

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMCAST CABLE)
COMMUNICATIONS, LLC)
Petitioner,)
vs.)
ENTROPIC COMMUNICATIONS, LLC,)
Patent Owner.)

Case IPR2024-00441

Case IPR2024-00442

Patent No. 8,792,008

Patent No. 9,825,826

Deposition of David Lett

October 8, 2024

9:04 a.m.

Reported by: Bonnie L. Russo

Job No. 6945802

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Page 2 1 Deposition of David B. Lett held at: 2 3 4 5 6 Banner Witcoff 7 1100 13th Street, N.W. 8 Suite 1200 9 Washington, D.C. 20005 10 11 12 13 14 15 16 17 18 Pursuant to Notice, when were present on behalf 19 of the respective parties: 20 21 22	Page 4 1 C O N T E N T S 2 EXAMINATION OF DAVID B. LETT PAGE 3 BY MR. GALLUZZO 5 4 5 6 EXHIBITS 7 Exhibit 2011 Drawing 162 8 Exhibit 2012 Drawing 169 9 10 11 PREVIOUSLY MARKED EXHIBITS: 12 Exhibit 1002 Declaration of 117 13 David B. Lett 14 US 8,792,008 15 16 Exhibit 1009 Kamieniecki Reference 56 17 18 Exhibit 1010 Konstantinos Reference 136 19 20 Exhibit 1011 Renken Reference 144 21 22 (Exhibits bound separately.)
Page 3 1 APPEARANCES: 2 On behalf of the Petitioner: 3 PAUL T. QUALEY, ESQUIRE 4 FREDERIC M. MEEKER, ESQUIRE 5 STEVE S. CHANG, ESQUIRE 6 BANNER WITCOFF 7 1100 13th Street, Suite 1200 8 Washington, D.C. 20005 9 pqualey@bannerwitcoff.com 10 fmeeker@bannerwitcoff.com 11 schang@bannerwitcoff.com 12 13 On behalf of the Patent Owner: 14 VINCENT GALLUZZO, ESQUIRE 15 K&L GATES, LLP 16 300 South Tryon Street, Suite 1000 17 Charlotte, North Carolina 28202 18 vincent.galluzzo@klgates.com 19 20 -and- 21 22 NATHAN FULLER, ESQUIRE 23 K&L GATES, LLP 24 70 West Madison Street, Suite 3300 25 Chicago, Illinois 60602 26 nathan.fuller@klgates.com 27 28 29 30 31 32	Page 5 1 P R O C E E D I N G S 2 (9:04 a.m.) 3 4 DAVID B. LETT, 5 was called for examination by counsel and, 6 after having been duly sworn by the Notary, was 7 examined and testified as follows: 8 9 EXAMINATION BY COUNSEL FOR PATENT OWNER 10 BY MR. GALLUZZO: 11 Q. Good morning, Mr. Lett. 12 A. Good morning. 13 Q. Could you please state your full 14 name for the record. 15 A. David Lett. 16 Q. Do you have a middle name? 17 A. Bradley. 18 Q. And where do you currently reside? 19 A. Duluth, Georgia. 20 Q. Today, we are taking a deposition in 21 two different IPRs. We have agreed to 22 consolidate the deposition for both IPRs. I'm

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Page 6 1 going to refer to them as the '008 and the '826 2 IPR. 3 Does that make sense to you? 4 A. Sure. 5 Q. I see in front of you, you have 6 copies of your declarations in both of those 7 IPRs and it looks like all the exhibits. We 8 also have copies of all of that, so if there is 9 anything you want to refer to in answering any 10 of my questions today that you don't have, just 11 ask. 12 A. Okay. Thank you. 13 Q. Also, I will do my best to ask you 14 questions generally that will apply to both 15 IPRs. 16 If your answer would be different 17 for one IPR or one patent over the other, can 18 you specify that for me? 19 A. I think so, yes. 20 Q. And if I am asking you about a 21 specific IPR as opposed to the other, I will 22 try to specify as well, but in case I don't, if	Page 8 1 although you probably know them. I'm going to 2 try to go maybe an hour between breaks, but if 3 you need a break sooner, please feel free to 4 ask. 5 I'm going to try to ask clear 6 questions. If you don't understand my 7 questions, can you ask for clarification? 8 A. Yes. 9 Q. And the official report of the 10 deposition is going to be a written one, so I 11 just ask that we try not to talk over each 12 other and that also you give verbal answers to 13 my questions. Is that okay? 14 A. Yes. 15 Q. All right. I would like to first 16 start by talking about your background. Feel 17 free to review your CV if you need to in 18 answer, but I would like to talk generally 19 about development of set-top boxes or STBs. 20 Are you familiar with the 21 development of set-top boxes? 22 A. Yes.
Page 7 1 my question doesn't make sense, will you ask me 2 for clarification? 3 A. Yes. 4 Q. Have you been deposed before? 5 A. Yes. 6 Q. How many times? 7 A. Maybe -- maybe five or so. 8 Q. Have you testified at trial before? 9 A. I testified in an arbitration, so I 10 don't know if that is considered a trial or 11 not, but I did that. 12 Q. When was the last time you testified 13 either at deposition or in trial? 14 A. Let's see. I can't remember if it 15 was like the latter part of last year or the 16 first of this year. I can't remember, but I 17 did one, you know, within a year. 18 Q. For today's deposition, is there any 19 reason why you can't give full, fair and 20 accurate testimony here today? 21 A. No. 22 Q. Just a couple of ground rules	Page 9 1 Q. Do you have experience in that? 2 A. Yes. 3 Q. How much experience? 4 A. 27 years, I think. 5 Q. How many set-top boxes have you been 6 involved in the design of? 7 A. It is hard to say. Many generations 8 of set-top boxes at Scientific Atlanta and 9 Cisco and also satellite set-top boxes at 10 EchoStar for addition at work, and also the 11 business entity of -- it was a separate 12 business in Mexico, I think, and Brazil, that 13 were perhaps joint ventures but basically, they 14 had the dish name. 15 Q. Would you consider that all 16 EchoStar? 17 A. Yes. 18 Q. If I remember right, was that all 19 after 2011? 20 A. I started at EchoStar in 2011, yes. 21 Q. While you were at EchoStar for that 22 first year in 2011, did you work on the

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Page 10 1 development of any set-top boxes? 2 A. Let me just double-check -- 3 Q. Please. 4 A. -- my date here on my resume to make 5 sure I got that correct. I want to make sure 6 it is perfectly accurate. 7 Yeah, in 2011, I worked on some 8 set-top boxes at EchoStar. 9 Q. Did you work on the ground-up 10 development of any set-top boxes in that year? 11 A. I'm not sure what you mean by 12 ground-up development. I participated and led 13 an organization in the design of new products, 14 if that's what you mean. 15 Q. Sure. What new products did you 16 work on or assist in the design of in 2011? 17 A. I don't remember what I worked on in 18 2011 at Cisco, because I did go straight from 19 Cisco to EchoStar. I had a month break. 20 I don't remember exactly what I was 21 working on my last -- during 2011 at Cisco 22 exactly. Perhaps if I thought about it more, I	Page 12 1 boxes. 2 Q. Is it fair if I refer to that 3 product as the 211 product since we don't know 4 the exact name? 5 A. Yes, and again, I may have the model 6 number wrong and if I do, I apologize. 7 Q. That's fine. We'll just use it for 8 identification in discussion today. 9 A. Okay. 10 Q. You said it was a basic box. 11 What did you mean when you said 12 that? 13 A. Essentially, it had the ability to 14 watch and record one channel. 15 Q. Any other reasons it was a basic 16 box? 17 A. Well, when I say "basic," I am 18 talking about in comparison to a more elaborate 19 product. It would have, you know, the ability 20 to tune and record, watch and record multiple 21 channels simultaneously and to have built-in 22 DVR capabilities, although this box did support
Page 11 1 could recall. 2 But at EchoStar, when I first 3 started, I was working on one of the products 4 -- I think the name was 2011 -- 211 I think, 5 and I can't remember exactly the model number. 6 Maybe it was VIP 211. 7 I can find that if I really needed 8 to, if it's important, but basically, a 9 satellite set-top box that was kind of 10 considered a basic box. It had program guide 11 and, you know, the ability to connect an 12 external hard drive for DVR capability, but, 13 yeah, that was the first project I started on 14 at EchoStar. 15 Q. Did you work on any other set-top 16 box projects in 2011 at EchoStar? 17 A. I don't remember. You know, I ran 18 the -- I was in charge of the engineering 19 organization in Atlanta. We had many projects 20 that we were working on simultaneously, so I 21 don't remember exactly, you know, in that time 22 frame, if we were working on other set-top	Page 13 1 DVR with an external hard drive, and it did 2 have a program guide and a full user interface 3 -- graphical user interface supporting all the 4 features of the box. 5 Q. Did the box have analog tuners in 6 it? 7 A. No. 8 Q. Did the box have any kind of tuner 9 in it? 10 A. Yes. 11 Q. What kind of tuner? 12 A. Satellite tuner. 13 Q. How many satellite tuners did it 14 have in it? 15 A. One. 16 Q. For satellite feeds, is there a 17 distinction between in-band and out-of-band 18 frequencies? 19 A. That terminology is not used so much 20 in the satellite world. You know, because the 21 upstream is provided through other means, other 22 than through the satellite in general, like,

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Page 14 1 through Ethernet port through the Internet. 2 Q. For the 211 product, did it use that 3 satellite tuner to support DVR? 4 A. The programs, the videos delivered 5 through the satellite tuner, yes, and you could 6 record that program using the DVR feature if 7 you have an external hard drive connected and, 8 of course, if it was the right compatible hard 9 disk drive. 10 Q. Did the 211 product support 11 simultaneous watching of a channel and 12 recording of a channel? 13 A. I don't remember. I don't remember. 14 Q. Given that it only had one satellite 15 tuner, do you have a guess as to whether it 16 supported it or not? 17 A. I just -- I don't remember. 18 Q. Would it have been possible to 19 support simultaneous watch and record with a 20 single satellite tuner? 21 A. One can watch and record the same 22 channel certainly with that product.	Page 16 1 program. 2 Q. Did the tuner in the 211 product 3 permit the reception and selection of more than 4 one channel? 5 A. Do you mean that -- can I change 6 channels and watch different programs? 7 Q. Yeah, thank you for the 8 clarification. That wasn't what I intended. 9 Did the tuner in the 211 product -- 10 withdrawn. 11 Was the 211 product's tuner able to 12 select and output more than one channel at the 13 same time? 14 A. I don't remember. I'm sorry. 15 Q. Did the 211 product have any 16 monitoring functionality? 17 A. What do you mean by "monitoring 18 functionality"? 19 Q. Could the 211 product run any 20 diagnostic or wellness checks on the satellite 21 channel reception? 22 A. Yes.
Page 15 1 Q. Could one watch and record different 2 channels at the same time with that product? 3 A. I don't remember. 4 Q. Do you have any reason to think 5 today that one could, in fact, watch and record 6 different channels at the same time with that 7 product? 8 A. I don't remember. 9 Q. So you don't have any reason to 10 think that today? 11 A. I said I don't remember. 12 Q. Can you think of any reason -- 13 withdrawn. 14 Can you think of any way that a 15 single satellite tuner could permit 16 simultaneous watching and recording of 17 different channels? 18 A. I think it's possible, yes. 19 Q. How? 20 A. The tuner could receive more than 21 one channel in the same band, let's call it, 22 that includes more than just one television	Page 17 1 Q. What kind of diagnostics or wellness 2 checks? 3 A. There were many, many checks that 4 were supported, you know, having to do with 5 signal level and, you know, which satellites 6 have what performance, reception quality. As 7 far as all the different parameters, I don't 8 remember them all. 9 Q. Let's talk about reception quality. 10 How would the 211 product determine 11 reception quality? 12 A. The tuner would tune to the 13 appropriate transponder or look at the 14 different transponders and different satellites 15 that were supported, and essentially, come up 16 with a metric that indicated how good a quality 17 was being received on those transponders and 18 those satellites. 19 Q. Because the tuner had to tune to 20 that specific transponder or satellite, would 21 that 211 product permit reception quality 22 determinations and user viewing at the same

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Page 18 1 time? 2 A. I don't remember. 3 Q. During the reception quality 4 determinations, was the 211 product tuner 5 occupied? 6 A. What do you mean "occupied"? 7 Q. Was it in use? 8 A. It was in use to tune to the 9 particular transponder and satellite upon which 10 the signal quality determination was being 11 made. 12 Q. If a user wanted to watch a channel 13 through a different transponder or a different 14 satellite, could a user do that at the same 15 time? 16 A. As the same time of -- as what? 17 Q. As the 211 product's tuner had 18 determined reception quality of a different 19 transponder and different satellite. 20 MR. QUALEY: Objection to form. 21 THE WITNESS: I'm a little confused. 22 Would you mind just restating that question.	Page 20 1 different way. 2 Could the 211 product do any two of 3 those three things at the same time? 4 MR. QUALEY: Objection to form. 5 THE WITNESS: I think it could show 6 the video to the user and record that program 7 at the same time. 8 BY MR. GALLUZZO: 9 Q. The same channel, the same program? 10 A. That's what I mean, yes. 11 Q. Let's go a little further back in 12 time to your days at Scientific Atlanta. 13 Did you work on development of any 14 set-top boxes there? 15 A. Yes. 16 Q. How many? 17 A. It's hard to say, you know. I was 18 there for -- from 1990 until 2011 and before 19 that, I was there from 1982 to 1985, so I would 20 say several generations. I can't remember how 21 many generations of set-top boxes that I worked 22 on and led the development of at Scientific
Page 19 1 BY MR. GALLUZZO: 2 Q. Yes. Well, I will give you some 3 background and then I will ask my question. 4 A. Okay. 5 Q. What I am trying to understand is, 6 the 211 product's tuner sounds like it had some 7 functionality, it could give a display to a 8 user of a channel it received from a satellite, 9 it could send a channel to a DVR or at least to 10 a hard drive for DVR purposes, and it could be 11 used to assist in determining reception 12 quality. 13 So here is my question: Could the 14 211 product's tuner do any of those three 15 things -- I'm sorry, any two of those three 16 things at the same time? 17 A. So just for clarification, the tuner 18 by itself could not accomplish any of those 19 things. The software and the processing in the 20 set-top box were needed to accomplish any of 21 those functionalities. 22 Q. Fair enough. I will ask it a	Page 21 1 Atlanta and Cisco, because Cisco bought 2 Scientific Atlanta in 2006. 3 Q. Do you remember any work on the 2100 4 series? 5 A. I remember the 2100, yes. 6 Q. What is the 2100? 7 A. Boy, I am going back in my memory 8 archives here. 9 Actually, it was 2010, right, or -- 10 it was 2010 series? I can't remember. 11 Q. My understanding is it was the 2100 12 series but if you remember it as the 2010 13 series, we can go with that. 14 A. You know, it's been so long ago. 15 For me to testify as to the features and 16 functionalities for a specific model, I just -- 17 I'm sorry. I just don't feel comfortable with 18 that on the record. 19 I, of course, know in general about 20 all the set-top boxes and have memories of some 21 of the functionalities, but to answer your 22 question, I would really like to be totally

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Page 22 1 accurate and I probably would need to think 2 about it and perhaps reference some documents 3 to refresh my memory. 4 Q. Do you remember the 2100 or the 2010 5 series at all? 6 A. Yes. I remember the number. 2010, 7 I certainly remember, and we may have done a 8 2100. I don't remember. 9 Q. What else do you remember about that 10 project? 11 A. I'm sorry. It's been so long ago, 12 that I just don't have much recollection of the 13 features and functionalities or the project. 14 Q. Do you remember whether it had a 15 single tuner or more than one tuner? 16 A. I don't remember. 17 Q. Do you remember whether it had a CAN 18 tuner? 19 A. I don't remember. I don't remember. 20 Q. Do you know what a CAN tuner is? 21 A. Not exactly. Why don't you define 22 that for me.	Page 24 1 of anything else. 2 Q. Do you remember the 8300 series? 3 A. I remember the model number, yes. 4 Q. What else do you remember about it? 5 A. It was a DVR. I remember that. 6 Q. Anything else? 7 A. Not really the specifics of the 8 features and functionalities of the product. 9 Q. Do you remember whether it had two 10 in-band tuners? 11 A. I don't remember. 12 Q. Do you remember whether it had any 13 monitoring functionality? 14 A. I don't remember. 15 Q. Do you remember whether it had 16 silicon tuners? 17 A. I don't remember. 18 Q. Do you remember how long it took to 19 develop the 8300 series? 20 A. I don't remember. 21 Q. Do you remember who was on the team? 22 A. I don't remember.
Page 23 1 Q. You never heard the term CAN tuner? 2 A. I might have, but I don't think it's 3 one that is just -- I would use normally or 4 hear normally. I want to make sure I 5 understand what we are talking about, so that's 6 why I asked you to explain it to me. 7 Q. Do you remember if the 2100 did any 8 channel selection in analog? 9 A. I don't remember. 10 Q. Do you remember if the 2100 had any 11 monitoring functionality? 12 A. I don't remember. 13 Q. Do you remember if the -- or how 14 long the 2100 took to develop? 15 A. I don't remember. 16 Q. Do you remember how many people 17 worked on the 2100 to develop it? 18 A. I don't remember. 19 Q. Other than what you've stated here 20 today, do you remember anything else about the 21 2100? 22 A. At this moment, I can't really think	Page 25 1 Q. What set-top box developments do you 2 remember from your time at Scientific Atlanta? 3 A. I mean, I vaguely remember some of 4 the model numbers and some of the products, but 5 as to the specific model numbers and 6 functionalities, I would need more time to look 7 at documents to refresh my memory I think. 8 Q. Sitting here today, can you remember 9 the amount of time it took to develop any one 10 particular set-top box for any of your projects 11 prior to 2011? 12 A. I mean, in a range of maybe six 13 months to a year from first silicon was kind of 14 the, in general, you know, I could be off a 15 little bit on that, but that's kind of the 16 range of time that it took from -- let's call 17 it first silicon, meaning the chip sets are 18 available to release the product for 19 production. 20 Q. In general, what would you all do in 21 that six to 12 months? 22 A. Well, many activities, including

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Page 26 1 building prototypes and writing software and 2 testing the hardware and the software and 3 preparing for factory tests so that the product 4 could run in production. Perhaps there is a 5 lot more, but that's the basic, you know, kind 6 of activities that were involved. 7 Q. During the six to 12 months of 8 development, was the cost of the product a 9 concern? 10 A. Yes, the cost of the product was 11 very important so that our customers would find 12 the value acceptable, and it was a very 13 competitive sales experience, let's call it, 14 for us to keep the cost down so that our 15 customers would -- could afford a good price. 16 Q. Would you consider your role part of 17 the engineering function, generally speaking? 18 A. Yes, I was VP of engineering at 19 Scientific Atlanta and Cisco. 20 Q. Was there also a separate role for 21 business and sales? 22 A. Yes.	Page 28 1 products or attempting to sell products to our 2 customers, and our customers, in general, let's 3 call it, were the big cable operators, the 4 MSOs, right, like Comcast, Cable Vision, Time 5 Warner, et cetera, and a large part of their 6 decision I think was from which company, 7 whether it be ours or another one, they could 8 purchase many, many, many set-top boxes and 9 achieve their lowest cost for the purchase of 10 those many set-top boxes. 11 So I have trouble answering, you 12 know, specifically how much cost difference 13 would make a big difference, right? So 14 essentially, our job was to try to produce the 15 lowest cost product that we could for the 16 functionality that we were offering. 17 Q. I have heard the statement that -- 18 in this industry, pennies matter. 19 Do you disagree with that statement? 20 A. I think that's a fair statement. 21 Q. So going back to your general 22 development experiences, how many people would
Page 27 1 Q. Did the business or sales functions 2 increase the cost consciousness that you had in 3 your engineering functions? 4 A. I mean, it's hard to say. I mean, 5 it was well-understood that we needed to keep 6 costs down as much as possible and that was 7 always the case, and not only for our margins 8 to be, let's call it as good as it could be, 9 but also for competitive sales prices to our 10 customers. 11 Q. When we're talking about cost 12 consciousness or competitive sales prices, I 13 would like to get a little more precise, so 14 here is my question. 15 On average, prior to 2011, how much 16 difference in price would create a problem 17 either for your engineering function or for the 18 business and sales functions that were 19 involved? 20 A. That's a very difficult question to 21 answer. 22 We had competition that were selling	Page 29 1 be on a team dedicated to developing either a 2 new generation of set-top box or a new model 3 version in that generation? 4 A. Early on, you know, the teams were 5 smaller. As the boxes and the software and the 6 functionality became more complicated, let's 7 say, and also, the testing requirements and the 8 qualification requirements to provide data for 9 our customers so that they could qualify and 10 approve the purchase of our product increased 11 dramatically over the years. 12 So, you know, early on, I probably 13 had teams of maybe -- let's call it on the 14 order of ten, right? Later on, the teams were 15 much, much bigger, like, you know, in the 16 hundreds. That's about as precise as I can be 17 because -- that's just kind of the general 18 guideline. 19 Q. Can you give me any more specificity 20 for the time you mean by "earlier on"? 21 A. So I started to work there in 1982 22 and our team was small, and so that's what I

