states very directly  
[19] in the last paragraph, "Izeki teaches a  
[20] compression technique without transmission,"  
[21] correct?

[22] **A:** Yes.

[23] **Q:** So would you agree that during the  
[24] file history, the applicant told the Patent Office  
[25] on at least two occasions that the Izeki reference



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**Hemami**

[1]  
[2] did not show transmission in the sense that they  
[3] were using that word?  
[4] **A:** And the two occasions being —  
[5] **Q:** The one that we're looking at in  
[6] tab —  
[7] **A:** This page 8.  
[8] **Q:** Page 8, APBU620.  
[9] **A:** Yes.  
[10] **Q:** And the one that we were looking at  
[11] earlier, give me a moment, which is at page  
[12] APBU552.  
[13] **A:** Okay. And the only question I have  
[14] here is the one that I referred to — where did we  
[15] decide that was?  
[16] **Q:** Sure. Let's find that one, too, and  
[17] we'll flag it. That one is, I think, tab 37 at  
[18] page 15.  
[19] (Pause)  
[20] **A:** Can someone just hand me some  
[21] stickies?  
[22] **Q:** There you go. So let me know when  
[23] you're ready and I'll ask you the question again.  
[24] **A:** Yes. Hang on. That's a yes, I'll  
[25] let you know.

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**Hemami**

[1]  
[2] **Q:** Okay.  
[3] **MR. PAYNE:** Let's try to keep  
[4] those in order.  
[5] **THE WITNESS:** I know. Well,  
[6] they have the, the Bates numbers on  
[7] them so somebody can sit and go  
[8] through them.  
[9] **MR. PAYNE:** Okay.  
[10] **MR. BROWN:** Not it. Actually,  
[11] I asked for the originals of the  
[12] exhibits and, Les, it's probably me.  
[13] **Q:** All right. Let me know when you're  
[14] ready, Dr. Hemami.  
[15] **A:** I will do.  
[16] **MR. PAYNE:** I'm sorry, Nick.  
[17] You just wanted her to review these  
[18] things?  
[19] **MR. BROWN:** The question that  
[20] was pending which I will repeat but I  
[21] don't want to disturb her.  
[22] (Pause)  
[23] **A:** Okay. So, now, could you please  
[24] repeat the question?  
[25] **Q:** Yes. The question is it is correct

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**Hemami**

[1]  
[2] that Burst told the Patent Office on more than one  
[3] occasion that Izeki did not teach transmission in  
[4] the sense that they were using that word in the  
[5] claims, correct?  
[6] **MR. PAYNE:** Objection. Form.  
[7] **A:** So we have delineation with respect  
[8] to transmission means, we have a general statement  
[9] regarding Izeki teaches compression without  
[10] transmission and then we have a statement relative  
[11] to output means, I believe. Is that true?  
[12] **Q:** I think the first one you were  
[13] referring to is page APBU652.  
[14] **A:** Yes.  
[15] **Q:** Where it says that both the  
[16] transmission — I guess — it doesn't use the word  
[17] "both." It says, "It is not analogous to the  
[18] transmission means or transmission step of the  
[19] claimed invention."  
[20] **A:** Yes.  
[21] **Q:** So they're saying that transferring  
[22] edited files to a master tape is not analogous to  
[23] transmission, either transmission means or  
[24] transmission step, correct?  
[25] **A:** Yes.

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**Hemami**

[1]  
[2] **Q:** And at least on APBU620, they state  
[3] without reservation, that Izeki does not teach  
[4] transmission, correct?  
[5] **A:** Yes.  
[6] **Q:** And on page 552, they state that,  
[7] "Neither Interface 80 of Izeki nor any other  
[8] element described in that reference has the  
[9] capability of Applicant's specifically claimed  
[10] output means to serially transmit a time  
[11] compressed representation," right?  
[12] **A:** Yes.  
[13] **Q:** So with all of those statements in  
[14] mind, do you agree that the applicants told the  
[15] Patent Office clearly what was disclosed in Izeki  
[16] was not the transmission that they were claiming?  
[17] **A:** Yes.  
[18] **MR. PAYNE:** Objection to form.  
[19] **Q:** Let's look at the Izeki reference  
[20] now. Do you have the Izeki reference in front of  
[21] you?  
[22] **A:** I do.  
[23] **Q:** Can you tell me the exhibit number  
[24] on it?  
[25] **A:** 88.