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Page 30 1 mean by early on. 2 Q. And then when you referred to later, 3 are you talking later in your time at 4 Scientific Atlanta or are you talking later in 5 your career? 6 A. It is kind of the same, right? So I 7 was later -- so I stayed at Scientific Atlanta 8 from '82 through '85 and then I went -- I have 9 to look, '90 through 2011, 1990 through 2011, 10 right? 11 So, you know, at the end of that 12 2011 period, that would be the other end of 13 the -- let's call it progression of the team 14 size to the larger at the later times. 15 Q. Fair to say that a development 16 project for a set-top box in 2009, 2010, 2011, 17 would have hundreds of people or a hundred 18 people? 19 A. At least a hundred, yes. 20 Q. In that later time -- so for the 21 next few questions, I'm going to focus on that 22 later time. I might not say it every time, but	Page 32 1 A. Okay. 2 Q. In that period, was there a problem 3 across development of STBs that kept being the 4 most difficult problem to get through, or a 5 problem that took you all the most time to 6 solve? 7 A. I am having trouble identifying "a 8 most difficult problem." 9 Q. Were they all difficult? 10 A. There were many challenges to 11 developing a new product, especially as the 12 complexity was more -- higher complexity. 13 Q. What kind of problems do you 14 remember? Again, that later time period. 15 A. Well, I am having trouble 16 remembering, you know, what exactly in that 17 time period were the issues, so I am having 18 trouble answering the question. 19 Q. Can you think of one problem that 20 springs to mind or complexity that you had to 21 deal with in that later time period? 22 A. I don't remember.
Page 31 1 I would like you to focus your mind on that 2 later time, okay? 3 And here is my first question: Was 4 there a consistent problem in the engineering 5 development that always became either the 6 hardest issue in development or the thing that 7 took you all the most time? 8 A. One clarification I want to make -- 9 Q. Sure. 10 A. -- on my previous answer. 11 When I said at least a hundred, I 12 probably should have said around 100. Okay. 13 Q. That's fine. That's how I 14 understood your answer. 15 A. Okay. Thank you. 16 Q. Do you need me to reask my question? 17 A. Okay, if you like. 18 Q. Well, I see you have it there in 19 front of you, but I am happy to reask. 20 So again, we are putting our minds 21 in the later time period, let's call it 2009 to 22 2011.	Page 33 1 Q. In that later time period, in those 2 -- around a hundred people on the development 3 team, did anybody have Ph.D.s? 4 A. Yes. 5 Q. Who had Ph.D.s generally? By "who," 6 I don't mean names, I mean functional roles. 7 Which functional roles generally had 8 Ph.D.s on your team? 9 A. One of the team leaders on my team 10 had a Ph.D., and one of the managers on one of 11 my development teams had a Ph.D. That's all I 12 remember I think. 13 Q. Do you remember the name of that 14 team leader or that manager of the development 15 team? 16 A. Yes. 17 Q. What was the name of the team leader 18 that had the Ph.D.? 19 A. Bohdan Prus. 20 Q. Would you mind spelling that for the 21 record if you know how? 22 A. I hope it is correct.

Page 34 1 MR. QUALEY: Make a stab at it. 2 THE WITNESS: I think it is 3 B-O-H-G-O-N -- no wait. It might be B-A -- 4 BY MR. GALLUZZO: 5 Q. Do you need to write it down? 6 A. Yeah. It might be B-O-H-G -- 7 B-O-H-G-D-O-N, I think. I might be A-N. Prus, 8 P-R-U-S. Last name is easier. 9 Q. What was the name of the manager of 10 your development team who had a Ph.D.? 11 A. Mike Woods. 12 Q. I don't think we need to spell that 13 one. 14 Are there any other Ph.D.s on your 15 team that you can remember? 16 A. I can't remember any others. 17 Q. Do you remember anybody who had 18 master's degrees? 19 A. I don't remember who had master's 20 degrees and who did not at this time. 21 Q. Did at least some of your members of 22 your teams have master's degrees?	Page 36 1 grads that were perhaps the exception to the 2 rule. 3 Q. Did you ever work on the development 4 of any full-band capture set-top boxes? 5 A. I don't remember. 6 Q. Do you know anything about the cost 7 of full-band capture set-top box components? 8 A. Not at this time, I don't remember. 9 Q. Do you think you did at some point? 10 A. I probably had a general idea of the 11 cost at some point. 12 Q. Do you remember whether the cost of 13 a full-band capture tuner was more or less than 14 a silicon tuner? 15 A. Well, full-band capture tuner is a 16 silicon tuner. 17 Q. Fair enough. Let me ask it a 18 different way. 19 Do you know whether the cost of a 20 full-band capture tuner would be more or less 21 than a single-channel silicon tuner? 22 A. It depends, because the silicon
Page 35 1 A. I think, yes, that's fair to say. 2 Q. Do you remember what function or 3 roles those people might have had? 4 A. No. 5 Q. In those later years, about how many 6 years of experience did your team members have 7 in the industry? 8 A. I mean, it was varied. Some had 9 very little experience and some had, let's call 10 it 15 years or more. There was a range of 11 experience levels in my organization. 12 Q. For the folks who had less 13 experience in the industry, what functional 14 roles would they generally have? 15 A. I don't think we necessarily had 16 different functional roles per se. I think 17 that -- instead, the more complicated or 18 complex functionality, in general, was with the 19 more experienced people. Whereas the simpler 20 tasks, as part of the development were, in 21 general, done by some of the less experienced 22 people. Although, I had some really smart new	Page 37 1 geometry that was used to produce a particular 2 chip could have a dramatic effect on the cost, 3 so it is hard to make a general statement like 4 that. 5 Q. Did you ever use any tuners that 6 were not silicon tuners? 7 A. Yes. 8 Q. What kind of tuners? 9 A. It was very much built with analog 10 and RF components, you know, the front-end 11 functionality, including AGCs and mixers, and, 12 you know, filters and all this kind of thing to 13 produce the signal with an output. 14 Q. You used the phrase or the acronym 15 AGCs. What is that? 16 A. Automatic gain control. 17 Q. What did you call those tuners? Is 18 there a phrase or an industry name for them? 19 A. We called them tuners. 20 Q. Do they look like sardine cans? 21 A. I'm not sure I know. I don't even 22 remember what a sardine can looks like.

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Page 38 1 Q. It's a thin metal box. 2 A. Some of the tuners that we used were 3 in the -- let's call it rectangular shape with 4 a metal shield built all around it. But the 5 shapes and sizes and so on changed over the 6 years. 7 Q. That tuner you were just talking 8 about, that type of tuner with the metal shield 9 around it in a rectangular shape, was it also 10 one of those RF analog tuners we were just 11 talking about? 12 A. At least the one I was thinking 13 about, yes. 14 Q. Do you remember which set-top boxes 15 or which products that you might have used 16 these types of tuners in? 17 A. In general, you know, early on, 18 like, and again, my career as I described it, 19 you know, started in 1982 through 2011 at 20 Scientific Atlanta and Cisco. I use them 21 interchangeably because Cisco bought Scientific 22 Atlanta.	Page 40 1 Q. Do you remember when silicon tuners 2 came out in the market approximately? 3 A. I'm sorry, I would need to review 4 some other materials to find the time frame 5 that you are asking about. 6 Q. Do you remember whether silicon 7 tuners were more or less expensive than the 8 previous non-silicon tuners? 9 A. I don't remember if they were 10 cheaper or more expensive at the beginning. 11 Q. How about around 2011, do you 12 remember if they were cheaper or more expensive 13 than each other? 14 A. No. 15 Q. The non-silicon tuners, we talked 16 about some of the components earlier. What was 17 their output? 18 A. I mean, we probably had different 19 tuners with different outputs through the 20 evolution of the set-top boxes. I mean, at 21 least some of them output an IF signal, and I 22 can't remember what IF signal they were. Some
Page 39 1 I don't remember, again, specific 2 model numbers but early on, we used tuners 3 similar to what I described. 4 Q. Were you ever involved in a project 5 to develop a set-top box that had a silicon 6 tuner based on the design of a set-top box that 7 had a non-silicon tuner? 8 A. I'm sorry. I am a little confused. 9 Each new project was to produce a 10 product with a certain functionality. So I'm 11 not sure I remember an exact example that you 12 refer to in your question. 13 Q. When was your first project to 14 develop a set-top box that had a silicon tuner? 15 A. I don't remember. 16 Q. Can you say whether it was in your 17 time with Scientific Atlanta in the '80s or 18 whether it was in your time with Scientific 19 Atlanta in the '90s and 2000s? 20 A. It was the second tenure at 21 Scientific Atlanta where we developed products 22 with silicon tuners.	Page 41 1 of them might have output a baseband signal, 2 but I'm having trouble remembering exactly if 3 we implemented products with any of those. I 4 can't remember. 5 Q. In all cases, would those tuners 6 output an analog signal? 7 MR. QUALEY: Objection to form. 8 THE WITNESS: I don't remember. 9 BY MR. GALLUZZO: 10 Q. Did you ever work with a non-silicon 11 tuner that output a digital signal? 12 A. I don't remember. 13 Q. Did you ever work with a silicon 14 tuner that output a digital signal? 15 A. Yes. 16 Q. When? 17 A. I don't remember. 18 Q. Was it at Scientific Atlanta? 19 A. Yes, at Scientific Atlanta, Cisco. 20 Q. Do you remember what product that 21 was? 22 A. No.

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Page 42 1 Q. What were the components of the 2 silicon tuner that output a digital signal? 3 A. Well, I don't remember all the 4 components. Certainly, there was an integrated 5 circuit that provided some of the functionality 6 of the silicon tuner. 7 Q. What components were used to 8 digitize the signal? 9 A. The integrated circuit of the 10 silicon tuner. 11 Q. What it have an analog-to-digital 12 converter? 13 A. I think, yes. 14 Q. Would it have a demodulator? 15 A. It might or might not. 16 Q. Would it have a decoder? 17 A. It might or might not. 18 Q. You just don't remember? 19 A. No. 20 Q. Same is true for the demodulator, 21 you don't remember whether it had one or not? 22 A. There were many different	Page 44 1 tuner that output a digital signal outputted 2 the signal to in the set-top box? 3 Where did the signal go after the 4 tuner? 5 A. Did I -- did I talk about any 6 specific problem -- products in my declaration 7 that you can point me to? 8 Q. No. Just earlier in your testimony, 9 you had said pretty emphatically that you had 10 worked with a silicon-based tuner that 11 outputted a digital signal. 12 So let me maybe ask to be clear: Do 13 you have any specific recollection of having 14 worked with a silicon-based tuner that output a 15 digital signal? 16 A. I don't have any specific 17 recollection. Again, there were many products 18 that I led the development of and many 19 different instantiations of products. 20 Q. I think that clears up the confusion 21 then. 22 A. Thank you.
Page 43 1 instantiations of integrated circuits to 2 support tuning, and so it is hard to say, 3 unless we are looking at a specific chip or 4 integrated circuit what was included in the 5 integrated circuit. 6 Q. Sticking with the silicon tuner that 7 output a digital signal that you were thinking 8 of, do you know what that signal would output 9 to? 10 A. So the integrated circuit that 11 supports tuning, in general, outputs a digital 12 signal. However, some integrated circuits that 13 support tuning functionality have other 14 components that process the digital signal and 15 perhaps output an analog signal. 16 So there are many, many different 17 instantiations of integrated circuits that 18 support tuning and unless we are talking about 19 a specific chip, I can't really say that all 20 integrated chips that support tuning have 21 certain functionalities or not. 22 Q. My question was what the silicon	Page 45 1 Q. So just so I am clear, and only 2 because I think I misunderstood one of your 3 earlier answers, it is true that you do not 4 remember having worked with a silicon tuner 5 that output a digital signal? 6 You may have, you might not have, 7 but today, you don't know; is that right? 8 MR. QUALEY: Objection to form. 9 MR. GALLUZZO: I'll withdraw it. 10 BY MR. GALLUZZO: 11 Q. It is true that you do not remember 12 having worked with a silicon tuner that output 13 a digital signal; is that correct? 14 A. I don't remember the specifics about 15 any particular implementation, so it is 16 difficult for me to remember that detail about 17 the product to answer your question. 18 Q. Okay. I just -- what I am trying to 19 get at is just clarification, because I think 20 this is a relatively important point, so let me 21 try one more time. 22 Is it true that you have no specific

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Page 46 1 recollection of using a silicon tuner that 2 output a digital signal? 3 A. I think that's true. 4 Q. Then we can move on from that. 5 Do you have any specific 6 recollection of using a silicon tuner that 7 output an analog signal? 8 A. I don't have any specific 9 recollection, no. 10 MR. GALLUZZO: Let's go off the 11 record. 12 (A short recess was taken.) 13 BY MR. GALLUZZO: 14 Q. Mr. Lett, earlier today, we talked 15 about the 2100 and the 8300 series set-top 16 boxes, and if I remember right, you didn't have 17 much specific recollection about those. That's 18 not my question. 19 So -- but I wanted to reframe us 20 because I am going to ask you some follow-ups 21 about each of those. 22 So here is my first question: Do	Page 48 1 Q. Can you give me any reason why that 2 statement might be incorrect? 3 A. I don't know how to answer the 4 question because I don't remember. 5 Q. And therefore, you cannot give me 6 any reason? 7 A. I cannot think of the answer because 8 I do not remember. 9 Q. In preparing your declaration in 10 these IPRs, you reviewed a lot of material that 11 happened -- or related to things that happened 12 in the late 2000s and early 2010s, right? 13 A. I reviewed a lot of materials, but I 14 don't know if it's fair to -- without looking 15 at them, state the dates of those documents. 16 Q. In coming to the opinions in your 17 declaration, did you consider your own personal 18 experience? 19 A. I looked at the materials as a 20 POSITA would look at the materials. 21 Q. By "the material," do you mean the 22 materials that were included as exhibits or
Page 47 1 you have any reason to dispute that the 2100 2 series set-top box had tuners that output 3 analog signals? 4 A. I don't remember. 5 Q. I understand you don't remember, but 6 do you have any reason to doubt or to dispute 7 that statement? 8 A. I am not sure I know how to answer 9 the question because I don't remember. 10 Q. Sitting here today, can you give me 11 any reason why that statement might be 12 incorrect? 13 A. I'm not sure I know how to answer a 14 question when I don't remember. 15 Q. So you cannot give me any reason? 16 A. I don't remember. 17 Q. Same questions for the 8300 series. 18 Do you have any reason that you can 19 give me today to dispute that the tuners of the 20 8300 series set-top box output an analog 21 signal? 22 A. I don't remember.	Page 49 1 cited by your declarations? 2 A. Yes, there is a materials considered 3 list, I think is what it's called, in both of 4 the declarations that included a list of all 5 the documents that I reviewed. 6 Q. In addition to those documents, did 7 you consider your own personal experiences? 8 A. I put myself in the persona of a 9 POSITA as defined in the declaration. 10 Q. Did you, as part of that, consider 11 your own personal experiences? 12 A. I don't know how to answer that 13 question. I put myself in the position of a 14 POSITA as defined in the declaration. 15 Q. Well, I think it's a pretty simple 16 question, so I will try to ask it a different 17 way. 18 Yes or no, did you consider your own 19 personal experiences in coming to any of the 20 opinions you are giving in these IPR 21 declarations? 22 A. I would say I worked with people

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Page 50 1 that met the criteria of a POSITA at this time, 2 and considered what a POSITA would know at the 3 time and, yes, I think that -- because I worked 4 with people that met the criteria of a POSITA 5 as defined, I am relying on my personal 6 experience of working with and knowing the 7 level of individual and the person as a POSITA. 8 Q. Other than that, did you rely on 9 your personal experiences to come to any of the 10 other opinions you are giving in these cases? 11 A. I think that I did not -- perhaps, 12 if there is somewhere in the declaration where 13 you think I did, I would be happy to look at 14 it, but I was careful I believe to consider the 15 knowledge and experience of a working person as 16 a POSITA as defined. 17 Q. What did you do to refresh yourself 18 on your personal experiences before giving the 19 opinions in these declarations? 20 A. I'm sorry. I don't remember doing 21 anything to refresh myself about my personal 22 experiences.	Page 52 1 set-top box. 2 Q. Do you think the 8300 set-top box is 3 irrelevant to these proceedings? 4 A. I don't know the answer. 5 Q. Well, if you did want to know about 6 the 8300 set-top box, could you have reviewed 7 materials about it prior to submitting your 8 declarations in these proceedings? 9 A. I suppose I could have reviewed 10 online documents or whatever, about any set-top 11 box model made by any manufacturer if I wanted 12 to or if I needed to, but I did not, that I'm 13 aware of, for the purpose of this declaration. 14 Q. Did you review any DOCSIS standards, 15 D-O-C-S-I-S? 16 A. I'm not aware that I did. 17 Q. That's because it is not cited on 18 your materials considered list? 19 A. That's right. 20 Q. Are you familiar with DOCSIS? 21 A. Yes. 22 Q. In 2011, was DOCSIS being used for
Page 51 1 Q. So you didn't review any materials 2 related to your time at Scientific Atlanta? 3 A. I might have, but one of the 4 materials considered is my CV. That is Exhibit 5 1003, and so it's in the materials considered 6 list. 7 Q. Apart from the items cited in your 8 materials considered list, did you consider any 9 other materials from your time at Scientific 10 Atlanta? 11 A. Not that I'm aware of. 12 Q. Could you have? 13 A. I don't know. 14 Q. Well, for example, if you wanted to 15 be able to answer -- withdrawn. 16 If you wanted to have more knowledge 17 about the 8300 series set-top box, could you 18 have reviewed materials, prior to submitting 19 your declaration, to give you that information? 20 A. I mean, I don't know why we would 21 want to know for the purpose of this 22 declaration, knowledge about the 8300 series	Page 53 1 television or for data or for both? 2 A. I don't remember. 3 Q. In 2011, did DOCSIS require 4 simultaneous monitoring and processing? 5 MR. QUALEY: Objection to form. 6 MR GALLUZZO: I'll withdraw and 7 reask. 8 BY MR. GALLUZZO: 9 Q. In 2011, did DOCSIS require 10 simultaneous monitoring and processing of 11 television channels? 12 A. I don't remember. 13 Q. Do you know when DOCSIS first 14 started requiring -- withdrawn. 15 Do you know when DOCSIS standards 16 first discussed simultaneous monitoring and 17 processing of television channels? 18 A. In order to answer your question, I 19 think I would need to review the DOCSIS 20 standards -- DOCSIS standards. 21 Q. That is not something you did prior 22 to today in relation to these cases?

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Page 54 1 A. That's correct. 2 Q. And just to be clear, you haven't 3 reviewed any DOCSIS best practices documents, 4 correct? 5 A. I might have at some point in my 6 career. 7 Q. I'm sorry. Yeah. I will ask a more 8 precise question. 9 You haven't reviewed any DOCSIS best 10 practices documents in coming to your opinions 11 in these proceedings; is that correct? 12 A. Not that I am aware of. 13 Q. For the record, what is -- do you 14 know what the acronym DOCSIS, what it stands 15 for? 16 A. I don't remember. 17 Q. Data over cable, do you recall the 18 rest? 19 A. No. 20 Q. Okay. Fair enough. 21 A. I'm curious. What is it? 22 MR. QUALEY: Why don't we spell the	Page 56 1 Q. The Kamieniecki reference has been 2 previously marked as Exhibit 1009. I believe 3 it's the same number in both proceedings. 4 (Deposition Exhibit 1009 was 5 previously marked for identification.) 6 BY MR. GALLUZZO: 7 Q. Feel free to look at either version. 8 I would like to clarify some things 9 about Kamieniecki or make sure I understand the 10 reference the same as you do. 11 So my first question is: 12 Kamieniecki relates to a set-top box, correct? 13 A. It's entitled: "Monitoring Signal 14 Quality on a Cable Network." 15 Q. Does it also relate to a set-top box 16 for a cable network? 17 A. A set-top box is shown in Figure 1. 18 Q. That set-top box shown in Figure 1 19 and described in Kamieniecki, that receives an 20 analog carrier signal in the downstream 21 direction, right? 22 A. Well, as stated in the declaration
Page 55 1 acronym for the court reporter. 2 MR. GALLUZZO: We did, yes. 3 D-O-C-S-I-S. 4 MR. QUALEY: It just wasn't showing 5 up on my screen. 6 MR. GALLUZZO: Oh, okay. 7 (Discussion was had off the record.) 8 BY MR. GALLUZZO: 9 Q. Let's talk about some documents you 10 did review. 11 I would like to start with the 12 Kamieniecki reference, which I think is how you 13 pronounce it. But I am curious, how do you 14 pronounce that reference? 15 A. That sounds close enough for me. 16 Q. I don't know whether it is accurate 17 but that's what I have in my head, so if I call 18 it Kamieniecki, is that okay with you? 19 A. Yes. 20 MR. GALLUZZO: And for the record, 21 it is K-A-M-I-E-N-I-E-C-K-I. 22 BY MR. GALLUZZO:	Page 57 1 and also in Paragraph 4 of Kamieniecki, set-top 2 can receive analog or digital transmissions. 3 Q. What do you mean by "digital 4 transmissions"? 5 A. Not an analog channel but a digital 6 channel. 7 Q. You mean digital information 8 modulated onto an analog signal, right? 9 A. Of course. 10 Q. But the signal itself, the carrier 11 signal received by the set-top box is analog, 12 you agree? 13 A. Yes. 14 Q. And that's in all cases? 15 A. I'm not sure what you mean by "all 16 cases." 17 Q. In all cable set-top boxes receiving 18 a signal from a headend via coaxial or hybrid 19 fiber-coax plant, is it receiving an analog 20 carrier signal? 21 A. So a digital signal is a signal 22 where the modulation on the cable set-top box

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Page 58 1 -- excuse me, scratch that -- on the cable 2 system is modulated in some way so as the 3 digital information can be recovered. 4 Q. You're talking about digital 5 content, right? 6 A. Not exactly. 7 Q. In your career, have you ever worked 8 on a cable set-top box that received a signal 9 that was something other than an analog carrier 10 signal? 11 A. I might have. 12 Q. In what case? 13 A. Where a digital signal was received 14 by the set-top box. 15 Q. A physical layer digital signal? 16 A. I might have, yes. 17 Q. In real-world applications? 18 A. I don't remember. 19 Q. Was this a prototype? 20 A. I don't remember. 21 Q. Can a coax cable transmit a physical 22 layer digital signal?	Page 60 1 industry started calling that out-of-band but 2 sort of technically, it's in the middle of the 3 band, right? 4 So television channels, you know, 5 typically started around 54 megahertz and went 6 up over the years to, you know, 550 megahertz, 7 650, 750, 850, 1 gigahertz. But -- so that 8 about a hundred -- I think it's 108 megahertz 9 or something like that, around that section, 10 you know, it just became to be called 11 out-of-band in the industry. 12 Q. What kind of information was 13 transmitted on those out-of-band frequencies? 14 A. There was, you know, it could be 15 anything. A lot of time sit was command and 16 control information and, you know, 17 configuration information. We probably 18 transmitted some content out-of-band, but I 19 don't recall exactly if that was true or not. 20 Q. Would the out-of-band frequency 21 information control pay-per-view? 22 A. So command and control is required
Page 59 1 A. A coax cable by itself can't 2 transmit anything. 3 Q. Can a physical layer digital signal 4 be transmitted across a coaxial cable? 5 A. Yes. 6 Q. Does that happen in any cable plants 7 which actually exist? 8 A. Not that I am aware of. 9 Q. In the set-top box of Figure 1, 10 there are listed OOB and IB. 11 What are those? 12 A. As described by Kamieniecki, an 13 in-band tuner and an out-of-band tuner. 14 Q. What is the difference between 15 in-band and out-of-band? 16 A. So there was certain portion of the 17 spectrum that was not considered a normal 18 television channel, and by that I mean, that 19 historically, from the analog days, television 20 content was not transmitted in that frequency 21 range, and as I recall, it's around a hundred 22 and something megahertz that we, you know, the	Page 61 1 for some pay-per-view functionality so yes, I 2 think to authorize a pay-per-view event, it 3 could come in-band or out-of-band but, you 4 know, sometimes it was out-of-band, sometimes 5 it was in-band, I think, depending on what 6 generation of set-top boxes and so on we are 7 talking about. 8 Q. What other set-top box functionality 9 required command and control? 10 A. I think any set-top box that have -- 11 has connectivity to, let's call it the headend, 12 so that, you know, channels are authorized from 13 the headend. You know, we started calling them 14 addressable set-top boxes along the way that, 15 you know, were not just dumb, dumb is not the 16 right word, but boxes that didn't have 17 connectivity were before those that had 18 connectivity. 19 You know, like they used to sell 20 set-top boxes that were, let's call them basic 21 set-top boxes, that essentially, once they were 22 installed at the customer's home, they did what

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Page 62 1 they did and, you know, were not controlled or 2 commanded by, you know, a server at the 3 headend. 4 Q. When you said -- talk about the 5 channels are authorized, are you referring to 6 premium channels like HBO? 7 A. I think, yes, but also, you know, 8 tiers of channels, so suppose you may have a 9 basic tier and you would be -- you could send 10 authorization information to allow you to watch 11 the basic tier of channels and you may have 12 another authorization to let you watch, let's 13 call it an extended tier of channels and this 14 kind of thing. 15 Q. Without authorization, could a user 16 watch any of those channels, those tiered or 17 extended channels? 18 A. Well, again, we are talking about an 19 addressable set-top box, so in general, they 20 were not supposed to. However, there were some 21 pirating, let's call it, of content, where 22 there were a number of tricks that were used by	Page 64 1 scrambling was used. The picture was obscured 2 in a way so that you shouldn't be able to see 3 it in the clear. 4 Q. In your later time at Scientific 5 Atlanta, were you working on the set-top boxes 6 that were still using those kinds of analog 7 scramblers? 8 A. There was a transition period where, 9 you know, it was all analog and then it was a 10 combination of analog and digital, and then 11 eventually, it was all digital channels. I 12 worked on all of those. 13 Q. Is the frequency range for the 14 out-of-band channels affected by the cable 15 plant just like in-band channels? 16 A. I'm not sure I understand the 17 question. 18 Q. Are you familiar with interference 19 in the cable plant or impairment? 20 A. Sure. 21 Q. Television channels in the in-band 22 frequency range, those are affected by
Page 63 1 would-be cable stealers to watch those signals. 2 Q. Apart from pirating and misusing of 3 devices, if a device didn't have authorization, 4 could it -- could the viewer watch those 5 extended or tiered channels? 6 A. No. Without any authorization, the 7 box should not have shown content. Although, 8 some of the early set-top boxes, you know, that 9 used for example analog scrambling, you know, 10 one could tune to that channel with a 11 cable-ready television, for example, and you 12 could hear the audio. 13 So in some -- so in that instance, 14 you could actually receive some of the content, 15 right? You were not supposed to be able to see 16 the video but, you know, those analog 17 scramblers were not very sophisticated let's 18 say, and sometimes you could make out the 19 picture a little bit as you were watching it. 20 Q. The picture would be scrambled, 21 wavy? 22 A. Right. Or whatever version of	Page 65 1 interference and impairment in the cable plant? 2 A. There is a lot of interference and 3 impairments, to use your words, in the cable 4 plant and would affect all of the frequencies, 5 depending on what the impairment is. It could 6 be, you know, anywhere in the range of the 7 receive spectrum. 8 Q. And that would include the receive 9 spectrum at the out-of-band range? 10 A. Yes, you could certainly have 11 impairments on out-of-band as well as in-band. 12 Q. Are impairments on in-band 13 potentially detrimental to user -- to the user? 14 A. I'm not sure what you mean by 15 "detrimental." 16 Q. For example, could it create a less 17 than optimal viewing experience for the user? 18 A. Yes. Impairments can cause a less 19 than optimal viewing experience. 20 Q. Can impairments on in-band channels 21 or in-band frequency range also cause a less 22 than optimal viewing experience for the user?

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Page 66 1 A. I'm sorry. I thought I was just 2 answering that question. 3 Q. Oh, the previous one, you thought 4 was about out-of-band? 5 A. No, I thought it was about in-band. 6 Q. I might have asked a bad question 7 because -- let me clarify. 8 The question I asked earlier that 9 you answered yes, that was intended to be about 10 in-band, so let me now ask about out-of-band. 11 Can impairments on out-of-band 12 channels cause a less than optimal viewing 13 experience for the user? 14 A. I would need to think about that. 15 That sounds like an opinion that I didn't 16 really consider in my declaration. 17 I probably would like to think about 18 that, rather than answering right now, because 19 I am not sure the implications of just 20 answering on the fly. 21 Q. Can you agree with me today, that an 22 impairment on an out-of-band frequency range	Page 68 1 A. It says: "The set-top box can 2 receive analog or digital transmissions." 3 Q. Does Kamieniecki disclose whether 4 these are analog or digital tuners? 5 A. Kamieniecki is talking about the 6 monitoring capabilities. Monitoring the signal 7 quality on a cable network, and -- and he does 8 not restrict it to be analog or digital. In 9 fact, he says it could be either one. 10 Q. But specifically for the tuners, 11 does Kamieniecki say that those tuners could be 12 analog or digital? 13 A. Well, so he talks about analog or 14 digital tuning. 15 Q. Where? 16 A. Paragraph 4. 17 Q. Which portion of Paragraph 4 talks 18 about analog or digital tuning? 19 A. It says: "The set-top box can 20 receive analog or digital transmissions on 21 in-band channels." 22 Q. And that's your basis for saying
Page 67 1 could create a problem with authorization of 2 channels? 3 A. Yes. One could perhaps not receive 4 an authorization or a deauthorization, you 5 know, if it was an impairment on an out-of-band 6 channel that would, an example we just talked 7 about, perhaps not receive an upgrade or 8 downgrade of service tier. 9 Q. Okay. 10 A. In other words, they may not receive 11 the signal. 12 Q. Thank you for completing your 13 answer, and if I -- I didn't mean to cut you 14 off there, so if in the future, you are not 15 finished with an answer and I move on, please 16 just stop me like you did. 17 Let's go back to Figure 1 of 18 Kamieniecki. We started talking about those 19 in-band and out-of-band tuners marked as 112 20 and 114. 21 Would you agree with me that these 22 are analog tuners?	Page 69 1 that the in-band or out-of-band tuners can be 2 analog tuners or digital tuners? 3 A. That's one of the citations that I 4 used. Perhaps there were more. 5 Q. Which ones were those? 6 A. In Paragraph 68, I cite -- 7 Q. I'm sorry, Paragraph 68 of your 8 declaration? 9 A. Of my declaration. And which -- 10 which declaration are we talking about, '008 or 11 '826? 12 Q. Whichever one you want. Which one 13 do you have in front of you? 14 A. Okay. For example, the '826 15 declaration, Paragraph 68, I cite Paragraph 4 16 of Kamieniecki and state: "Kamieniecki 17 describes set-top boxes as having in-band 18 tuners for receiving analog or digital 19 transmissions, such as MPEG-2 transport streams 20 and tables according to DVB or digital video 21 broadcast DVB, or" advanced television system 22 standards -- "advanced television systems

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Page 70 1 committee ATSC standards" to be exact. 2 Q. Do you have any other support for 3 your opinion that Kamieniecki discloses both 4 out-of-band and in-band tuners that can be 5 analog or digital, or can you point me to 6 anywhere else in your declaration where you say 7 that more specifically? 8 A. In Paragraph 2, it talks about 9 digital cable systems, but I don't know if I 10 cited that in my declaration or not. Perhaps I 11 did, but I mean, I can read the whole thing and 12 see if I can find it. 13 Oh, wait, hang on. I see something 14 here. 15 On -- yes, on Paragraph 136 of the 16 '826 declaration, I cite Paragraph 2, and 17 Paragraph 2 of Kamieniecki states that he is 18 talking about digital cable systems. 19 There may be more. I can read the 20 whole thing and see if I can find anything 21 else, if you like. Do you want me to do that? 22 Q. Well, you have stated today that	Page 72 1 support in Kamieniecki. We can refer to your 2 declaration next. 3 A. Okay. 4 Q. Other than Paragraphs 2, 4 and 9, do 5 you have any other support in Kamieniecki to 6 support what you have said today that the 7 out-of-band and in-band tuners can be analog or 8 digital? 9 A. Just for clarification, I was 10 reading the statement in Kamieniecki that talks 11 about: "Set-top box can receive analog and 12 digital transmissions on in-band channels." 13 I don't know if he states anything 14 about an analog transmission on an out-of-band 15 channel. I don't know if that's true. 16 So can you ask that question again, 17 please. 18 Q. Other than Paragraphs 2, 4 and 9 in 19 Kamieniecki, is there any other support in 20 Kamieniecki that you can point me to that would 21 substantiate your claim that the out-of-band 22 and in-band tuners of Kamieniecki can be
Page 71 1 Kamieniecki discloses that its tuners could be 2 analog or digital. 3 My question is: What support do you 4 have for that in Kamieniecki? So far, you've 5 pointed to Paragraphs 2 and 4. 6 Do you have any other support? 7 A. I will keep looking if you like. 8 Are you talking about support in 9 Kamieniecki? 10 Q. Support in Kamieniecki. 11 A. Okay. Thank you for clarification. 12 So Paragraph 9 is talking about: 13 "Ping messages may be transmitted from the 14 set-top box to the headend and returned back to 15 the set-top box." That is, in general, a 16 digital signal. And so I need to see if I 17 cited Paragraph 9. 18 Q. I tell you what. We can just 19 focus -- 20 A. Yes, I did. In Paragraph 142 of the 21 declaration. 22 Q. To be clear, my question is about	Page 73 1 digital or analog tuners? 2 A. Again, I don't think I stated that 3 the out-of-band tuner can be digital or analog. 4 Q. Okay, let's go back and clarify 5 then. 6 Is it your opinion that Kamieniecki 7 discloses a digital out-of-band tuner? 8 A. So Paragraph 4 of Kamieniecki talks 9 about a second tuner -- well, let me just cite 10 it: "A second tuner can be included in a STB 11 if use of the cable return path is desired or 12 where out-of-band channels will be used for 13 communications between the headend and the 14 set-top box." 15 To me, that indicates that the 16 out-of-band tuner is receiving digital content. 17 Q. Does a tuner that receives digital 18 content make it a digital tuner in your mind? 19 A. Let me clarify my answer. It seems 20 that Kamieniecki is describing digital signals 21 sent on the out-of-band channel. It is 22 certainly possible that one could send analog

Page 74 1 content in digital form over a digital channel. 2 Q. A physical layer digital channel? 3 A. We are talking about a modulated 4 digital channel that would be demodulated into 5 1s and 0s. 6 Q. Maybe this is a terminology 7 question. 8 When you say "digital channel," do 9 you mean digital data modulated onto an analog 10 signal? 11 A. In the context of the cable 12 television system that we are talking about, in 13 a channel that's a digital channel, it is 14 modulated in general on a carrier that, when 15 demodulated, generates digital signals. In 16 other words, 1s and 0s. 17 Q. But prior to demodulation, it is 18 simply digital data carried on an analog 19 signal. Is that what you mean by "digital 20 channel"? 21 A. It's an analog carrier, so in other 22 words, it is modulated on a certain frequency	Page 76 1 analog, so they are above or below a certain 2 voltage level to indicate a 1 or a 0. 3 Q. Do you understand when I -- okay, 4 let me say it this way. 5 When I am talking about analog 6 signals, I am talking about signals that have 7 amplitude and phase. 8 Can we agree on that? 9 A. I'm sorry. I don't understand the 10 question. 11 Q. What is amplitude? You know what 12 that is, right? 13 A. Yeah. It's the -- the basic level 14 of -- of something. 15 Q. And you know what phase is? 16 A. Yes. 17 Q. And analog wave forms have amplitude 18 and phase? 19 A. I guess so, yes. 20 Q. Digital wave forms do not have both 21 amplitude and phase? 22 A. They have amplitude and phase.
Page 75 1 to get on the RF frequency that we are 2 interested in transmitting that channel. 3 Q. So yeah, I think we might just have 4 a terminology crosstalk here, so let me try to 5 back up and see if we can come to an agreement 6 on baselines. 7 When you've been talking about a 8 digital tuner and that Kamieniecki discloses a 9 digital tuner, do you mean a tuner which tunes 10 in a digital domain or do you mean a tuner 11 which tunes a signal that carries digital 12 content? 13 A. I'm sorry. I don't understand what 14 you mean by "a signal that tunes in a digital 15 domain." 16 Q. Do you understand the difference 17 between a signal and content of a signal? 18 A. I think so. 19 Q. Content can be digital, but the 20 signal can still be analog. 21 Do you understand that? 22 A. I mean, even digital signals are	Page 77 1 Q. Okay. We will come back to that. 2 A. Okay. 3 Q. Do you agree with me that the 4 in-band and out-of-band tuners of Kamieniecki 5 are single channel tuners? 6 A. Yes. In fact, Kamieniecki 7 describes, as is shown in Figure 2, the in-band 8 tuner being used to tune different channels in 9 the channel map so as to gather channel 10 statistics on each channel one by one, and 11 there is a loop where he explains and shows, 12 stepping through the channels and gathering 13 that statistics information such as error 14 counts, signal levels, et cetera. 15 Q. How wide is the channel that is 16 output by the in-band tuner of Kamieniecki? 17 How many megahertz wide? 18 A. I don't know if he says. Perhaps he 19 does, but I don't know. 20 Q. How wide is the typical in-band 21 tuner's output prior to 2011 -- withdrawn. 22 How wide is the typical television

20 (Pages 74 - 77)