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*Hemami*

- [1]
- [2] **Q:** Thank you. I'd like you to turn to
- [3] column 2 of the Izeki reference.
- [4] **A:** Okay.
- [5] **Q:** In column 2, it describes or it
- [6] refers to — well, there's a paragraph that starts
- [7] at line 47 in column 2. Do you see that?
- [8] **A:** A conversion unit?
- [9] **Q:** Right.
- [10] **A:** Yes.
- [11] **Q:** And it states that, "That conversion
- [12] unit 46 compresses the inputted video and/or audio
- [13] data to the prescribed data format." Do you see
- [14] that?
- [15] **A:** Yes.
- [16] **Q:** And it then states, "One example of
- [17] such a conversion unit is described in scene
- [18] adaptive coder." Do you see that?
- [19] **A:** Yes.
- [20] **Q:** That's the paper that we were
- [21] looking at earlier today?
- [22] **A:** Yes.
- [23] **Q:** And that paper describes an
- [24] intra-frame image compression technique, correct?
- [25] **A:** A still image compression technique,

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*Hemami*

- [1] yes.
- [2] **Q:** And that paper also describes
- [3] applying that still image compression technique to
- [4] NTSC video?
- [5] **A:** The paper gives the resulting data
- [6] rate that would ensue at .4 bits per pixel for
- [7] digitized NTSC video.
- [8] **Q:** So it refers at least to using that
- [9] compression algorithm on NTSC video, correct?
- [10] **A:** Yes.
- [11] **Q:** All right.
- [12] **A:** Now, this patent is not video.
- [13] **Q:** Izeki is not video in your opinion?
- [14] **A:** It is not what we are considering to
- [15] be video.
- [16] **Q:** And that's because you believe it's
- [17] limited to still images?
- [18] **A:** It is.
- [19] **Q:** Did you look at column 3 at line 38
- [20] through 40 where it refers to using a television
- [21] camera to generate a video signal?
- [22] **A:** Yes.
- [23] **Q:** Ordinarily, when a television camera
- [24] generates a video signal, is that video in the
- [25]

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*Hemami*

- [1] sense of full motion video?
- [2] **A:** At the time that this patent was
- [3] written, the term "video" was used in what is best
- [4] described as "a sloppy manner."
- [5] If a television camera was the
- [6] mechanism that was used to pick up a still image
- [7] and get it into a format which could be digitized,
- [8] okay, so think about when we take a picture with a
- [9] camera we have to go scan it, a television camera
- [10] provides outputs.
- [11] So from the standpoint of not having
- [12] to develop film and then process the film, at
- [13] this, in this time period, people used, it was
- [14] common to use television cameras and then, to
- [15] acquire a still image. That television output
- [16] signal would be digitized and that would produce a
- [17] digital still image, albeit a low resolution image
- [18] relative to what one would get from scanning.
- [19] So having said that, any time I read
- [20] a paper or a patent of a certain age and the word
- [21] "video" is used, one of the first things that I do
- [22] is a reality check on do they mean video as in a
- [23] sequence of frames at at least 24 frames per
- [24] second conveying full motion which, I think, today
- [25]

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*Hemami*

- [1] is the colloquial understanding of video, as well
- [2] as certainly the technical meaning of video and
- [3] our understanding of video in this litigation or
- [4] were they using video in a sloppy manner to refer
- [5] to really what was a still image.
- [6] You know, and similarly, of course,
- [7] that still image could be displayed on a
- [8] television signal so, on a television set. It
- [9] would go into the video-in line but just like when
- [10] we pause a VCR tape, that, that is a still
- [11] non-moving image that the set is displaying.
- [12] **Q:** But the signal generated by a
- [13] television camera is a moving signal, correct?
- [14] It can be — you can capture a still
- [15] image from a television camera signal, correct?
- [16] **MR. PAYNE:** Objection to form.
- [17] **A:** The process, for example, of
- [18] digitizing the signal coming off of a television
- [19] camera in 1/30th of a second or if your subject
- [20] doesn't move and you have a slow A to D, you can
- [21] obviously take longer, capturing a still image
- [22] using a television camera. So it's essentially a
- [23] capture device.
- [24] **Q:** But you'd agree that a television
- [25]

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[1] Hemami

[2] camera provides a moving video signal, correct?