Page 78 1 channel prior to 2011? 2 A. Well, in North America, it is 3 generally 6 megahertz wide. 4 Q. Any reason to doubt that the in-band 5 tuner of Kamieniecki has a 6 megahertz-wide 6 channel output? 7 A. A POSITA would certainly understand 8 that that's one of the possibilities. 9 Although, you know, he talks about DVB and ATSC 10 and one could, you know, be in a different 11 country and have a different, you know, channel 12 width, channel bandwidth. 13 Q. What is the channel bandwidth for 14 DVB? 15 A. I don't remember. Sorry. 16 Q. Is it more or less than 6 megahertz? 17 A. I don't remember. 18 Q. What is the channel bandwidth for 19 ATSC? 20 A. I don't remember. I probably need 21 to look at the spec just to make sure I don't 22 give an answer that is incorrect.	Page 80 1 A. I don't remember. 2 Q. Is Kamieniecki a DOCSIS reference? 3 A. What do you mean? 4 Q. Is it a cable modem? 5 A. He is talking about a set-top box. 6 He may talk about a cable modem, but I don't 7 recall. 8 Q. And if we could assume that he 9 doesn't talk about a cable modem, is 10 Kamieniecki disclosing a cable modem? 11 A. Did I render an opinion on that in 12 my declaration? 13 Q. I don't believe so. But you did 14 review it, so I am asking you whether you think 15 it disclose a cable modem to a person of 16 ordinary skill in the art at the time. 17 A. So I would think the way a POSITA 18 would read Kamieniecki is that, one can monitor 19 the signal on a cable network, and I don't know 20 that a POSITA would preclude there being a 21 cable modem. 22 Q. Does Kamieniecki disclose any cable
Page 79 1 Q. Do you remember whether it's more or 2 less than 6 megahertz? 3 A. I would need to look at the spec. 4 Q. How about the out-of-band tuner? 5 Would a POSA understand it outputs a 1.5 6 megahertz-wide channel? 7 A. I don't know that there was a 8 standard about an out-of-band channel being a 9 certain width. 10 Q. During your time at Scientific 11 Atlanta, how wide would the out-of-band tuners 12 in your set-top boxes output? 13 A. I don't remember. 14 Q. Do you have any reason to doubt that 15 it was 1.5 megahertz? 16 A. Might have been. I don't know. 17 Q. In general, how wide of a channel 18 bandwidth does an out-of-band tuner output 19 prior to 2011? 20 A. I don't remember. 21 Q. How wide would a POSITA understand 22 the out-of-band tuner of Kamieniecki to output?	Page 81 1 modem capabilities? 2 A. I don't remember. 3 Q. Kamieniecki doesn't disclose a 4 DOCSIS tuner, does it? 5 A. I don't remember. 6 Q. Kamieniecki doesn't disclose that it 7 receives DOCSIS data? 8 A. I don't remember. 9 Q. Kamieniecki doesn't disclose that it 10 has to comply with DOCSIS standards? 11 A. I don't remember. 12 Q. Well, the reference isn't very long, 13 so I would like you to review and let me know 14 whether Kamieniecki is or is not a DOCSIS 15 reference. 16 A. What do you mean by "DOCSIS 17 reference"? 18 Q. A reference that has to comply or 19 could comply with DOCSIS standards. 20 A. So Kamieniecki is talking about 21 receiving a signal and looking at channel 22 statistics, such as error count, signal levels,

21 (Pages 78 - 81)

Page 82 1 and so on with that signal, and then tuning to 2 another signal and receiving channel 3 statistics, error count, signal quality levels 4 and storing all of those in NVM and then, you 5 know, so essentially monitoring the signal 6 quality on multiple channels. 7 It is not discussing the detailed 8 implementation of the tuners. It is basically 9 saying it could be analog or digital with an 10 in-band tuner, as we talked about. 11 And so looking at this patent of 12 Kamieniecki, the scope is about monitoring the 13 channel, and so I don't know if it mentions 14 DOCSIS or not, but to me, that is out of scope 15 for what we are talking about in Kamieniecki. 16 We are talking about monitoring signals. 17 Q. When you say "it is out of scope," 18 are you testifying that -- whether Kamieniecki 19 is or is not a DOCSIS reference is out of scope 20 of the reference? 21 MR. QUALEY: Objection to form. 22 MR. GALLUZZO: Withdrawn.	Page 84 1 bit of reflection on that point and reviewed 2 the reference thoroughly, and that's why I am 3 asking you questions about what the reference 4 means to a person of skill in the art. 5 So here is my question: In 2011, 6 would a person of skill in the art understand 7 Kamieniecki to be a DOCSIS reference? Yes or 8 no. 9 MR. QUALEY: Objection to form. 10 THE WITNESS: It sounds like that is 11 a new opinion that I did not consider in my 12 declaration. I don't feel comfortable 13 answering that. 14 BY MR. GALLUZZO: 15 Q. So you are unwilling to answer that 16 question today? 17 A. I am willing to answer the question, 18 but I need more time to study that to answer 19 that question. 20 Q. What would you need to study? 21 A. Well, I can read Kamieniecki end to 22 end.
Page 83 1 BY MR. GALLUZZO: 2 Q. When you say "it is out of scope," 3 can I take that to mean that Kamieniecki or 4 that DOCSIS is out of the scope of the 5 disclosure of Kamieniecki? 6 A. In my declaration, I didn't talk any 7 about DOCSIS related to Kamieniecki, I don't 8 think. 9 Q. I think I agree with you there. 10 A. So I think what you are asking me 11 for is to render a new opinion with your 12 question, and I would really not feel 13 comfortable doing that on the fly without 14 thinking about it more. 15 Q. I don't know whether I am asking you 16 to render a new opinion or not, but my 17 understanding from reading your declaration is 18 that you understood Kamieniecki well enough to 19 opine that patent claims issued by the U.S. 20 Patent Office should be rendered invalid over 21 that reference and others. 22 I assume that you came to quite a	Page 85 1 Q. Please do. 2 A. Okay. So in Paragraph 2 of 3 Kamieniecki: "Digital cable systems can make 4 the use of a cable return path and a cable 5 modem in the set-top box to manage all 6 downstream and upstream traffic in the set-top 7 box." 8 So it's talking about cable modem in 9 Paragraph 2. 10 Q. In the background of Kamieniecki? 11 A. That's right, Paragraph 2 of 12 Kamieniecki. 13 Q. Does Kamieniecki disclose anything 14 like that in its summary of the invention or 15 detailed description or claims? 16 A. I will keep reading. I just got to 17 Paragraph 2 so far. 18 So I believe that every time 19 Kamieniecki uses the word "set-top box" or the 20 acronym "STB," it includes by reference the 21 statement that cable modem is in the set-top 22 box per Paragraph 2.

22 (Pages 82 - 85)

Page 86 1 Q. You read that from the sentence that 2 starts: "Digital cable systems" in Paragraph 3 2? 4 A. Right. "Digital cable systems can 5 make use of a cable return path and a cable 6 modem in set-top box," 7 and thus -- excuse me, "to manage all 8 downstream and upstream traffic to the set-top 9 box." 10 So to me and I think to a POSITA, 11 one would read that sentence and include a 12 cable modem in every set-top box potentially, 13 in the patent -- that is mentioned in the 14 patent. 15 Q. Does Kamieniecki disclose a tuner 16 for receiving such data, such as Internet data 17 through a cable modem? 18 A. I don't think so. I can look. 19 Q. Please. 20 A. Okay. We can spend the whole day 21 searching for things in the patent. 22 Do you mean -- is your question,	Page 88 1 limited, that it is talking about one channel 2 -- excuse me, one tuner that is cycling through 3 all the different frequencies. 4 MR. GALLUZZO: Objection. 5 Nonresponsive starting with the words "and so 6 there." 7 THE WITNESS: I'm sorry? 8 BY MR. GALLUZZO: 9 Q. It's for record-saving purposes, not 10 for you. 11 A. Okay. I didn't understand what that 12 meant. Thank you. 13 Q. So other than full-band capture, you 14 do understand that a DOCSIS enabled set-top box 15 has to have a separate DOCSIS tuner? 16 A. Perhaps there were other ways for a 17 DOCSIS enabled set-top box to do tuning. I 18 don't know. 19 Q. Other than having a separate DOCSIS 20 tuner or as part of full-band capture, can you 21 tell me any other way for a DOCSIS enabled 22 set-top box to do tuning?
Page 87 1 does Kamieniecki disclose receiving Internet 2 data? Is that what you mean? 3 Q. Do you understand how a DOCSIS -- a 4 DOCSIS enabled set-top box works? 5 A. In general, yes. 6 Q. Do you understand that it has to 7 have a separate DOCSIS tuner? 8 A. Not necessarily. 9 Q. In which case does it not have a 10 separate DOCSIS tuner? 11 A. So in the case of full-band capture. 12 Q. Does Kamieniecki have a full-band 13 capture reference? 14 A. I don't think it talks about a 15 full-band capture. In fact, it does not, 16 because it describes taking a tuner and cycling 17 through all the different channels to receive 18 channel statistics. 19 And so there was a need, I think, or 20 a market desire to be able to not only monitor 21 more than one channel but also to watch more 22 than one channel, so Kamieniecki is somewhat	Page 89 1 A. Do you want me to invent one? 2 Q. I am asking you what existed in 3 2011. 4 A. Oh. I don't remember. 5 Q. So you can't think of one? 6 A. I don't remember. 7 Q. You also understand, because you 8 know how DOCSIS works, you understand that the 9 DOCSIS tuner essentially tunes to a specific 10 channel frequency as a pipe, right? 11 A. It can, yes. 12 Q. And if you have to change that 13 channel frequency for some reason, it's quite 14 complex, and you have to obtain new permissions 15 and reconnect to that same pipe, correct? 16 A. I think I would be more comfortable 17 if I had the DOCSIS spec to go through to make 18 sure that your exact statement is correct. 19 Q. Do you have any reason, sitting here 20 today, to dispute my characterization? 21 A. I don't know if I have any reason. 22 Q. Given that, because Kamieniecki

23 (Pages 86 - 89)

Page 90 1 discloses only one in-band tuner and one 2 out-of-band tuner, would you agree with me that 3 Kamieniecki does not disclose a DOCSIS tuner? 4 A. No. 5 Q. Why not? 6 A. Because as I have stated in 7 Paragraph 2, Kamieniecki is stating the cable 8 modem can be in the set-top box. 9 MR. GALLUZZO: Let's go off the 10 record. 11 (A short recess was taken.) 12 BY MR. GALLUZZO: 13 Q. Mr. Lett, before the break, we were 14 talking about Kamieniecki. I would like to go 15 back to that, please. 16 Does Kamieniecki have an 17 analog-to-digital converter? 18 A. It could. It doesn't talk about the 19 details of the tuners, other than they could be 20 digital or analog. 21 Q. Is there a disclosure in Kamieniecki 22 that supports your statement that it could have	Page 92 1 monitoring the signal quality on the cable 2 network, you know. 3 For example, it doesn't show a video 4 output, and so the point is that it's not 5 really talking about the guts of the circuitry. 6 It is talking about the monitoring of the 7 signal quality on a cable network. 8 Q. Earlier, you had testified that your 9 read of Kamieniecki is that it could receive a 10 digital signal. 11 Do I have that right? 12 A. Yes, it can receive a digital 13 signal. 14 Q. And if Kamieniecki is receiving a 15 digital signal, must it also have an 16 analog-to-digital converter in the set-top box 17 somewhere? 18 A. So let's define what is -- what 19 digital signal are you talking about? 20 Q. What did you mean when you used the 21 phrase "digital signal" earlier today? 22 A. I would need to look back at the
Page 91 1 an analog-to-digital converter? 2 A. Not that I'm aware of. 3 Q. If it did have an analog-to-digital 4 converter, where would it be? 5 A. I mean, it could be inside that 6 set-top box, Box 110. 7 Q. Would it be on the signal path prior 8 to the tuners? 9 A. Could be, yes. 10 Q. Where else could it be? 11 A. Well, you know, the set-top could 12 have the capability to receive a baseband input 13 signal and it could have an ATD converter on 14 that. It could also, in the circuitry for 15 processing any signal, use digital signal 16 processing. And in order to use digital signal 17 processing would require an analog-to-digital 18 converter. 19 Again, the patent is talking about 20 monitoring the signal quality. There is a lot 21 of things in the set-top box that are not shown 22 in this picture, because it is talking about	Page 93 1 record to see exactly what that was. 2 Q. What does that term mean to you when 3 you use it generally? 4 A. I think a digital signal, in 5 general, outputs 1s and 0s. 6 Q. Can you tell me anything about the 7 physical characteristics of the digital signal 8 as you understand that term? 9 A. So generally, digital signals have a 10 DC voltage that over time varies between a high 11 level and a low level. Let's call it 0 to 5 12 volts for example, although it doesn't have to 13 be, and where a 1 is the 5 volts and the 0 is 14 the 0 volts. 15 Q. So I have it clear, it's your 16 testimony that Kamieniecki's set-top box could 17 receive such a digital signal? 18 A. Well, you asked me what is a digital 19 signal in general. 20 Q. So the way we started was, you 21 confirmed that Kamieniecki could receive a 22 digital signal.

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Page 94 1 I am trying to understand what you 2 mean when you testified that Kamieniecki, "yes, 3 it could receive a digital signal." 4 A. So Kamieniecki says a set-top can 5 receive analog or digital transmissions. 6 Q. Yes, and earlier, five questions or 7 so, you answered that Kamieniecki could receive 8 a digital signal. 9 My question is: What did you mean 10 when you said "digital signal"? 11 A. So a signal that, after processing, 12 or after, let's say -- not processing, after 13 demodulation, outputs 1s and 0s to the next 14 stage of the circuitry, I think is what 15 Kamieniecki is referring to. 16 Q. Is that the same as the digital 17 transmission that Kamieniecki is referring to? 18 A. I think so, yes. 19 Q. And if Kamieniecki is receiving such 20 a digital signal or digital transmission, would 21 it require an analog-to-digital converter 22 somewhere in the set-top box?	Page 96 1 digitize the analog signal so that the analog 2 waveform was represented in binary digital 3 words. 4 Q. That would be a step after 5 demodulation? 6 A. It could be a lot of different 7 places, so not necessarily. If you want to use 8 digital signal processing techniques, right, 9 which -- a lot of the classic analog processing 10 circuitry, you know, was being done with 11 digital signal processing, one would generally 12 need an analog-to-digital converter in order to 13 process that traditional analog signal using 14 digital circuitry. 15 Q. There were a couple of terms we were 16 using earlier as well: Digital tuner and 17 analog tuner. 18 When you were using the phrase 19 "digital tuner" earlier, what did you mean? 20 A. So I think in the context of 21 Kamieniecki, what he is talking about is, you 22 can receive either analog or digital
Page 95 1 A. One would generally need an 2 analog-to-digital converter to receive a 3 digital signal that outputs 1s and 0s. 4 Q. The other option in Kamieniecki that 5 you referred to earlier is an analog 6 transmission. 7 How does an analog transmission 8 differ from a digital transmission as we were 9 just talking about? 10 A. So after demodulation, the analog 11 signal would perhaps output a waveform that is 12 not just 1s and 0s as I described with one 13 voltage level versus another voltage level, you 14 know, binary data. In the case of a digital 15 signal, it would output an analog waveform 16 after demodulation. 17 Q. And if Kamieniecki is receiving such 18 an analog transmission or analog signal, does 19 it also require an analog-to-digital converter 20 somewhere in the set-top box? 21 A. It doesn't require it, but you could 22 certainly use an analog digital converter and	Page 97 1 transmissions as he states. So it's digital 2 transmissions in the case of a digital tuner. 3 Q. So a digital tuner would be a tuner 4 that receives a digital transmission. Is that 5 what you are saying? 6 A. Well, let me take that back. 7 Q. Let me withdraw the question. 8 All I am trying to do is understand 9 when you say "digital tuner" what you mean, and 10 then I will follow up and ask you when you say 11 "analog tuner" what you mean. 12 So first question: When you have 13 used the term "digital tuner" today, including 14 in relation to Kamieniecki, what you meant. 15 A. So I think as I stated earlier, the 16 output of what is defined -- I am not here to 17 define terms, but for what we are talking about 18 here is a tuner that receives a signal and it 19 outputs binary data, 1s and 0s. 20 Q. That's a digital tuner as you have 21 been using the term? 22 A. Sure. We could call it that.

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Page 98 1 Q. Can I then take it to mean that an 2 analog tuner is a tuner that receives a signal 3 and outputs a waveform? 4 A. I think we can -- yeah, we can 5 define it that way if you like. 6 Q. Okay. 7 A. You know, but in general, you could 8 -- there is a lot of different ways to define 9 analog and digital tuner but for the context -- 10 to a narrow context of this discussion, right? 11 I am okay with defining it as we just talked 12 about. 13 Q. And are those the two ways that you 14 have understood those terms as you have 15 testified here today about those two terms? 16 So, like, if you used the term 17 "analog tuner," I can take it to mean that that 18 understanding is what you understood, or when 19 you have used the term "digital tuner," I can 20 take the previous understanding you just 21 testified to as being what you meant. 22 Do you follow what I am saying?	Page 100 1 we defined that, I may not have been talking 2 about the digital tuner in the way that we just 3 defined it as. 4 Q. How else would you have been talking 5 about a digital tuner? 6 A. I mean, I suppose I could look back 7 at the record and read them all and see which 8 one, you know, what we were talking about. 9 Q. Is there another way that you use 10 the term "digital tuner" to mean something else 11 other than a tuner that receives a signal and 12 outputs a series of 1s and 0s? 13 A. I think I just answered that 14 question a minute ago. 15 Q. And I am trying to get clarification 16 so we don't have to go back and look at every 17 other use of the term. 18 Other than that usage, is there 19 another way you have used the term "digital 20 tuner"? 21 A. I don't remember. I will have to go 22 back and look at the record. Unless you want
Page 99 1 A. Yes, but I, you know, we've talked 2 about a lot of different things, right? So 3 until now, we haven't really defined a term for 4 the sake of this discussion, right? 5 And as I said earlier, you know, 6 digital tuner could mean an analog tuner that 7 outputs -- that outputs a waveform that is 8 analog, that's implemented with digital signal 9 processing circuitry, right? And then it has a 10 D-to-A on the other end, right, or not. 11 So I don't think until now, we 12 defined, you know, we want -- I think you are 13 wanting us to define a term, right? 14 Q. What I am wanting to do is to try to 15 get on the same level with you in term usage, 16 so I am trying to understand, as you have used 17 the digital tuner term today, I think we have 18 come to an understanding of what you meant. 19 A. I think that, until the point of 20 just a few minutes ago where we defined -- 21 where we agree, okay, let's call this the 22 definition, right, of a digital tuner. Until	Page 101 1 to just say, let's start from the point where 2 we just defined it, I probably need to go back 3 and look at the record to answer your question. 4 Q. Can you think right here, today, of 5 a way that you have thought of the term 6 "digital tuner" to mean something different 7 than what I just said? 8 A. I think I answered that just a few 9 minutes ago when I described the implementation 10 of a tuner using digital circuitry. 11 Q. Can we then assume a broader 12 definition, that when you have used the term 13 "digital tuner," it is a tuner that is using 14 digital circuitry? 15 A. I am okay with defining it however 16 you want to. What do you prefer? 17 Q. I think we have been kind of all 18 over the map today on digital analog, and what 19 I am trying to do rather than go and recount 20 all of our previous testimony is understand 21 what you have meant when you said those words. 22 A. Well, again, what I have meant was