[3] A: Only if the subject matter is moving

[4] and you are watching the output of the camera as

[5] video plugged into a TV set or you record it on

[6] your Handycam and then go stick the tape into some

[7] appropriate device.

[8] Q: But if you had a television camera

[9] hooked up to, say, a television and your subject

[10] was moving, the television camera would be

[11] providing a moving video signal, right?

[12] A: If the TV camera was operating

[13] properly and was hooked up to a camera, right —

[14] when I wave at the camera, he probably sees me on

[15] some display. Maybe you don't. Yes, he does.

[16] Okay.

[17] Q: So a television camera is a camera

[18] that's capable of generating a moving signal,

[19] correct?

[20] A: It is capable of generating a video

[21] signal which represents full motion video, how's

[22] that, which can represent full-motion video.

[23] MR. BROWN: We should probably

[24] change the tape.

[25] THE VIDEOGRAPHER: The time is

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[1] Hemami

[2] now 3:59. This marks the ending of

[3] tape number four. Off the record.

[4] (Recess taken)

[5] THE VIDEOGRAPHER: The time is

[6] now 4:09 p.m. This marks the

[7] beginning of tape number five. On the

[8] record.

[9] BY MR. BROWN:

[10] Q: Have you reviewed the — well, let

[11] me step back.

[12] Do you recall yesterday that

[13] Mr. Halpern testified that a microprocessor in the

[14] 1988 time frame that, such as the ones described

[15] in the Burst patents could not have compressed the

[16] video that's described in the '995 patent?

[17] Do you remember that generally?

[18] MR. PAYNE: Objection to form.

[19] Q: In fact, that, we can just use that

[20] to set the stage.

[21] The question I have for you is have

[22] you done any analysis to determine whether a

[23] microprocessor in the 1988 time period could have

[24] compressed video that, as it's described in column

[25] 4 of the '995 patent?

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[1] Hemami

[2] And an important qualifier, in real

[3] time, so clearly compression could have been done

[4] if you had infinite time. My question is —

[5] A: So as described in column 4. So —

[6] Q: So there's a data rate given there

[7] of 1.89 megabits per frame at column 4 at line 51,

[8] right?

[9] A: Okay.

[10] Q: And that's, I believe we did not

[11] check that math —

[12] A: Yes, we were going to.

[13] Q: But that's, we assumed that that was

[14] correct and that's at least what the patent says

[15] is the, if you multiply that by 30 that gives you

[16] between 50 and 60 megabits per second data rate

[17] for the raw video as it is captured. Is that

[18] correct?

[19] A: Yes.

[20] Q: Okay. Were the micro processors of

[21] the 1988 capable of compressing that much data in

[22] real time?

[23] A: No.

[24] Q: If one is going to make or use —

[25] let's take a step back.

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[1] Hemami

[2] Are you familiar with the term "a

[3] live transmission" or "a live broadcast"?

[4] A: Certainly I've heard that term used.

[5] Q: Okay. And you understand "live" to

[6] refer to transmitting something at the same time

[7] as it's occurring. Is that right?

[8] A: I think it's a little more general

[9] than that. Certainly "Seinfeld" is not being

[10] acted at the time that the UPN Network is

[11] broadcasting it but —

[12] Q: But, but I don't think "Seinfeld" is

[13] a live show, do you? It's not broadcast live?

[14] A: So what I'm trying to understand is

[15] what is your definition of "live" then because I

[16] have several understandings of what "live" can

[17] mean in the context of transmission.

[18] Q: Why don't you tell me what you think

[19] "live" means in the context of transmitting a

[20] video signal?

[21] A: Well, I believe "live" has two

[22] meanings. One of them is the action is occurring

[23] immediately. All we have is the propagation delay

[24] so sports, for example, we hope, are an example of

[25] a live transmission.

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**Hemami**

[1]  
[2] The second, I think, is sometimes  
[3] used in the context of simply broadcasting as  
[4] opposed to — so we're watching live TV as opposed  
[5] to TV off of a TiVo or a VCR where that TV could  
[6] simply be HBO or sports.

[7] **Q:** Okay. So in that second sentence,  
[8] it's just any television that hasn't been  
[9] previously recorded on a TiVo or a VCR, is that  
[10] right?

[11] **A:** So essentially it's being viewed at  
[12] the same instant minus the propagation delay that  
[13] the broadcaster is putting it either over the air  
[14] or over the cable.

[15] **Q:** Okay. Let's go to the '995 patent  
[16] at column 10, at lines 6 and 7. There's a  
[17] sentence which reads, "In the case of video camera  
[18] input at input 15 the transmitted signals may  
[19] comprise a live transmission."

[20] Do you see that?

[21] **A:** Yes.

[22] **Q:** In that context, do you understand  
[23] "live" to be referring to transmitting at the same  
[24] time as the actions that are being recorded are  
[25] occurring?

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**Hemami**

[1] **A:** So here, no. And I have always  
[2] found this an odd use of the term "live  
[3] transmission" because the Burst patents describe  
[4] transmitting the entire file, whatever that file  
[5] represents, a movie or a song or whatever we,  
[6] whatever audio/video source information we wish to  
[7] transmit at once, all at once, not in some  
[8] sequence of transmissions, such as, for example,  
[9] we see in some of the cited prior art.

[10] So I have never understood exactly  
[11] what that was supposed to mean given that in order  
[12] to burst the program, one must have a file  
[13] representing the program and one is not going to  
[14] have a file representing the program until the  
[15] program is finished in the context of how these,  
[16] the operation in these patents is, is described.

[17] **Q:** You said that the Burst patents  
[18] describe transmitting the, I think you said the  
[19] entire file at once, all at once. Is that right?

[20] **A:** If that's what I said, then that's  
[21] what I said.

[22] **Q:** Do you agree that that is what they  
[23] describe?

[24] **A:** I believe that is what they  
[25]

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**Hemami**

[1] describe. They describe bursting or sending —  
[2] how can I put this? So let me contrast it with,  
[3] rather than saying "all at once."

[4] Let's not talk about a single  
[5] transmission. Let's instead talk about  
[6] transmission duration where transmission duration  
[7] is defined as the very second the first bit goes  
[8] out.

[9] It may be part of a packet or  
[10] something else but at some point, we start a stop  
[11] watch, okay, the first bit goes out. And at some  
[12] later point, the last bit is received, okay? And  
[13] maybe we should time, let's time it from the  
[14] reception. So we receive a first bit and then we  
[15] receive the last bit and we stop the stop watch.

[16] My understanding of these patents is  
[17] that provided that the time on the stop watch is  
[18] shorter than what we call "the duration" or "the  
[19] length" of the program, then a burst transmission  
[20] has been accomplished. So let me back off on this  
[21] all at once. I think that's all unclear.

[22] The burst transmission is defined,  
[23] not in terms of, I think, my erroneous first  
[24] characterization, but it's defined in terms of a  
[25]

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**Hemami**

[1] shorter time period or in the case of the '705, a  
[2] substantially shorter time period than the time  
[3] period associated with the real-time  
[4] representation of the audio/video source  
[5] information.

[6] **Q:** But you do agree that the Burst  
[7] patents require you to transmit the entire file in  
[8] that shorter time period, correct?

[9] **A:** What is transmitted in the shorter  
[10] time period is whatever the file represents. I  
[11] think there are disagreements on what that may be.  
[12] But whatever is represented is transmitted in a  
[13] shorter time period than its — from start to end  
[14] of the, of the transmission.

[15] **Q:** Let's look at the '839 patent and  
[16] let's take claim 1.

[17] If you look at the final element  
[18] there, it refers to transmitting the stored time  
[19] compressed representation. Do you see that?

[20] **A:** Yes.

[21] **Q:** So what's ultimately transmitted by  
[22] claim 1 of the '839 patent is the stored time  
[23] compressed representation, correct?