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Page 102 1 before we attempted this definition. So I 2 don't -- I will have to look at all those to 3 see what I meant. 4 Q. You can't remember what you meant? 5 A. We have been all over the map and I 6 don't think I can remember them all. 7 Q. Okay. During the break, did you 8 discuss the substance of your testimony with 9 counsel or with anybody else? 10 A. No. 11 Q. You will get a chance at some point 12 to review the testimony for an errata. 13 Do you know what that is? 14 A. Yes. 15 Q. But rather than going through all of 16 our testimony from here today, can you give me 17 any definition for a "digital tuner" that 18 wouldn't be a tuner that uses digital circuitry 19 to output 1s and 0s? 20 A. Yes. 21 Q. What's that? 22 A. As I answered a few minutes ago, it	Page 104 1 Do you agree that that is a 2 potential definition for a digital tuner as you 3 might have used it today? 4 A. Yes, but I don't think that I am 5 here to define terms. I think you are the one 6 that wants to define the term and I am 7 basically, you know, letting you choose which 8 definition that you want to use going forward. 9 Q. That's not what I am doing. What I 10 am trying to do is understand what you mean 11 when you say certain things, and so we are 12 going to go over all potential definitions you 13 could have used. 14 Do you agree that the first one, one 15 of those potential definitions that you could 16 have used, what you could have thought in your 17 head as you said digital tuner, is a tuner that 18 receives a signal and outputs 1s and 0s? 19 A. Yes. 20 Q. The second one is a tuner that 21 receives a signal and has circuitry that 22 performs digital processing.
Page 103 1 could be a tuner that is meant to tune analog 2 channels and uses digital circuitry for 3 processing those analog channels. And has a 4 D-to-A converter that converts it back to 5 analog on the output. 6 Q. Meaning, it would have an 7 analog-to-digital converter on the front end, 8 do some processing and revert back to analog? 9 A. Correct. 10 Q. Some of that processing was done 11 with digital circuitry? 12 A. When -- what do you mean by "was 13 done"? 14 Q. Some of that processing in the -- in 15 the tuner is done with digital circuitry? 16 A. You asked me what could be done, and 17 I don't know what you mean by "what was done." 18 Q. Okay. Let's go through all the 19 potential definitions of a digital tuner that 20 you can think of. 21 First one I have is, a tuner 22 receives a signal, outputs 1s and 0s.	Page 105 1 Do you agree with that? 2 A. No. I think I said that performs 3 digital signal processing. 4 Q. Thank you for clarifying. 5 Second is a tuner that receives a 6 signal and has circuitry that performs digital 7 signal processing; is that correct? 8 A. Yes. 9 Q. Are there any other ways that you 10 might have used the term "digital tuner" here 11 today? 12 A. So Kamieniecki doesn't, I don't 13 think, get into the details about how the 14 signal is processed. It is possible that 15 Kamieniecki's tuner blocks, like 112 for 16 example. It could include some additional 17 processing depending on whether the signal is 18 analog or digital, for an analog or digital 19 channel, and again, he says that the tuner is 20 -- can receive analog or digital transmissions 21 and then we talk about signal monitoring. 22 So it's possible that, you know, his

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Page 106 1 tuners, there's some other definition other 2 than the two we talked about. 3 Q. While it's possible in your mind 4 that Kamieniecki might be describing some other 5 type of tuner, at least in the way that you use 6 the term "digital tuner," can you think of 7 another way that you might have used it other 8 than the two that we have already gone over? 9 A. I would like more time to think 10 about that rather than rendering a new opinion 11 that that's all there is, right? There might 12 be other definitions that I really haven't 13 thought about, because I thought I was going to 14 be testifying on my declaration. None of this 15 stuff is in my declaration. 16 Q. To be clear, I am not asking you for 17 a new opinion. I am asking you about what we 18 have talked about here today. So let me ask a 19 follow-up. 20 Here it is: Sitting here today, can 21 you think of another way to describe a digital 22 tuner in a way that you might have used it in	Page 108 1 analog tuner is generally a tuner that receives 2 an analog video signal. 3 Q. Are there any other understandings 4 of what that term means, separate from 5 Kamieniecki, in a way you might have used that 6 term today? 7 A. I don't think so. 8 Q. In your understanding, what is an 9 analog tuner output? And just -- what does an 10 analog tuner output? I'm not sure if I said 11 that correctly. 12 A. Well, sometimes it outputs an IF 13 signal that is -- let's call it a lower 14 frequency signal than the channel that was 15 received to get it in a band that is 16 appropriate for processing at the next stage. 17 Q. Is the output of an analog tuner 18 also an analog video signal? 19 A. It could be, but not necessarily. 20 It could be an IF signal representing the 21 analog signal that was modulated now at an IF 22 frequency as opposed to an RF frequency.
Page 107 1 your testimony today, than the two we already 2 talked about? 3 A. I can't think of any other 4 definitions of a digital tuner that I might 5 have used today, except those two. Perhaps I 6 have, but I don't remember. 7 Q. For the record, what were you doing 8 in the ten minutes or so between the question 9 and the answer? 10 A. I was looking at my previous 11 testimony. 12 Q. On the realtime transcript? 13 A. Yes. 14 Q. Okay. With digital tuner in hand, 15 now let's go to analog tuner. 16 Again, the goal here is to try to 17 understand what you might have meant when you 18 used that term today. 19 So what is the first description of 20 what an "analog tuner" is in the way you might 21 have used it today? 22 A. In the context of Kamieniecki,	Page 109 1 Q. Other than an IF signal or an RF 2 analog video signal, are there any other 3 potential outputs for an analog tuner as you 4 understand that term? 5 A. I mean, one could output the 6 baseband signal I suppose from an analog tuner. 7 Q. Would that baseband signal be an 8 analog signal? 9 A. Yes, I think so. 10 Q. Going back to Kamieniecki, does 11 Kamieniecki have any decoders? 12 A. It refers to, the in-band tuner 13 receives MPEG-2 transport stream and that's in 14 Paragraph 4, and it has -- it is a set-top box, 15 so if one were to receive MPEG transport 16 streams and be a set-top box, a set-top box 17 generally is used to recover and display video 18 to a television. It would have an MPEG 19 decoder. 20 Q. Where would that MPEG decoder be? 21 A. In that box, it's labeled set-top 22 box.

Page 110 1 Q. Can you describe for me any more 2 specifically where it would be? 3 A. So, in general, you know, a set-top 4 box receives the signal and processes it in 5 such a way that it could be delivered to the 6 MPEG decoder, so that the MPEG decoder could 7 then decode the MPEG transport streams and 8 process the video so that it could be displayed 9 on the screen, and that could be either 10 outputting it in a digital form like an HDMI or 11 firewire or something like that, or it could 12 output with a digital encoder, an analog signal 13 to a, you know, baseband output which would go 14 to an analog TV or it could remodulate the 15 video onto a channel. 16 It was typically done in the United 17 States to output the video on Channel 3 so that 18 the cable-ready television could tune to 19 Channel 3 -- 3 or 4 usually, Channel 3 or 4 20 typically, so the cable-ready TV could display 21 the video. 22 Q. In relation to the components shown	Page 112 1 waiting for an idle state to monitor a channel, 2 and the way I read Kamieniecki is that -- that 3 tuner is either used for displaying video, but 4 -- or, if it is not being used for displaying 5 video, meaning it is in an off state, the 6 set-top box is turned off and nobody is 7 watching video, right, or wants to watch video, 8 the monitoring occurs. 9 So instead of that tuner providing 10 signals to a box that contains, like an MPEG 11 decoder, for example, for displaying video, 12 during the time that it's off, the output of 13 that tuner would be -- would be collecting 14 channel statistics. It would tune to a 15 channel, collect channel statistics, error 16 count, signal level, et cetera, and it would 17 then store it in the memory and it would do 18 that to the next channel. It would gather 19 statistics, tune to the next channel, gather 20 statistics, each time storing the results in 21 NVM. 22 So until somebody turned the set-top
Page 111 1 on Figure 1 of Kamieniecki, can you tell me any 2 more specifically where inside the set-top box 3 the decoder would be? 4 A. So the -- so it shows the boxes 5 connected together right at the in-band tuner 6 and the module -- excuse me, the monitor, 116. 7 You would have a similar box that would come 8 from the output of the in-band tuner that would 9 process the video so it could be displayed. 10 Q. Where would that similar box sit in 11 relation to the monitor? 12 A. Probably -- well, again, there is no 13 line shown between the in-band tuner and the 14 monitor, but it would probably be -- the output 15 of the in-band tuner would go to that box. 16 Q. Go to the decoder? 17 A. Go to -- the box containing the 18 decoder functionality. 19 Q. And then would it go to the monitor? 20 A. No. Well, it could. So -- so he is 21 talking about that you could monitor signals, 22 right, so -- and he talks about that -- I am	Page 113 1 box back on, meaning that the set-top box is no 2 longer in an idle state, the channel monitoring 3 would be going on, scanning through the 4 channels one by one. 5 Q. When the set-top box is off or in 6 the idle state and doing the monitoring as you 7 described, would the output of either of the 8 tuners go through the decoder or the box that 9 contains the decoder as you called it? 10 A. Kamieniecki doesn't address that. 11 It could, but I think it's not, because I think 12 -- I think that in general, Kamieniecki is 13 describing that you are either watching 14 television on that channel it's tuned to and 15 that's when it's in the on state, or you are 16 monitoring the channel, collecting channel 17 statistics when it is in the idle state or the 18 off state. 19 Q. So when it is in the idle or off 20 state, is the decoder or the box that contains 21 the decoder being used at all? 22 A. It could be, but he doesn't address

Page 114 1 that I don't think in this patent. 2 Q. And where in the disclosure of 3 Kamieniecki does your understanding of the use 4 of a decoder and where the decoder might be 5 come from? 6 A. Kamieniecki doesn't show the 7 decoders. What he is talking about, as I 8 described previously, is that you can receive 9 an MPEG-2 transport stream and a POSITA would 10 totally understand that if I receive an MPEG 11 transport stream, that there must be a decoder 12 in the set-top box. 13 There's a lot of other things that 14 must be in the set-top box other than the small 15 amount of blocks that are shown in this diagram 16 and -- for the purpose of describing monitoring 17 signal quality on a cable network. 18 Q. And your reference to the MPEG-2 19 transport stream and therefore your 20 understanding of what a POSITA would think 21 about decoders from that, is based on Paragraph 22 4 of Kamieniecki; is that right?	Page 116 1 A. Correct. 2 Q. Is that the understanding you had 3 prior to issuing your declarations in these 4 cases? 5 A. Well, I had the patent, yes. The 6 materials considered, the Kamieniecki patent. 7 Q. Maybe that was a bad question. Let 8 me try again. 9 Isn't it true that it was your 10 understanding when you issued the declarations 11 in these cases that Kamieniecki had to wait for 12 idle before it could monitor? 13 A. I don't think it had to wait for 14 idle. The embodiment as described was for 15 idle, and it has the statement that you can 16 adapt it and modify it without departing from 17 the spirit and scope of the invention as set 18 forth in the claims. 19 Q. So I've got the '008 declaration in 20 front of me. 21 If you want to look at the '826, 22 that is probably in there as well. I'm just
Page 115 1 A. At least Paragraph 4. There might 2 be others but that's the one that I see 3 quickly. 4 Q. Sitting here today, can you think of 5 any others? 6 A. There may be others, but I don't see 7 them off the top of my head. 8 Q. Okay. I would like to go back to 9 that discussion we just had about idle. 10 Is it your understanding that 11 Kamieniecki has to wait for the set-top box to 12 be idle or off before it can monitor? 13 MR. QUALEY: Objection to form. 14 THE WITNESS: Well, I think that, 15 you know, he is talking about this one 16 embodiment as illustrated in Figure 2 but, you 17 know, he says that: "Any modification and 18 adaptations might be made thereto without 19 departing from the spirit and scope of the 20 invention as set forth in the claims." 21 BY MR. GALLUZZO: 22 Q. That comes from Paragraph 26?	Page 117 1 not going to have the exact paragraph. 2 A. Let me just switch to the '008 then. 3 Q. Sure. Could you please turn to 4 Paragraph 149. 5 A. 140? 6 Q. 9. 149. 7 MR. GALLUZZO: For the record, this 8 is Exhibit 1002. 9 (Deposition Exhibit 1002 was 10 previously marked for identification.) 11 MR. QUALEY: We are looking at the 12 '008 version? 13 MR. GALLUZZO: Correct. In Case 14 441. 15 THE WITNESS: Okay. I'm on that 16 page. 17 BY MR. GALLUZZO: 18 Q. About halfway down the page, you 19 will see a sentence that starts: "As 20 discussed." 21 A. Okay. 22 Q. It says: "As discussed above,

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Page 118 1 regarding Limitation 1E and the description of 2 Kamieniecki, Kamieniecki waits for an idle 3 period because its STB 110 has only one IB 4 tuner." 5 Do you see that? 6 A. Yes. 7 Q. Do you agree with that statement? 8 A. I do agree. The context here is, we 9 are talking about the desire to monitor all 10 channels and we are talking about the 11 embodiment that Kamieniecki described uses one 12 tuner, and so the paragraph is in the context 13 of, we need more tuners so that we can monitor 14 more channels and watch more video and that's 15 what this is about. 16 Q. You wrote this statement? 17 A. I did. 18 Q. You chose the words to put in that 19 statement? 20 A. Right. 21 Q. You didn't leave any out that you 22 wanted to put in?	Page 120 1 the declaration, that's your signature signed 2 on February 16, 2024? 3 A. Yes, it is. 4 Q. On the previous paragraph, 253, you 5 were making this statement that every -- let me 6 quote it: "All of the statements made in this 7 declaration of my own knowledge are true. All 8 statements made based on information and belief 9 are believed to be true. I declare under 10 penalty of perjury that the foregoing is true 11 and correct." 12 That's all right, right? 13 A. Yes. 14 Q. So you made this statement on 15 Paragraph 149 under penalty of perjury? 16 A. I made all the statements under 17 penalty of perjury. 18 Q. Okay. This statement in Paragraph 19 149 doesn't contain any modifier or reference 20 to just an embodiment, does it? 21 A. Well, it's -- it's talking about an 22 embodiment, right, which Kamieniecki is waiting
Page 119 1 A. I wrote the statement. 2 Q. It was truthful when you wrote it? 3 A. I haven't finished answering yet -- 4 the other question. 5 So Kamieniecki states that 6 information related to the signal quality, 7 in-band and out-of-band could be monitored, and 8 so what I am talking about in this section that 9 you referenced is, that we would like to have 10 more in-band channels so that we could do more 11 monitoring and more channel watching or 12 recording or whatever. 13 Q. The statement: "Kamieniecki waits 14 for an idle period because its STB 110 has only 15 one IB tuner" was truthful when you wrote it, 16 isn't it? 17 A. That's right. 18 Q. And you didn't leave out any words 19 that you wanted to put in that statement? 20 A. I am talking about the in-band 21 tuners, so no. 22 Q. If you flip to the last page, 124 of	Page 121 1 for the tuner to be idle, for -- waiting for 2 the in-band tuner to be idle to monitor. 3 Q. This doesn't say Kamieniecki, in one 4 embodiment, waits for an idle period, right? 5 A. No, it doesn't say that, but the -- 6 I am talking about the need -- Kamieniecki does 7 say that there is a desire to monitor more 8 channels, and that's what I am trying to 9 discuss here is that, there is a need to have 10 more channels. The marketplace was basically, 11 at this time, seeing the need for more 12 channels. 13 And so -- that's where I talk about 14 the next reference, Konstantinos would provide 15 the capability to provide more channels to the 16 Kamieniecki embodiment. 17 MR. GALLUZZO: Objection. 18 Nonresponsive starting with "the marketplace." 19 BY MR. GALLUZZO: 20 Q. Your previous answer said: 21 "Kamieniecki does say that there is a desire to 22 monitor more channels;" is that accurate?

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Page 122 1 A. Let me find it. So I think it may 2 be a better description of what I was just 3 saying is that Kamieniecki is describing that 4 with a single in-band tuner, you are having to 5 cycle through all the channels as I described, 6 and so that alludes to the problem that more 7 channels would solve. 8 Q. Okay. So we are both on the same 9 page, that it is not true that Kamieniecki says 10 there is a desire to monitor more channels. 11 That is not a true statement, correct? 12 A. I think he does disclose a desire to 13 monitor all channels by describing that you are 14 having to cycle through all the channels. 15 Q. The question was monitor more 16 channels, because those are the words you used. 17 Can you point me to where in 18 Kamieniecki, if you believe it to be true, that 19 Kamieniecki discloses a desire to monitor more 20 channels? 21 A. All channels are more channels, 22 right?	Page 124 1 Q. Where is that in Kamieniecki? 2 A. I think I just stated that a minute 3 ago. My screen went blank again. 4 Paragraph 14, it says: "Either or 5 both in-band and out-of-band." IB and OOB. 6 The top sentence, Column 2 -- well, no. We 7 don't go by columns. We go by paragraph 8 numbers. 9 Q. Top of Page 2 is what you are 10 talking about? 11 A. Yes. 12 Q. Which is Number 4 at the bottom of 13 the page? 14 A. Correct. 15 Q. Your read of that is that 16 Kamieniecki's monitor can monitor two channels 17 at the same time? 18 A. It can monitor both, an in-band 19 channel and an out-of-band channel. 20 Q. You agree that Kamieniecki doesn't 21 monitor any out-of-band channels until the 22 in-band tuner is idle?
Page 123 1 Q. Are you asking me? I am asking you 2 what your understanding is of the statement you 3 just made, sir. 4 A. So I could have just as easily said 5 "all channels." As in the declaration, 6 Kamieniecki discloses a desire to monitor all 7 channels. 8 Q. So when you said "more," you meant 9 to say "all"? 10 A. Either one works because more 11 channels is better than one channel. All 12 channels are even better than more channels. 13 Q. We agree that Kamieniecki can only 14 monitor one channel at a time, though, right? 15 A. On the in-band tuner. 16 Q. Also on the out-of-band? 17 A. No. One on the out-of-band, one on 18 the in-band. 19 Q. Kamieniecki can monitor one channel 20 on the in-band band and one channel on the 21 out-of-band at the same time? 22 A. Correct.	Page 125 1 A. It doesn't say, but a POSITA would 2 understand that an out-of-band channel could be 3 monitored all the time. 4 Q. Do you state that in your 5 declaration? 6 A. I do not. 7 Q. Why would a POSITA understand that 8 the out-of-band could be monitored all the 9 time? 10 A. Because the out-of-band in general 11 was fixed on a particular channel and receiving 12 signals from that channel all the time, whether 13 the set-top box is on or off. 14 So his statement that says "both," 15 to me means that you could receive both in-band 16 and out-of-band and monitor it at the same 17 time. 18 Q. But as we've established, that is 19 not something you said in your declaration so, 20 therefore, it is not one of the basis for your 21 opinions that the patent claims are invalid. 22 MR. QUALEY: Objection to form.