[24] **A:** Yes.  
[25]



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*Hemami*

- [1]
- [2] **Q:** And that's what you were referring
- [3] to earlier as the entire file that you wind up
- [4] transmitting. Is that right?
- [5] **A:** The file that is — yes. When I
- [6] discussed whatever was transmitted, I was
- [7] referring to the stored time compressed
- [8] representation.
- [9] **Q:** So what's transmitted is a
- [10] representation of the original audio/video source
- [11] information, correct?
- [12] **A:** Yes.
- [13] **Q:** Okay. And what's stored is also a
- [14] representation of the original audio/video source
- [15] information, right?
- [16] **A:** Yes.
- [17] **Q:** And the claim requires that what is
- [18] transmitted be the same information, in fact, the
- [19] same representation that was stored, correct?
- [20] **A:** Yes.
- [21] **Q:** In your view, can the storing step
- [22] and the transmitting step of the '839 patent be
- [23] happening at the same time or in overlapping time
- [24] periods?
- [25] **A:** The short answer to that question is

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*Hemami*

- [1] "yes."
- [2]
- [3] **Q:** Okay. Do you believe that the
- [4] storing step has to be completed before the
- [5] transmitting step is finished?
- [6] **MR. PAYNE:** Objection to form.
- [7] **A:** I don't believe that there is a
- [8] requirement for that to occur but certainly it's,
- [9] it, the machine wouldn't break if we did that, if
- [10] we did that.
- [11] **Q:** Okay. How then would you transmit a
- [12] stored time compressed representation if you
- [13] hadn't finished storing it?
- [14] **A:** Well, transmission, whether it's
- [15] slow or fast, takes time.
- [16] So if you imagine that we have bits
- [17] in storage and this is the first bit that we wish
- [18] to transmit, okay, we can, because we are going to
- [19] read these bits out sequentially, okay, in some
- [20] manner, whatever is appropriate for our modulation
- [21] technique, as long as, by the time my readout
- [22] pointer gets to — as long as there is valid data
- [23] where my readout pointer points when it gets to
- [24] that location, I can happily transmit away.
- [25] Now, what we don't want to occur is

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*Hemami*

- [1]
- [2] that I start storing and, of course, also we do
- [3] not do an instant — when we store to memory,
- [4] there's a bus of a certain width, right? We
- [5] cannot write all hundreds of megabits or however
- [6] many we have instantaneously, right? We have to
- [7] put them over the bus. The bus has a speed. The
- [8] bus has a width.
- [9] We can figure out that there's going
- [10] to be some amount of time to write the material to
- [11] memory. So while we are writing to memory, we
- [12] just, you know, we need to make sure that we're
- [13] not going to, in the amount of time it takes for
- [14] us to clock things out, hit something that we
- [15] haven't yet written.
- [16] **Q:** So in other words, you want to have
- [17] finished storing the file before you transmit the
- [18] last bit of the file, right?
- [19] **A:** No, that's not what I said. Perhaps
- [20] you can rephrase so I'm sure I understand what you
- [21] just said.
- [22] **Q:** Imagine you have a file that has —
- [23] I'm going to make this very simple — three
- [24] pieces, three bits.
- [25] You store the first bit and it takes

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*Hemami*

- [1]
- [2] you 10 seconds to do that and then you store the
- [3] second bit and it takes you 10 seconds to do it
- [4] and you store the third bit and it takes you 10
- [5] seconds to do that. So at the end of 30 seconds,
- [6] you've stored your three bits.
- [7] Are you with me so far?
- [8] **A:** I am.
- [9] **Q:** Now, suppose it's going to take you
- [10] 10 seconds. Well, let's make it 15 seconds.
- [11] Suppose it's going to take you 15 seconds to
- [12] transmit those three bits.
- [13] **A:** Yes.
- [14] **Q:** Could — when could you start
- [15] transmitting?
- [16] **A:** I would have to write a math
- [17] equation. Let's see if I can do this for you in
- [18] my head. So —
- [19] **Q:** I have a pencil and I have a piece
- [20] of paper.
- [21] **A:** I have a pen and more stickies than
- [22] you.
- [23] **Q:** Okay. Go ahead.
- [24] **A:** So in your scenario, at the end of
- [25] the first 10 second period, we have written 1 bit