Page 126 1 THE WITNESS: You asked me about a 2 lot of stuff today that was not in my 3 declaration. 4 BY MR. GALLUZZO: 5 Q. I am asking you about this very one 6 specific instance here. Perhaps I can reask 7 it. 8 Do you agree with me that the 9 statement you made about the out-of-band tuner 10 being monitored at the same time as the in-band 11 tuner is both not in your declaration and does 12 not form a basis for your opinions about 13 obviousness in this case? 14 MR. QUALEY: Objection to form. 15 THE WITNESS: Can you break it down 16 a little bit for me so I can understand it 17 better. 18 BY MR. GALLUZZO: 19 Q. If I refer to "statement," do you 20 understand the statement I am referring to? 21 Guess not. Let me try. 22 You have just given some testimony	Page 128 1 Q. And if you're reading the realtime, 2 I think either should be neither. 3 A. The capability for Kamieniecki to 4 monitor both in-band and out-of-band tuners is 5 not necessary for supporting my opinion, 6 because we brought in Konstantinos and we 7 replaced the in-band and out-of-band tuners 8 with the Konstantinos multi-channel receiver. 9 Q. You agree that the in-band tuner 10 channels are only monitored when the in-band 11 tuner is idle, right? 12 MR. QUALEY: Objection to form. 13 MR. GALLUZZO: Is the form objection 14 because I am not specific about the reference? 15 MR. QUALEY: (Nodding head.) 16 MR. GALLUZZO: Yeah? 17 MR. QUALEY: Yeah. 18 MR. GALLUZZO: Thank you. I will 19 withdraw it. 20 BY MR. GALLUZZO: 21 Q. You agree in Kamieniecki, that the 22 in-band tuner channels are only monitored when
Page 127 1 that the out-of-band tuner could be monitored 2 -- withdrawn. 3 That the monitor of Kamieniecki 4 could monitor out-of-band channels at the same 5 time it monitors in-band channels. 6 You have also given testimony that 7 Kamieniecki's monitor could monitor out-of-band 8 channels even when the in-band tuner is not 9 idle. 10 For either of those pieces of 11 testimony, you would agree with me that they 12 are not in your declaration, correct? 13 A. That's correct. 14 MR. QUALEY: Objection to form. 15 BY MR. GALLUZZO: 16 Q. You would also agree with me that 17 neither of those pieces of testimony formed the 18 basis for any of your opinions in this case 19 that the challenged claims of the '008 or '826 20 patent are obvious or otherwise invalid? 21 MR. QUALEY: Objection to form. 22 BY MR. GALLUZZO:	Page 129 1 the in-band tuner is idle, right? 2 A. Yes, except that, you know, there is 3 that general statement about modification and 4 adaptations may be made. The instantiation or 5 the embodiment that he is describing with the 6 searching through channels, as we have talked 7 about in Figure 2, seems to -- seems to only 8 occur when the set-top box is in the off or 9 idle state for monitoring. 10 Q. There is no disclosure in 11 Kamieniecki of how to monitor in-band channels, 12 other than when the in-band tuner is idle, 13 right? 14 A. I think that's correct. 15 Q. If we look at Figure 2, it is not 16 permissive. Step 204 requires the set-top box 17 to be in an off or idle state before doing any 18 monitoring, right? 19 A. On the in-band channel, correct. 20 Q. Does Figure 2 specify in-band 21 channel? 22 A. Well, the text is talking about

Page 130 1 in-band channels. 2 You are going to ask me to find it, 3 aren't you? 4 Q. I will represent to you I am looking 5 at Paragraph 15 right here that describes those 6 steps and I don't see a reference to in-band 7 channels. 8 A. Okay. Let me take a look. 9 Well, the implications is that it is 10 in-band because a POSITA would know that the 11 out-of-band tuner doesn't step through 12 channels. Out-of-band tuner is essentially 13 fixed, and so when it is talking about stepping 14 through all the channels, it must be talking 15 about the in-band tuner. A POSITA would 16 totally understand that. 17 Q. Is the -- withdrawn. 18 Is the out-of-band tuner channel 19 part of the channel map referenced in Paragraph 20 15? 21 A. No. 22 Q. What do you base that on?	Page 132 1 A. It's on there. It says no. 2 Q. All right. Thank you. 3 In Kamieniecki, the out-of-band and 4 in-band transmissions are received 5 simultaneously by each tuner; is that right? 6 A. I better correct that one statement 7 that I just made a minute ago. 8 No, I don't think, should have been 9 my answer to the last question. 10 Q. To the one about Paragraph 26 of 11 Kamieniecki? 12 A. Yes. Okay. 13 Q. I will reask the next question. 14 A. Okay. 15 Q. In Kamieniecki, you agree that the 16 out-of-band and in-band communications or 17 transmissions are received simultaneously? 18 A. Yes. 19 Q. And the out-of-band and in-band 20 tuners can select different channels 21 simultaneously? 22 A. Well, in-band selects one channel
Page 131 1 A. A POSITA would understand that a 2 channel map refers to in-band channels, because 3 there is no need for a channel map for a single 4 out-of-band channel. It's fixed, in general, 5 in a certain location. There is no -- so there 6 is only one and there is no need for a channel 7 map. 8 MR. GALLUZZO: Let's go off the 9 record. 10 (A short recess was taken.) 11 BY MR. GALLUZZO: 12 Q. In Kamieniecki, the in-band and 13 out-of-band tuners each can only select one 14 channel at a time; is that right? 15 A. That's right. In the embodiment, he 16 describes, with the exception of the adaptation 17 as he describes in Paragraph 26. 18 Q. Do you cite to Paragraph 26 anywhere 19 in your declarations in this case? 20 A. No. 21 Q. I'm sorry. To make sure the record 22 is clear, can you give the answer again?	Page 133 1 and the out-of-band channel is what it is, 2 right? So... 3 Q. So at the same time, the in-band can 4 select a different channel from what the 5 out-of-band tuner selects? 6 A. Yes. 7 Q. If Kamieniecki wanted to monitor 8 in-band channels while the in-band tuner was 9 being used, Kamieniecki could have added 10 another in-band tuner to the architecture, 11 right? 12 A. I suppose so, yes. 13 Q. Kamieniecki didn't do that? 14 A. He doesn't describe it. 15 Q. There is no suggestion to do that in 16 the reference? 17 A. Other than the fact that we got all 18 this trouble to cycle through all the channels, 19 and at this time, there was a market need and 20 desire to have more channels to not only watch, 21 but to monitor. 22 Q. There is nothing in Kamieniecki you

Page 134 1 can point to that suggests adding a separate 2 dedicated in-band tuner, right? 3 A. Not that I can recall, other than 4 the fact that he went to all this trouble to 5 talk about scanning through channels with the 6 one in-band tuner. 7 Q. Well, if it was so simple just to 8 add another in-band tuner, why didn't he do it? 9 A. I don't know. 10 Q. It would have made his channel 11 surfing or channel monitoring easier, right? 12 A. Well, again, more tuners would allow 13 more watching of content of television and 14 monitoring more channels when those tuners were 15 not being used for monitoring, as he described 16 in the embodiment about the in-band tuner. 17 Q. If Kamieniecki added an additional 18 in-band tuner, would that increase the cost of 19 the set-top box to be developed? 20 A. It depends. You know, as silicon, 21 geometries and other progressions in the state 22 of electronics went along, it could be cheaper	Page 136 1 to say? 2 A. I am unable -- I mean, I am able to 3 say that it could be higher or lower depending 4 on the things I just described. 5 Q. Okay. Let's talk about Konstantinos 6 which is Exhibit 1010 to the record. I think 7 it's the same in both proceedings. 8 (Deposition Exhibit 1010 was 9 previously marked for identification.) 10 BY MR. GALLUZZO: 11 Q. You agree with me that Konstantinos 12 is a DOCSIS reference? 13 MR. QUALEY: Objection to form. 14 THE WITNESS: So Konstantinos is 15 talking about DOCSIS. Konstantinos is what I 16 said, right? 17 BY MR. GALLUZZO: 18 Q. Yes. 19 A. Okay. 20 Q. That's in paragraphs 11 and 12 at 21 least? 22 A. At least.
Page 135 1 or it could be more expensive, you know. If 2 you are going to redesign something, right, 3 then, you would obviously use the newer 4 components that may be more integrated and they 5 could be the same or less cost. 6 Q. In 2005, when Kamieniecki was 7 published, would it have been more expensive to 8 have two in-band tuners in a set-top box than 9 to have one? 10 A. I think I answered that question 11 with the discussion just now, about the 12 integration of functionality in silicon, as 13 well as the progression of technology. So I 14 mean, we are all familiar with the fact that 15 electronics seem to get lower cost as time goes 16 along. 17 Q. Can you answer my question in 18 relation to the year 2005 when Kamieniecki was 19 published? 20 A. I think I did. What can I clarify? 21 Q. Are you able to say whether the cost 22 would be higher or lower or are you just unable	Page 137 1 Q. That is different from Kamieniecki 2 which doesn't explicitly refer to DOCSIS, 3 right? 4 A. Correct, although Kamieniecki talks 5 about cable modems, so one would understand it 6 to be, you know, cable modem -- that was a 7 standard for cable modems, was DOCSIS. 8 Q. Now, Konstantinos's architecture in, 9 for example, Figure 2, is one of a 10 multi-channel selector having a coarse 11 multiband selector and fine channel selectors, 12 right? 13 A. I need to see if that's exactly how 14 he describes it. I don't know that he uses the 15 word "fine channel band selector." He might, 16 but I don't recall. 17 Q. I am not trying to be tricky with 18 the language, I guess I was trying to create a 19 synopsis of it. 20 A. Oh, yeah. Okay. Paragraph 78 of my 21 declaration: "Multiband selector, coarse 22 selection performed by the multiband selector

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Page 138 1 205 and then a fine channel selection performed 2 by channel selectors 207A to N." 3 Q. A through N? 4 A. A through N, yes. 5 Q. Now, that number N, that's dictated 6 by the number of channels you want the user to 7 be able to access, whether through viewing or 8 recording, right? 9 A. Yes. Or monitoring. 10 Q. What do you mean, "or monitoring"? 11 A. So -- so in the instantiation where 12 we -- where we put the multi-channel receiver 13 in, Kamieniecki is what I was talking about. 14 Q. Is it your opinion that in your 15 proposed combination, one of the channel 16 selectors, 207, would be dedicated to channel 17 monitoring? 18 A. At least. I think that as 19 Kamieniecki describes, you can monitor or 20 output video on a particular -- with a 21 particular tuner, right? So when we select 22 channels, we could be monitoring multiple	Page 140 1 declaration, it says: "In the combination, 2 since many channels can be simultaneously 3 selected and output by the Konstantinos 4 multi-channel receiver, it would have been 5 obvious to a POSITA to select one or more 6 channels, first portion of said digitized 7 signal to be output." "One or more" is the key 8 word -- "to be output to the Kamieniecki 9 monitor for monitoring and select one or more 10 channels to be output for normal usage." 11 So we are saying that we could have 12 more than one monitor and more than one for 13 watching television. 14 Q. You don't state in this Paragraph 15 146 that any of those channel selectors would 16 be dedicated to monitoring, do you? 17 A. I don't know. I have to look. 18 So no, I don't. But in Paragraph 19 145, in talking about, since Kamieniecki 20 expressly states that: "It wishes to perform 21 monitoring in the background without disturbing 22 user experiences," and this is not in my
Page 139 1 channels and/or watching and recording multiple 2 channels with multiple channel selectors. 3 Q. When I used the word "dedicated," I 4 meant that's it only did channel monitoring. 5 It didn't do decoding or watching TV or 6 recording, so let me reask. 7 Is it your opinion that in your 8 proposed combination of Kamieniecki and 9 Konstantinos, that at least one of the channel 10 selectors, 207, from Konstantinos, would be 11 used only for selection of channels to be 12 monitored, not for user viewing, not for 13 recording, not for any other purpose. 14 A. You could have one of the channel 15 selectors dedicated for monitoring, right, or 16 you could have more than one channel selector 17 dedicated for monitoring and the other tuners 18 used for processing and watching television or 19 recording or whatever. 20 Q. Where do you say that in your 21 declaration, either of them? 22 A. So in Paragraph 146 of my '008	Page 141 1 testimony, a POSITA would understand that, you 2 know, one way to do that is to dedicate one or 3 more of the channels for monitoring. 4 Q. Going back to Konstantinos's Figure 5 2, the output of multi-channel selector 206 is 6 multiple channels, right? 7 A. Yeah. It's multiple bands that are 8 going to each channel selector. 9 Q. That's true, even in the single chip 10 implementation 212 shown in Figure 2? 11 A. I think that is what Figure 2 shows, 12 yes. 13 Q. Each of these channel selectors 207, 14 am I right in saying that they output a 6 15 megahertz-wide channel? 16 A. I mean, that would be the normal 17 understanding of it, yes. I mean, you can see 18 from Figure 3 that the result is desired 19 channels coming out, right? 20 And so those could be 6 megahertz 21 wide, those desired channels, C 1 through 4, 22 for example.

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Page 142 1 Q. Is that true of the approximately 2 100 megahertz bandwidth that used to be known 3 as the out-of-band channel? 4 MR. QUALEY: Objection to form. 5 THE WITNESS: Is what true? 6 BY MR. GALLUZZO: 7 Q. In Konstantinos, as I understand it, 8 it can select channels from 50 megahertz to 1 9 gigahertz or as high as you would need, right? 10 A. Correct. 11 Q. And in that range, is what 12 Kamieniecki calls the out-of-band channel, and 13 I think you said at about a hundred megahertz; 14 is that right? 15 A. No, I don't think I said that. I 16 think the location in the spectrum was about a 17 hundred megahertz, 108 typically, and that was 18 for the systems I am familiar with. Our 19 competitors may have had a different frequency 20 that they used. 21 Q. So for the systems that you are 22 familiar with that have the approximately 108	Page 144 1 bandwidth than 6 megahertz. 2 Q. I don't know whether that's true or 3 not, but since I don't -- I also don't think 4 it's in your testimony, I think we can move on. 5 A. Okay. Fair enough. 6 MR. GALLUZZO: Let's talk briefly 7 about Renken. I believe it is Exhibit 1011. 8 (Deposition Exhibit 1011 was 9 previously marked for identification.) 10 THE WITNESS: Okay. 11 BY MR. GALLUZZO: 12 Q. I will focus on Figure 3. 13 A. Uh-huh. Okay. 14 Q. Figure 3 of Renken shows the 15 downstream receiver circuit, and it has a 16 number of downstream receivers, 21. 17 Do you see that? 18 A. Yes. 19 Q. Those downstream receivers have 20 componentry to select channels; is that right? 21 A. And processing of some of those 22 channels, yes.
Page 143 1 megahertz portion of the spectrum for the 2 out-of-band communications, if Konstantinos 3 wants to select that portion of the bandwidth, 4 its channel selector is selecting a 5 6 megahertz-wide portion of bandwidth, right? 6 A. No. No. The out-of-band signals 7 were not that wide. They were typically a lot 8 less than that and I can't remember how much. 9 Q. One and a half? 10 A. Maybe. I don't know. 11 Q. Are you aware of anything in 12 Konstantinos that says that its channel 13 selectors can select channel sizes of varying 14 bandwidth? 15 A. I don't think there was a need to. 16 He was talking about receiving DOCSIS and 17 DOCSIS channels were 6 megahertz, right, so I 18 can look, but the way I understand 19 Konstantinos, and this is probably not in my 20 testimony because I didn't go down this path, 21 right, is I believe that the multi-channel 22 selector was capable of outputting a smaller	Page 145 1 Q. Even though Renken has multiple of 2 these downstream receivers, it is true that 3 Renken still waits for idle to monitor; is that 4 right? 5 A. I don't think Renken says that. 6 Perhaps you can point to me -- point to my 7 declaration and see if I said differently. 8 Q. Yeah. Let's look at Paragraph 90. 9 A. Okay. 10 Q. I'm still on the '008 declaration. 11 I believe this is identical in '826 as well. 12 A. Okay. 13 Q. The first sentence of Paragraph 90 14 says: "Renken describes that the MCCM 100 may 15 receive a request from a central management 16 controller, CMC 7, to perform measurements 17 using one or more idle receivers, and the MCCM 18 100 may send its measurement results back to 19 the CMC 7." 20 A. Okay. I stand corrected on the idle 21 part that I just said. 22 Q. Understood. Again, this isn't meant

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Page 146 1 to be a trick. I am trying to make sure we 2 agree on that point and then I will ask a 3 follow-up. 4 A. Okay. 5 Q. Do we grow that even though Renken 6 has multiple downstream receivers, that it 7 still performs measurements using idle 8 receivers? 9 A. Yes. 10 Q. It waits for those receivers to be 11 idle before using them for monitoring? 12 A. Let me read that section just to 13 make sure. 14 Q. You cite to Column 9, Lines 5 to 18. 15 A. Yes. So I think you are correct, it 16 waits for those to be idle -- 17 Q. Renken? 18 A. -- for monitor in Renken. 19 Q. Renken uses the phrase "unused 20 receivers" in that portion that you cited? 21 A. That's right. 22 Q. Even though Renken has multiple	Page 148 1 monitoring? 2 A. Well, it does not preclude from 3 using a single downstream receiver for both 4 watching video and measuring and monitoring. 5 But if you notice that each one of the boxes, 6 each one of the downstream receiver circuits 7 outputs data packets to -- for purposes, like, 8 you know, DOCSIS or watching video or whatever, 9 and simultaneously, that same box can output 10 measurement data. 11 See the arrows on the bottom of 12 Figure 3? 13 Q. I do. I think I am asking a 14 slightly different question. 15 A. Okay. So I could -- I mean, the way 16 I read it is, you can be on a single downstream 17 receiver, be watching TV and measuring data. 18 Q. That is not what Renken says though. 19 Renken said you have to wait for an 20 idle downstream receiver to monitor? 21 A. It says: "May receive requests to 22 perform measurements using one or more idle
Page 147 1 downstream receivers, why does it still wait 2 for idle to monitor? 3 A. Well, a POSITA would understand that 4 you -- it might be desirable to use all of the 5 -- all of the -- what do you call it? 6 Q. Downstream receivers. 7 A. Thank you. All the downstream 8 receivers for watching video at a particular 9 time. So, you know, it doesn't say 10 specifically how many of these are in here, how 11 many of the downstream receivers, 21 receivers, 12 21, are in a particular implementation, so, you 13 know, if it was two, for example, or three, for 14 example, or four, you know, somebody -- a user 15 might want to watch two, three or four channels 16 at any particular time, whereas if you had like 17 50 of them, right, it's likely that you would 18 have a downstream receiver idle pretty much all 19 the time. No desire to use all 50 for watching 20 content. 21 Q. Why doesn't Renken just use a 22 downstream receiver while it is in use to do	Page 149 1 receivers." I mean, I don't think this is 2 important anyway, right, whether a single 3 receiver can output both. 4 Q. Okay. Maybe I am just going down 5 the wrong path. 6 Let me pause there and we can -- 7 A. Okay. 8 Q. I will talk to my colleague and we 9 can maybe revisit that later if necessary. 10 A. I don't think I talked about that in 11 my declaration, but the way I understand the 12 invention is a single receiver could do -- 13 could have two purposes. 14 Q. I would like to talk now about your 15 proposed combination of the Kamieniecki and 16 Konstantinos references. 17 A. Okay. 18 Q. I think this discussion applies 19 equally to both cases. If you think your 20 answer would change, let me know. I don't 21 think any of my questions are inapplicable. 22 So in your proposed combination of

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Page 150 1 Kamieniecki and Konstantinos, I understand that 2 you are saying to take the in-band and 3 out-of-band tuners of Kamieniecki and replace 4 that with the multi-channel receiver of 5 Konstantinos; is that correct? 6 A. That's right. 7 Q. If we go back to Konstantinos and 8 look at that multi-channel receiver, there are 9 channel selectors A through N. 10 In your proposed combination, what 11 is that number N? 12 A. I didn't give a number, I don't 13 think in my declaration. 14 Q. I didn't see one either, which is 15 why I am asking. 16 So in your opinion, in your 17 combination that you believe renders the 18 asserted claims obvious, what is that number N? 19 A. I don't know. I would need to think 20 about that. 21 Q. In your proposed combination, which 22 part of Konstantinos's multi-channel receiver	Page 152 1 receiver and you put in place the out-of-band 2 and in-band tuners, then it connects to the MON 3 box in Konstantinos. 4 Q. For the record, what you are 5 referring to is Paragraph 131 in the '826 IPR? 6 A. Yes, that's correct. 7 Q. And that's your support for where 8 you opine that Konstantinos's multi-channel 9 selector and its multiple output streams 10 connect to Kamieniecki's monitoring box? 11 A. At least. There may be other places 12 also. 13 Q. Do you opine that there are other 14 places? 15 A. I don't remember, but I can look for 16 it if you like. 17 Q. I don't believe it's there, but yes, 18 please look. 19 A. I mean, in Paragraph 151, it says -- 20 Q. Before you go on, Paragraph 151 of 21 which declaration? 22 A. '826. The bottom of the page there,
Page 151 1 is connected to Kamieniecki's monitor? 2 A. So -- so the output from 3 multi-channel selector or multi-channel 4 receiver 200, those outputs go to the 5 monitoring. 6 Q. Where do you say that in your 7 declaration? 8 A. I knew you were going to ask me 9 that. 10 Q. I think you're getting a feel for my 11 questioning. 12 A. So in Paragraph 131, I say: "It 13 would be obvious to a POSITA to use 14 Konstantinos' multi-channel receiver in place 15 of in-band and out-of-band tuners in 16 Kamieniecki 110, as doing so merely combines 17 prior art elements according to known methods 18 to yield predictable results." 19 So if you look at the out-of-band 20 and the in-band tuner in Kamieniecki, it 21 connects to the monitor. So if you take that 22 box, the Kamieniecki's -- the Konstantinos	Page 153 1 75, Paragraph 151: "A POSITA would have known 2 how to incorporate Konstantinos' ADC 204 and 3 multi-channel selector 206 in place of 4 Kamieniecki's in-band and out-of-band tuners," 5 so to me, that means it connects to the MON, 6 because looking at the block diagram of 7 Kamieniecki. 8 Q. That to me seems consistent with the 9 Paragraph 131 we were previously looking at. 10 My question was whether there were 11 any other places where the multi -- multiple 12 output streams of Konstantinos would connect to 13 Kamieniecki's monitoring box. I guess I meant 14 in other places in the set-top box you were 15 proposing to combine, not other places in your 16 declaration. 17 A. I'm sorry. I misunderstood your 18 question. I was looking for other places in 19 the declaration. 20 Q. Okay. Let's pause. I'm sorry. It 21 was my lack of clarity. 22 Other than connection between

Page 154 1 Konstantinos's multiple output streams to 2 Kamieniecki's monitor, as described in 3 Paragraph 131 and now 151, are there any other 4 connections between Konstantinos's 5 multi-channel receiver and Kamieniecki's 6 monitor that you opined about? 7 A. No. I think we are talking about 8 just simply replacing the out-of-band and 9 in-band tuner of Kamieniecki with the 10 downstream receiver. 11 Q. You don't opine that there needs to 12 be additional -- 13 A. Sorry. I used the wrong word. 14 Excuse me. 15 Q. Please restate it. 16 Multi-channel receiver I think is 17 what you are looking for. 18 A. Thank you. Digital multi-channel 19 receiver. 20 Q. Yeah. Sorry. You might be able to 21 see your answer in front of you. It starts at 22 Line 108/15.	Page 156 1 MR. QUALEY: Objection to form. 2 THE WITNESS: So multiple decoders 3 were required to watch multiple television 4 channels, and in this section, we are talking 5 about -- we obviously have to have decoders and 6 they even cite Ota, describe a system of 7 multiple decoders are added, so one certainly 8 understand -- a POSITA would certainly 9 understand that decoders are needed for, you 10 know, each television channel you wish to 11 recover. 12 So to correct my previous answer, 13 you would also need multiple decoders in the 14 Kamieniecki set-top box as described by 15 Konstantinos and Ota. 16 BY MR. GALLUZZO: 17 Q. Are you relying on Ota for the 18 decoders to meet limitation 1D? 19 A. It's just another example of 20 multiple decoders, so... 21 Q. This is -- might not seem like an 22 important point but it is a relatively
Page 155 1 Just please restate your answer to 2 correct it the way you would like. 3 A. We talked about simply replacing the 4 out-of-band and in-band tuners of Kamieniecki 5 with the Konstantinos digital multi-channel 6 receiver. 7 Q. You are not opining that additional 8 hardware is necessary between the multi-channel 9 receiver of Konstantinos and the monitor of 10 Kamieniecki, correct? 11 A. Correct. 12 Q. If you go to -- with apologies, the 13 '008 declaration and you go to Paragraph 136. 14 Are you there with me? 15 A. Yes. 16 Q. Here, you talk about decoders as you 17 understand it in Kamieniecki and decoders that 18 are disclosed in Konstantinos. 19 And my question is: For purposes of 20 your combination, whose decoders are in the 21 combined set-top box, Kamieniecki or 22 Konstantinos?	Page 157 1 important point for these proceedings. So I am 2 hoping I can get a yes or a no to be clear. 3 Are you relying on Ota to provide 4 decoders that you opine meet limitation 1D? 5 MR. QUALEY: Objection to form. 6 THE WITNESS: I mean, I say that: 7 "MPEG decoders would have been necessary for 8 decoding the MPEG stream that Kamieniecki and 9 Konstantinos describe," and so it would be 10 obvious to a POSITA that you need multiple MPEG 11 decoders to display multiple channels, and Ota 12 is just cited as an example of a system with 13 multiple MPEG decoders. It was well-known to a 14 POSITA. 15 BY MR. GALLUZZO: 16 Q. Konstantinos discloses a 17 multi-channel decoder, right? 18 MR. QUALEY: Objection to form. 19 THE WITNESS: It discloses a 20 multi-channel receiver architecture. 21 BY MR. GALLUZZO: 22 Q. It also discloses a multi-channel

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Page 158 1 decoder, correct? 2 A. Right. In Figure 9 of Konstantinos, 3 940: "A multi-channel decoder receives the 4 output of the multiband selector, performs 5 baseband signal operations on all or some of 6 the streams, channel decoder." 7 Q. So my question is: For purposes of 8 meeting limitation 1D of the '008 patent and 1F 9 of the '826 patent, you have opined that 10 decoders meet those limitations. 11 My question is: In your proposed 12 combination, which reference are those decoders 13 coming from? 14 A. So Konstantinos has a multi-channel 15 decoder that performs channel decoding on all 16 or some of the streams. So it's in 17 Konstantinos. 18 Ota is just cited as another example 19 of what was going on in, you know, in the 20 industry with multiple MPEG decoders. 21 Q. If one of skill in the art were 22 putting together your proposed combination	Page 160 1 in the art did not use the Konstantinos 2 multi-channel decoder, where would those 3 decoders sit in the box? 4 MR. QUALEY: Objection to form. 5 BY MR. GALLUZZO: 6 Q. I guess I could specify. 7 Where would they sit in relation to 8 the monitor and the multiple -- I'm sorry, the 9 multi-channel receiver? 10 A. I think I need you to break the 11 question down for me a bit so I understand it 12 better. 13 Q. Earlier, you testified it could be 14 either, and I understood that to mean that the 15 decoders could either come from obviousness, 16 based on person's reading of Kamieniecki, or it 17 could come directly from Konstantinos's 18 multi-channel decoder. 19 Am I correct in that understanding? 20 A. That sounds correct. 21 Q. So what I am trying to imagine is, 22 in the processing stack, or if you want to call
Page 159 1 set-top box, they are doing what you say they 2 would do, which is replace the in-band and 3 out-of-band tuners of Kamieniecki with the 4 multi-channel receiver of Konstantinos, the box 5 would have to have decoders. 6 So would that person of skill in the 7 art take the decoders from the Konstantinos 8 disclosure or would it take the decoders from 9 what you say would be obvious in the 10 Kamieniecki disclosure? 11 A. It could be either. It is just 12 obvious that we need multiple decoders and -- 13 and Kamieniecki doesn't go into much detail 14 about MPEG decoding, right, so one would, you 15 know, he could -- he just knows that you have 16 to have multiple MPEG decoders if you are going 17 to output and view multiple channels and so, 18 you know, more details of that could be 19 rendered from Konstantinos and/or Ota or 20 perhaps a million other references. 21 Q. In putting together your proposed 22 combination set-top box, if a person of skill	Page 161 1 it the processing steps of an incoming signal, 2 where do the decoders sit, now that you have 3 replaced in-band and out-of-band tuners with 4 the multi-channel receiver of Konstantinos? 5 A. So it would be after the 6 multi-channel receiver so that you could decode 7 and display the channel selected with the 8 channel selector 207 A through N. 9 Q. Would it also be before the monitor 10 from Kamieniecki? 11 A. So the monitor is different than the 12 MPEG decoder. So the MPEG -- there is no MPEG 13 decoder in the monitoring path of Kamieniecki. 14 Does that answer your question? 15 Q. Give me a moment. 16 MR. QUALEY: Can we take a break. 17 MR. GALLUZZO: Yeah, let's take a 18 break. 19 (A short recess was taken.) 20 BY MR. GALLUZZO: 21 Q. Mr. Lett, are you ready to go back 22 on or do you need more time?

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Page 162 1 A. Give me just a second. 2 Q. Sure. 3 A. Okay. 4 Q. What were you reviewing? 5 A. I was looking at my declaration. 6 Q. Anything in particular? 7 A. I was just rereading that section 8 about the MPEG decoding. 9 Q. Okay. So I hope that pictures can 10 help here. 11 (Deposition Exhibit 2011 was marked 12 for identification.) 13 BY MR. GALLUZZO: 14 Q. What I am going to hand you is what 15 I've marked as Exhibit 2011, which I have used 16 blue pen to try to indicate what I think I am 17 hearing you say, but I want you to tell me 18 whether I am right or not, and if I am not 19 right, I'll give you an opportunity to further 20 display it for me. 21 But I will hold this up so that I 22 can explain and then I will give it to you.	Page 164 1 would make, and that there would be decoders in 2 the system, at a high level, is this the 3 architecture of the multi-channel receiver, the 4 decoders and the monitor that you are opining 5 on? 6 MR. QUALEY: Objection to form. 7 THE WITNESS: Can you please ask the 8 question again. Some of the words are not 9 spelled out correctly, so I don't quite 10 understand it reading it. 11 BY MR. GALLUZZO: 12 Q. Sure. The realtime is a very good 13 version of the transcript. The final will be 14 checked over later. But trust me, this is much 15 better than it used to be without the realtime. 16 Here is my question: You are giving 17 opinions about the combination of Kamieniecki 18 and Konstantinos and how a person of ordinary 19 skill in the art would combine them as of the 20 critical date. 21 Is it your opinion that that 22 combination would include decoders in the place
Page 163 1 A. Okay. 2 Q. On the left, I have drawn the 3 headend. There is a right-facing arrow that 4 goes to Exhibit 1010, Number 212, that is meant 5 to represent Konstantinos's multi-channel 6 receiver. 7 Then there's multiple arrows to the 8 right just like in the diagram on Figure 2, 9 there's multiple output streams below that. To 10 the right of that, I have decoders. To the 11 right of that, I have the multiple output 12 streams again, and then to the right of that, I 13 have Exhibit 1009, Number 116 is meant to 14 represent Kamieniecki's monitor. 15 I'm going to hand this to you. You 16 can continue to study it and let me know when 17 you are ready for me to ask you questions. 18 A. Okay. 19 Q. Is this -- withdrawn. 20 When you are opining about the 21 combination of Kamieniecki and Konstantinos 22 that a person of ordinary skill in the art	Page 165 1 I have put it in Exhibit 2011, and the overall 2 architecture of those three components, as I 3 have drawn them? 4 MR. QUALEY: Objection to form. 5 THE WITNESS: So what do you mean by 6 "MON"? 7 BY MR. GALLUZZO: 8 Q. If you look at Exhibit 1009, that is 9 Kamieniecki. 10 A. Right. 11 Q. And you look at Figure 1, it says 12 "MON," and has the number 116. 13 A. Right. 14 Q. I mean that box to represent the 15 same thing, Kamieniecki's monitor. 16 A. So what do you mean by "decoders" 17 here? 18 Q. The decoders that we have been 19 discussing that you said a person of skill in 20 the art would understand, had to be in the 21 set-top box or would have been from 22 Konstantinos's multi-channel decoder.

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Page 166 1 A. You mean the MPEG decoders we have 2 been talking about? 3 Q. Yes. 4 A. So the MPEG decoders are generally 5 for the purpose of displaying video, recovering 6 video and audio, as I state in my '826 7 declaration, Paragraph 163, so they can be 8 displayed for a user. 9 So this diagram that you are showing 10 is monitoring a channel, I think is what you 11 are intending to show here. There probably is 12 not an MPEG decoder in between the -- what is 13 the right word, multi-channel receiver and the 14 MON. 15 In general, the -- one of the 16 outputs, it's one or more of the outputs, 17 right, go to one or more decoders for the 18 purpose of displaying video. In that 19 functionality, if it's for the purpose of 20 displaying video, you don't have to have an 21 MPEG decoder. 22 So it's possible that one could also	Page 168 1 characteristics could determine the absence or 2 the -- or the parameter that indicates there is 3 an absence of signal. And then you would -- 4 could communicate the absence of that channel 5 to the headend. 6 Q. Could you also measure channel 7 absence or presence after an MPEG decoder? 8 A. I am trying to think about that, and 9 I think, in general, the absence and presence 10 that we are talking about in this context has 11 to do with the quality of reception of the 12 signal at the set-top box, and that can be 13 determined normally before MPEG decoding. 14 Q. Would you need an MPEG decoder to 15 monitor error count? 16 A. No. 17 Q. Would you need an MPEG decoder to 18 monitor signal level estimates? 19 A. No. 20 Q. You had testified that you would 21 draw the drawing slightly differently so what I 22 am about to hand you is Exhibit 2012.
Page 167 1 have an MPEG decoder in that path if you wanted 2 to measure something that had to do with the 3 video channel after decoding. But if we are 4 talking about monitoring something, like signal 5 noise ratio, or I mean, even error rate for the 6 visual stream, you don't have to have a MPEG 7 decoder. 8 So I would probably draw this a 9 little differently than what you drew. 10 Q. I'm going to give you a chance to do 11 that in a moment. Let me ask one follow-up 12 first. 13 Would you need a MPEG decoder to 14 monitor channel absence or presence? 15 A. Not necessarily. 16 Q. What do you mean? 17 A. The channel could be absent as a 18 result of low bit error rate that could be 19 measured before the MPEG decoder, or it could 20 be a result of low modulation error ratio, MER, 21 and that would be measured before an MPEG 22 decoder, and so either one of those signal	Page 169 1 (Deposition Exhibit 2012 was marked 2 for identification.) 3 BY MR. GALLUZZO: 4 Q. I again used a blue pen. To make it 5 easy for the record, I'm going to hand you a 6 red pen, and so if you make any modifications, 7 we'll know whose is whose. 8 Really, the only difference between 9 Exhibit 2011 and 2012 is, I've added a box for 10 TV up top, in case you wanted to show signals 11 going to the user, and I haven't included a 12 decoder or any lines going into the monitor. 13 But what I would like you to do for 14 me is to indicate your opinion that you stated 15 in your declaration about where the decoder 16 would go and how the multiple output streams 17 from Konstantinos's multi-channel receiver 18 could make their way presumably both to the TV 19 and the monitor. 20 MR. QUALEY: I'll put an objection 21 on the record that you are almost creating -- 22 asking a witness to create evidence.

Page 170 1 BY MR. GALLUZZO: 2 Q. To be clear, I am asking you to 3 depict what you have described in your 4 declarations as your opinions in this case. 5 If you believe that you haven't 6 given such opinions, please state so and I will 7 withdraw. 8 A. So I did not, I don't think, in my 9 declaration lay out a block diagram for the 10 system. Instead, I think what I did was, as in 11 Paragraph 163 of the '826 describes, it says 12 that: "After an MPEG stream is received, it 13 will need to be decoded to recover the video 14 and audio so it can be displayed for a user." 15 I didn't draw a diagram of where is 16 the MPEG decoder, I don't think, and so I 17 believe this might be a new opinion that I 18 would like to not do on the fly. I would like 19 to think about it and make sure it is accurate. 20 Q. So it's your testimony that it's a 21 new opinion where the decoder would be 22 positioned in relation to the multi-channel	Page 172 1 A. I believe I described how the output 2 stream gets to the monitor. 3 Q. I believe you testified that the 4 output stream does get to the monitor, yes. 5 You've also testified that the output stream in 6 some way gets to the TV for viewing. 7 My question is a little different. 8 My question is: You haven't provided any 9 testimony in your declaration and you are 10 unable to provide testimony here today claiming 11 it to be a new opinion, about how the output 12 streams get both to the monitor and the TV; is 13 that right? 14 MR. QUALEY: Objection to form. 15 THE WITNESS: I have said in my 16 declaration that digitized signals are output 17 to both the -- the processing and the monitor 18 simultaneously. 19 BY MR. GALLUZZO: 20 Q. How? 21 A. So the section starting with 22 Paragraph 139 of the '008 declaration,
Page 171 1 receiver, the monitor and the TV? 2 MR. QUALEY: Objection to form. 3 THE WITNESS: Perhaps I missed it, 4 but did I point out where the decoder was 5 positioned in relation to the multi-channel 6 receiver and the monitor and the TV in my 7 declaration? 8 BY MR. GALLUZZO: 9 Q. No, I don't think you did. 10 A. So it sounds like it would be a new 11 opinion for me to draw that diagram. 12 Q. So you haven't provided any opinions 13 in this case about where the decoder would 14 be -- 15 MR. QUALEY: Objection to form. 16 BY MR. GALLUZZO: 17 Q. -- is that right? 18 A. I don't remember. 19 Q. You haven't provided any opinions 20 about how the multiple output streams of the 21 multi-channel receivers somehow get both to the 22 monitor and the TV?	Page 173 1 Paragraph 146, for example. 2 Q. Was your answer finished or do you 3 still have more? 4 A. I'm ready for the next question. 5 Q. You cite to Paragraph 146. You say: 6 "It would have been obvious to a POSITA to 7 select one or more channels to be output to the 8 Kamieniecki monitor 116 for monitoring, and 9 select one or more channels to be output for 10 normal usage, such as watching a television 11 channel, thereby showing the concurrently 12 output recited in element 1E." 13 A. Correct. 14 Q. But you don't testify how the POSITA 15 or the combined set-top box would select such 16 channels to go to two different places, do you? 17 A. Well, there is some examples in, you 18 know, the channel selector process as described 19 in Paragraph 140 and through the examples shown 20 in Figure 3 of Konstantinos that the channel 21 selector outputs can go two places, and then I 22 describe in 146, that one of the places is, you

Page 174 1 know, for watching a television channel and the 2 other one is for monitoring. 3 Q. If it's your testimony that it is 4 possible to send those channels that are 5 selected to two different places and that it is 6 supported by the references, I would like you 7 to try to fill in my diagram, Exhibit 2012. 8 Are you able to do that? 9 A. I would not like to do that on the 10 fly. 11 Q. If it is something that you've 12 opined on in this case, I think you should do 13 it. If you are unable -- 14 A. You want me to design your set-top 15 box for you in this declaration -- in this 16 deposition? 17 Q. I would like you to show me visually 18 how you understand your written opinions to be 19 related to this issue. 20 A. My written opinions are as stated. 21 Q. Sir, are you unwilling to fill in 22 Exhibit 2012?	Page 176 1 and I am not comfortable with it at this time, 2 because I need to think about all the details 3 that are required to draw that block diagram. 4 BY MR. GALLUZZO: 5 Q. You haven't already thought about 6 all those details that are required? 7 A. I haven't drawn a schematic diagram. 8 Q. You say you need time to think about 9 all the details that are required to draw that 10 block diagram. 11 You agree with me that you have not 12 yet already thought about all those details? 13 MR. QUALEY: Objection to form. 14 THE WITNESS: No. I need more time 15 to think about those details in order to 16 complete this drawing. 17 BY MR. GALLUZZO: 18 Q. Sticking with the '008 declaration, 19 go to Paragraph 145, please. 20 Are you there? 21 A. Yes. 22 Q. This is a long paragraph. I'm going
Page 175 1 A. I do not feel comfortable creating 2 evidence at this time. 3 Q. So you are unwilling? 4 A. I am here to answer questions about 5 my declaration. 6 Q. And I think your declaration is 7 hopelessly ambiguous on this point and my 8 attempt is to try to figure out visually what 9 you are trying to get across and give you an 10 opportunity to show me because I am failing to 11 understand. 12 So here is my question: Are you 13 able to fill in Exhibit 2012 at a high level to 14 depict how the multiple output streams from 15 Konstantinos's multi-channel receiver can go to 16 both the monitor and/or the TV? 17 MR. QUALEY: Objection to form. 18 We lost the realtime again. 19 MR. CHANG: The computer is asleep 20 again. 21 THE WITNESS: I believe it would be 22 a new opinion for me to draw this block diagram	Page 177 1 to focus on -- looks like it's the second 2 sentence from the bottom. It starts with: 3 "Kamieniecki described waiting." 4 Do you see that sentence? 5 A. Yes. 6 Q. I will just read it into the record. 7 "Kamieniecki described waiting until 8 the STB 110 was idle before performing its 9 monitoring, but this was only needed because 10 Kamieniecki's STB 110 had only one IB tuner, 11 112, and only one OOB tuner, 114, because 12 Kamieniecki wished to avoid disturbing users." 13 Do you see that? 14 A. Yes. 15 Q. This part about "wished to avoid 16 disturbing uses," I would like to focus on. 17 My first question is: You would 18 agree with me that a person of skill in the art 19 in 2011, when designing a set-top box, would 20 still wish to avoid disturbing users, right? 21 A. I'm not sure I understand. 22 Q. Would you agree with me that in