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*Hemami*

[1] to memory.  
[2] **Q:** Right.  
[3] **A:** Okay? Now. As soon as — so I'm  
[4] going to speak out loud and then I'm going to  
[5] correct —  
[6] **Q:** That's fine.  
[7] **A:** — whatever.  
[8] Let's just, let's imagine the  
[9] scenario where we have written the first bit to  
[10] memory so now we're 10 seconds in.  
[11] **Q:** Right.  
[12] **A:** I immediately start transmitting  
[13] that bit, okay? And we can see this is going to  
[14] work in this scenario because in 15 seconds, the  
[15] transmission is ready for the next bit.  
[16] No, actually, we're fine because  
[17] after that 15 seconds, the 10 seconds it took to  
[18] write the second bit has put the second bit in  
[19] memory. So we're just fine.  
[20] **Q:** Well, you changed my hypothetical  
[21] slightly.  
[22] **A:** Oh, no, I misunderstood you.  
[23] **Q:** That's okay. I said that you needed  
[24] 15 seconds to transmit all 3 bits so 5 seconds per  
[25]

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*Hemami*

[1] bit.  
[2] **A:** So you want it at 5 seconds per bit.  
[3] Okay. Okay. I'm sorry. I misunderstood.  
[4] **Q:** Because, otherwise, I agree with  
[5] you. It's trivial.  
[6] **A:** Okay. Yes. I think that maybe the  
[7] analogy here is if you are TiVo'ing a program live  
[8] and you go to the kitchen to get some food and you  
[9] come, and you pause and you come back and you hit  
[10] fast forward.  
[11] You can't fast forward past what's  
[12] received, right? And to some extent, the  
[13] fast-forwarding is the same as the transmission  
[14] when we're transmitting fast. It's eating the  
[15] data up quickly.  
[16] So we sort of need to make sure we  
[17] have enough that as we eat it up quickly, we're  
[18] still going to fill in the back end such that when  
[19] we sweep to the end of the file, we have enough.  
[20] **Q:** Right. So in other words, in the  
[21] hypothetical that I gave —  
[22] **A:** The correct one or my incorrect  
[23] interpretation?  
[24] **Q:** If it only takes you 5 seconds to  
[25]

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*Hemami*

[1] transmit a bit, then you have to have written —  
[2] you're going to be able to transmit all 3 bits in  
[3] 15 seconds, right?  
[4] **A:** That's right.  
[5] **Q:** It's going to take you 20 seconds to  
[6] write the last 2 bits, right?  
[7] **A:** That's right.  
[8] **Q:** So if you write — start  
[9] transmitting after you've only written 1 bit, you  
[10] will have get to the end before you finish?  
[11] **A:** You will transmit garbage, yes.  
[12] **Q:** You will transmit garbage. And  
[13] would that transmission of garbage fall within the  
[14] scope of the claims as you understand them?  
[15] **A:** No.  
[16] **Q:** Okay. So as you understand it, you  
[17] do have to have completed storing the bits that  
[18] form the time compressed representation before you  
[19] finish the transmission of those bits, right?  
[20] **A:** Oh, clearly, you have to store it  
[21] before you transmit it. Is that —  
[22] **Q:** That's what I'm asking you.  
[23] **A:** The bits that are accessed  
[24] instantaneously by the transmission unit must be,  
[25]

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*Hemami*

[1] in order for live to be good, valid bits. So when  
[2] we say — see I think when you say "completed  
[3] storing," this is a bit of a vague term.  
[4] We must, we must only transmit bits  
[5] that have been written. So we could say that bit  
[6] has completed storing but I would not say that the  
[7] representation has completed storing because to  
[8] me, the representation connotes the entire file  
[9] that ends up being transmitted.  
[10] **Q:** When you write the last bit of the  
[11] representation to storage, that's the point in  
[12] time when you've completed storing the  
[13] representation, correct?  
[14] **A:** I agree with that statement.  
[15] **Q:** If you are trying to transmit that  
[16] last bit before it's been written to storage, you  
[17] are going to end up with garbage, right?  
[18] **A:** That's right.  
[19] **Q:** And it doesn't make sense to talk  
[20] about doing that in the context of the claims in  
[21] the Burst patents, right?  
[22] **A:** I think I understand where you're  
[23] going.  
[24] **Q:** It's true, therefore, that the  
[25]

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[1] **Hemami**  
[2] transmission step of the claims cannot end prior  
[3] to the time at which the storing step ends,  
[4] correct?

[5] **A:** Yes, that is correct. We would like  
[6] the storing pointer and the transmission pointer  
[7] to terminate at the same time and in appropriate  
[8] order such that we appropriately latch the last  
[9] bit of information and the last bit that is  
[10] transmitted is valid.

[11] **Q:** Now, I believe you mentioned prior  
[12] art patents that talk about sending pieces of  
[13] audio/video data in an earlier answer.

[14] Do you remember that generally?

[15] **A:** Yes.

[16] **Q:** And, in fact, now, we're going to go  
[17] back to the file history and it's going to be the  
[18] second tab there, the second marker you have.

[19] **A:** The second yellow?

[20] **Q:** Page 620.

[21] **A:** Okay.

[22] **MR. PAYNE:** I'm sorry, where  
[23] are we, Nick?

[24] **MR. BROWN:** '705 file history,  
[25] page 620 which is tab 22.

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[1] **Hemami**  
[2] **Q:** And if you look, there's a sentence  
[3] that describes Haskell and Hamilton. Do you see  
[4] that?

[5] **A:** Yes.

[6] **Q:** And it says, "Haskell and Hamilton  
[7] teach a system for time-compression multiplexing  
[8] so that multiple clients can receive audio/video  
[9] information in real time." Do you see that?

[10] **A:** Yes.

[11] **Q:** In Haskell, individual pieces of a  
[12] program are time compressed and transmitted faster  
[13] than real time but the entire program is still  
[14] transmitted in real time, correct?

[15] **A:** Yes.

[16] **Q:** And that is what the sentence here  
[17] is referring to, correct?

[18] **A:** Yes.

[19] **Q:** If you turn the page, there's a  
[20] sentence, "System designers did not recognize that  
[21] time compressed representations could be sent in a  
[22] burst time period that is shorter than the time  
[23] period needed for real-time viewing by a  
[24] receiver." Do you see that?

[25] **A:** Yes.

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[1] **Hemami**  
[2] **Q:** And then it goes on to say that,  
[3] "Sending time compressed representations to a  
[4] receiver can add a new variable consumption rate  
[5] to the equation," and points out that in that  
[6] scenario, when you send a time compressed  
[7] representation, when the clients pause or rewind  
[8] videos, less information may need to be sent.

[9] Do you see that?

[10] **A:** Yes.

[11] **Q:** The point that is being made there  
[12] is that in a Haskell system where you send a small  
[13] piece faster than real time but you only send the  
[14] entire program in real time, if someone were to  
[15] hit "pause," you would have to keep or rewind, you  
[16] would have to resend information that you'd  
[17] already sent, correct, and that would take more  
[18] data?

[19] **A:** I, I don't know what this means.

[20] **Q:** Well, bear with me and tell me if  
[21] you agree with what I think it means, okay?

[22] Imagine the situation where you have  
[23] a program broken into ten pieces, okay? And you  
[24] send each one of those ten pieces in an amount of  
[25] time that is shorter than the time that it would

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[1] **Hemami**  
[2] take to view that piece.

[3] Are you with me so far?

[4] **A:** Yes.

[5] **Q:** But you pause after sending each  
[6] piece.

[7] **A:** Who is "you"?

[8] **Q:** The transmitter.

[9] **A:** The transmitter pauses after sending  
[10] each piece?

[11] **Q:** And waits to send the next piece  
[12] until the viewer is ready to view that piece. And  
[13] the viewer is viewing it in real time. So  
[14] suppose —

[15] **A:** How does it know that the viewer is  
[16] ready?

[17] **Q:** Because it knows how long each  
[18] segment is. Let's say each segment is ten  
[19] segments long and it can be sent in one second.  
[20] It would send a piece in one second, wait nine  
[21] seconds and then send another piece in one second.

[22] Does that make sense to you?

[23] **A:** Okay.

[24] **Q:** So the viewer at the viewing end can  
[25] watch that video in real time because by the time