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Page 178 1 2011, those in the art designing set-top boxes 2 had as one of their goals, don't disturb a user 3 when monitoring? 4 A. Kamieniecki said that he wished to 5 avoid disturbing users. 6 Q. Generally, was it a goal of those 7 skilled in the art in 2011 when designing 8 monitoring functionality, not to disturb users 9 as part of that functionality? 10 A. I think that is fair, yes. 11 Q. I would like to talk about -- oh, 12 sorry, I moved too quickly. 13 Your proposed combination of 14 Kamieniecki and Konstantinos, a person of skill 15 in the art putting that combination together 16 would still have a desire not to disturb users 17 when designing the monitoring functionality, 18 right? Your combination doesn't change that 19 general motivation? 20 A. Well, it actually makes it less 21 disturbing, to avoid disturbing users because 22 there is more tuners available.	Page 180 1 Q. So first off, I am just trying to 2 understand how many arguments you are putting 3 up in this Paragraph 146. I can't tell if it 4 is one or two. Let me explain and then I will 5 ask my question. 6 It's possible to read this paragraph 7 as being one argument from the words "in the 8 combination" to the words recited in element 9 1E. And then to read as a second argument, 10 starting with "Konstantinos also describes" to 11 the end. 12 So here is my question. Was it your 13 intents in this paragraph to have one cohesive 14 argument or to have two separate arguments? 15 MR. QUALEY: Objection to form. 16 THE WITNESS: I'm just describing an 17 additional capability, as described by 18 Konstantinos in the second half of that 19 section, starting with "Konstantinos also 20 describes an interface circuit." 21 What it's saying is that you could 22 output the multi-channel selector to a device
Page 179 1 Q. Yeah, my point was maybe adjacent to 2 that, so let me try to ask it a different way. 3 The person of skill in the art you 4 opine that, who would combine Kamieniecki and 5 Konstantinos as part of that combination, would 6 they still be motivated not to disturb users 7 with the final result they came up with? 8 A. That's one of the main reasons that 9 they would want multiple receives so that they 10 would have more tuners available so that they 11 could allow the user to watch more channels 12 and/or have more -- have a channel available 13 for monitoring because of the multiple channels 14 that were being used for watching television. 15 Q. I would like you to go to the next 16 paragraph, 146. And again, I am using the '008 17 declaration. I think it's identical in the 18 '826, but feel free to refer to that if you 19 want. There just might be a different 20 paragraph number. 21 Are you there with me? 22 A. Yes.	Page 181 1 that's not -- to a component or device that is 2 not part of the single chip to be further 3 processed. 4 So it's adding that one or more 5 channels could be processed somewhere else, 6 other than the data processor or the MPEG 7 decoders that's within the single chip. 8 BY MR. GALLUZZO: 9 Q. So is your interface circuit 10 argument part of your obviousness combination 11 or is it ancillary or extra? 12 MR. QUALEY: Objection to form. 13 THE WITNESS: It's described by 14 Konstantinos, you know, in Figure 9 and in 15 Paragraph 121. He is outputting these streams 16 to be further processed with channel and source 17 decoders. 18 THE COURT REPORTER: I'm sorry. I 19 didn't hear the end. 20 MR. GALLUZZO: With channel and 21 source decoders. 22 THE COURT REPORTER: Thank you.

Page 182 1 BY MR. GALLUZZO: 2 Q. Let me ask it a different way. 3 If I were to say that your interface 4 circuit argument was necessary for your opinion 5 on Claim 1 of this patent, the '008 patent, 6 would you have any reason to disagree with me? 7 MR. QUALEY: Objection to form. 8 THE WITNESS: Kamieniecki states 9 this is an optional -- 10 BY MR. GALLUZZO: 11 Q. Konstantinos? 12 A. I'm sorry. Konstantinos, thank you, 13 states that it's an optional feature. 14 Q. Even though Konstantinos states it's 15 an optional feature, is it optional for your 16 opinions? 17 MR. QUALEY: Objection to form. 18 THE WITNESS: The declaration is 19 talking about two ways to achieve the 20 functionality of outputting to an MPEG decoder 21 in the box or component and that also, to give 22 the output to another place that could also	Page 184 1 Konstantinos, you'd agree with me that it 2 refers to outputs, not from the multi-channel 3 selector, but from the multiband selector or 4 the multi-channel decoder, right? 5 A. So it says: "An interface circuit 6 receives outputs from the multiband selector 7 and/or the multi-channel decoder. So you've 8 got those. The interface circuit receives 9 those two, right? 10 Then we can potentially multiplex 11 streams for data transmission from component IC 12 to the off-chip environment, so I don't know 13 what is the difference in that and what I said. 14 Q. You used the element multi-channel 15 selector. 16 You would agree with me in Paragraph 17 121, there is no reference to any outputs being 18 sent from the multi-channel selector to the 19 interface circuit, but instead, from the 20 multiband selector and/or the multi-channel 21 decoder which are different things. 22 A. So you're questioning whether it's
Page 183 1 decode and process the video to be watched as 2 normal, so I think, you know, both achieve the 3 same result that -- of the claim element. 4 BY MR. GALLUZZO: 5 Q. You say here: "Konstantinos also 6 describes an interface circuit that would allow 7 for outputs from the multi-channel selector to 8 be sent to a monitoring unit that was not a 9 component of Konstantinos's single chip 10 implementation." 11 A. Right. 12 Q. You cite to Konstantinos, Paragraph 13 121. 14 A. Right. 15 Q. You are not quoting Konstantinos 16 here, right? That's your summary? 17 A. It's not a quote, it doesn't look 18 like, no. 19 Q. It is actually imprecise because 20 that is not what Konstantinos says, does it? 21 A. I think it does. 22 Q. Well, if you go to Paragraph 121 of	Page 185 1 called multiband selector or -- 2 Q. Let's see if we can -- 3 A. -- or multi-channel selector? 4 Q. Let's see if we can agree on some 5 basics. 6 You agree that nowhere in Paragraph 7 121 of Konstantinos is the term "multi-channel 8 selector"? 9 A. Correct. 10 Q. You agree that the multi-channel 11 selector is something different from the 12 multi-channel decoder? 13 A. Say that again, please. 14 Q. Do you agree that the multi-channel 15 selector is something different from the 16 multi-channel decoder? 17 A. Yes. 18 Q. Do you agree that the multi-channel 19 selector is something different from the 20 multiband selector? 21 MR. QUALEY: Objection to form. 22 THE WITNESS: If the band was one

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Page 186 1 channel, it's the same. 2 BY MR. GALLUZZO: 3 Q. Where in Konstantinos is there any 4 disclosure of a band of one channel? Sounds 5 like we are just making stuff up here. 6 A. So Konstantinos describes that the 7 size of the block of channels for the multiband 8 tuner or multiband selectors, excuse me, is 9 variable and so a POSITA would understand that 10 variable means it can be one, it can be five, 11 it could be ten, whatever. 12 He shows an example, you know, with 13 more than one in that diagram, but that is just 14 one example. 15 Q. Is it your opinion that in a 16 real-world situation, a multi-channel receiver, 17 such as depicted and disclosed in Konstantinos, 18 would receive a band of a width of a single 6 19 megahertz channel from a headend? 20 MR. QUALEY: Objection to form. 21 THE WITNESS: Can you read that 22 back.	Page 188 1 So if one were to want to send that 2 video to, let's say a baby set-top box that is 3 in another room, one could envision where one 4 would send the channel that is desired to be 5 watched in another room via this feature. 6 Q. By the multiband selector? 7 A. Yes. 8 Q. If you are only selecting a single 9 channel, what is the purpose of any of the 10 channel selectors to 207? 11 A. Again, so what we are talking about 12 is outputting from the multiband selector 13 somewhere else, and if you were using that 14 feature or your system wanted to implement that 15 feature, one could say, okay, I'm going to take 16 one of these and I'm going to make it 6 17 megahertz and I'm going to output to a baby 18 set-top box maybe in another room or something, 19 via this path. He's just saying things like 20 that are supported. 21 Q. Where does it say anything like that 22 in Konstantinos?
Page 187 1 (The record was read as requested.) 2 THE WITNESS: No, you wouldn't 3 transmit just one channel from a headend. 4 BY MR. GALLUZZO: 5 Q. And so, therefore, the multiband 6 selector would receive more than one channel, 7 correct? 8 A. Yeah, if you are sending more than 9 one channel, it would receive more than one 10 channel. 11 Q. And so, therefore, can you think of 12 a single real-world situation with a 13 multi-channel receiver, such as depicted and 14 disclosed in Konstantinos, where the multiband 15 selector would select only a single 6 megahertz 16 channel? 17 A. So what Konstantinos is describing 18 here is sending that stream somewhere other 19 than this single channel receiver, so that it 20 could be -- multi-channel receiver, I should 21 say, so it could be processed by something 22 else.	Page 189 1 A. So he is talking about -- in that 2 paragraph that we cited, 121, outputting from 3 the multiband selector. 4 Q. There is no disclosure in all of 5 Konstantinos of outputting a single channel 6 from a multiband selector. Otherwise, it would 7 cease to be a multiband selector, right? 8 A. He discloses that the multiband 9 selector is variable in terms of the number of 10 channels. 11 Q. So let me get this straight. It's 12 your opinion that a person of skill in the art 13 would read Konstantinos, look at the 14 multi-channel receiver, look at the 15 multi-channel selector, look at the multiband 16 selector, and think, I'm just going to select 17 one band of one channel and pass it to a 18 channel selector which serves no purpose. 19 Is that your testimony? 20 MR. QUALEY: Objection to form. 21 THE WITNESS: I am saying that 22 Konstantinos is capable of doing that.

Page 190 1 BY MR. GALLUZZO: 2 Q. Konstantinos is also capable of 3 serving as a paperweight, but that's not what 4 it is disclosed for. 5 So I am concerned about disclosures 6 of the reference. Let's back up and go back to 7 where we started, which was: You would agree 8 with me, I hope you can agree with me, that the 9 multi-channel selector is a different thing 10 from the multiband selector. 11 Can we agree with that? 12 MR. QUALEY: Objection. 13 THE WITNESS: So the multi-channel 14 selector is box 206. A subcomponent of the 15 multi-channel selector is the multiband 16 selector, so the multiband selector is 17 encompassed in the multi-channel selector. 18 So my testimony is correct, that the 19 output of the multi-channel selector that 20 includes the multiband selector goes to the 21 interface. 22 BY MR. GALLUZZO:	Page 192 1 multiband selector, it necessarily has to exit 2 the multi-channel selector? 3 A. That's correct. 4 Q. Do you also agree with me that the 5 multi-channel decoder outputs more than one 6 channel? 7 A. Well, it says that it performs 8 channel decoding on all or some of the streams. 9 "The multi-channel decoder receives the output 10 from the multiband selector and performs 11 baseband signal operation, channel decoding on 12 all or some of the streams." 13 So all or some could include 14 multiple channels. 15 Q. And because it used streams, plural, 16 and does not use -- indicates streams, 17 singular, you agree that it is always 18 outputting multiple channels? 19 MR. QUALEY: Objection to form. 20 THE WITNESS: No, because some could 21 include one. All or some includes one. 22 MR. GALLUZZO: Let's go off the
Page 191 1 Q. There is nothing in Konstantinos 2 disclosing an interface circuit receiving 3 outputs from one or more of the channel 4 selectors 207. Agreed? 5 A. Correct. 6 Q. The disclosure is only for either 7 the multiband selector 205 or the multi-channel 8 decoder which is not depicted but is referred 9 to in box 940 of Figure 9, right? 10 A. That's not correct. 11 Q. What is not correct about that? 12 A. As you can see in Figure 2 of 13 Konstantinos, if I am outputting something from 14 the multiband selector, it is inside the box of 15 the multi-channel selector so, therefore, I am 16 outputting from the multi-channel selector. 17 Q. All right. Okay. Now I understand 18 what you are saying. 19 So when you, in Paragraph 146 were 20 referring to the multi-channel selector, you 21 were really referring to the multiband 22 selector. It's just that, as it exits the	Page 193 1 record. 2 (A short recess was taken.) 3 BY MR. GALLUZZO: 4 Q. I would now like to turn to Claim 2 5 of the '008 patent. This analysis starts on 6 Page 79 of your declaration. 7 A. Okay. 8 Q. Here, you rely on Kamieniecki and 9 Konstantinos here? 10 A. I'm sorry. You said what page? 11 Q. 79. 12 A. Okay. Yes. 13 Q. To your knowledge, is there anything 14 in Konstantinos that discloses the ability to 15 set a low point and a high point to be the 16 entire spectrum? 17 By "the entire spectrum," I mean the 18 entire television spectrum in case that wasn't 19 clear. 20 A. Well, yes, because as the flowchart 21 shows in Kamieniecki, you cycle through the 22 channels in a channel map, and the channel map

Page 194 1 implies the lowest channel number in that 2 channel map, would be -- if it's 54 to whatever 3 the bandwidth was at this time, if it was the 4 lowest channel, right, up to the highest 5 channel in the television spectrum, the highest 6 channel number in the channel map would be that 7 channel number, so it spans the entire 8 television spectrum. 9 Q. But not the out-of-band channel, 10 right? 11 A. Right. And that's not part of the 12 television spectrum in the context of 13 Kamieniecki. 14 Q. How about Konstantinos? Is there 15 anything in Konstantinos that discloses the 16 setting of a low point and a high point to be 17 the entire television spectrum? 18 A. So Figure 3, for example, of 19 Konstantinos, shows a signal 20 digitally-modulated going from 50 megahertz to 21 1 gigahertz so a POSITA would understand that 22 to be the entire television spectrum.	Page 196 1 television spectrum. 2 Q. Is there a way for a user of the 3 multi-channel selector in Konstantinos to 4 select a low point and a high point to the 5 multiband selector to be the entire television 6 spectrum? 7 A. So all one has to do is select 8 subband A, for example, as shown in Figure 3, 9 to be the low frequency starting at 50 10 megahertz, and another one of the channel 11 selectors select band H, which is the upper 12 portion of the entire television spectrum being 13 at 1 gigahertz. 14 Q. Is it your testimony that 15 Konstantinos discloses that you can make that 16 selection? 17 A. Explain again what selection you are 18 talking about. 19 Q. The selection of saying my low 20 point, I want to be 50 megahertz, and my high 21 point, I want to be the top end of the 22 spectrum, you know, 1 gigahertz or thereabouts.
Page 195 1 Q. So a POSITA would understand from 2 Figure 3 that that is a selection that could be 3 made? Is that your testimony? 4 A. The left side of the picture is 5 showing the input to the multi-channel 6 receiver, and so the right side is showing the 7 selection of channels from the entire spectrum. 8 Q. The right side is showing the 9 selection by the multi-channel receiver? 10 A. Yes. 11 Q. So what -- where in Konstantinos, 12 can one interacting with the input, I want to 13 select from 50 megahertz to 1 gigahertz in the 14 multi-channel receiver? 15 A. So the system is designed to select 16 the entire television spectrum in Konstantinos, 17 so I'm not sure I understand what -- I don't 18 understand your question. 19 Q. Is the multiband selector of 20 Konstantinos designed to select the entire 21 television spectrum? 22 A. It selects channels from the entire	Page 197 1 A. So the Konstantinos box does not 2 select the input, so to speak, so the input 3 comes in of the entire television spectrum from 4 50 to 1 gigahertz to the Konstantinos 5 multi-channel receiver -- multi-channel 6 receiver, and the multi-channel receiver can 7 output the low, the high, the mid, any portion 8 of the television spectrum it wants through the 9 multi-channel selector to the multiple output 10 streams. 11 Q. Let's go to Claim 9 which starts in 12 Paragraph 175 of your '008 declaration. 13 A. Okay. 14 Q. Here, you include another reference 15 called Cholas, I believe it's pronounced? 16 A. Right. 17 Q. And in this Paragraph 175, you say a 18 number of things. I would like to focus on 19 your proposed combination with Cholas. 20 Are you able to explain to me how 21 the Kamieniecki-Konstantinos combination can be 22 combined with Cholas?

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Page 198 1 A. So, for example in Figure 11 of 2 Cholas, excuse me, Figure 13 of Cholas. 3 Q. Uh-huh. 4 A. It is showing a unified or wideband 5 tuner at the top and within that set-top box is 6 a DOCSIS cable modem. 7 Q. So where would the 8 Kamieniecki-Konstantinos, for lack of a better 9 word, device go? 10 A. In general, replacing 1124 which is 11 the unified or wideband tuner, and also, the 12 monitoring capability would be combined with 13 this. 14 Q. Where. Also in 1124? 15 A. No, no, no. I mean, the 16 multi-channel receiver in Konstantinos would be 17 the front end -- or excuse me, the unified or 18 wideband tuner 1124. 19 Hang on a second. Well, 20 essentially, what this is showing is, it's 21 well-known that you can make a set-top box with 22 a cable modem in it.	Page 200 1 with the multi-channel receiver of 2 Konstantinos, would there still be the arrow 3 that exists in Figure 13 that goes into the 4 demodulator 1103? 5 A. Yes. 6 Q. And that arrow would come out of the 7 multi-channel receiver? 8 A. Yes. It is one of the -- or 9 multiples lines with, you know, demods, 10 demuxers and transcoders and video decoders. 11 Q. Would there be an additional line 12 coming out of the multi-channel receiver going 13 to a monitor? This would be Kamieniecki's 14 monitor. 15 A. It would be one of the -- one of 16 the -- 17 Q. What are you looking for? Perhaps I 18 can help. 19 A. Konstantinos's diagram. 20 Q. Exhibit 1010. 21 A. Thank you. Yeah, it would be one of 22 the multiple output streams from the channel
Page 199 1 Q. So sticking with Figure 13, I think 2 we established that the multi-channel receiver 3 of Konstantinos would be in or replace 1124? 4 A. And 1121. 5 Q. And 1121. Thank you. 6 Where would the monitor of 7 Kamieniecki go? 8 A. Inside this box. 9 Q. Where? 10 A. So one would take an output from the 11 Konstantinos multi-channel receiver and go to a 12 monitor, as shown by Kamieniecki, that you 13 would put inside this box. 14 Q. There would be a separate arrow 15 coming off of 1124? 16 A. Well, again, we are replacing that 17 with the Kamieniecki multi-channel receiver. 18 Q. I'm sorry. So since we have 19 replaced 1124 and 1121 with 20 Kamieniecki-Konstantinos or at least -- 21 withdrawn. 22 Since we have replaced 1124 and 1121	Page 201 1 selector go to the monitor. 2 Q. And that would be a separate line 3 than the one that goes into the demodulator and 4 so on? 5 A. It could go either place. You could 6 have optionally an output from the 7 multi-channel selector to go either to the 8 demod/demux of that path or the monitoring 9 path, depending on what you wanted to do with 10 that particular channel. 11 Q. Would that optional path for the 12 channel require a splitter or some sort of 13 other selector? 14 MR. QUALEY: Objection to form. 15 THE WITNESS: I mean, to get to the 16 level of detail that you are looking for, I 17 think we would have to essentially go down to 18 the schematic level. This is a high level 19 block diagram. 20 The point of the Cholas is that it 21 was common to have set-top boxes that had also 22 cable modems inside.

Page 202 1 BY MR. GALLUZZO: 2 Q. So that's only reason you are using 3 Cholas? 4 A. It's an example of including the 5 gateway device was well-understood. It would 6 reduce costs and redundancy if you had a 7 separate set-top box and a separate cable 8 modem. The reason to combine it is, is to make 9 it more cost effective and more integrated. 10 Q. If I recall earlier, you testified 11 that Kamieniecki could have a cable modem in 12 it. If that's true, what is the purpose of 13 Cholas? 14 A. It's a further example that it was 15 understood that cable modems were integrated 16 with set-top boxes and that it would reduce 17 cost and redundancy. 18 Q. The discussion we had about Figure 19 13 and what would be replaced and where arrows 20 would go, that is not something you put in your 21 declarations, is it? 22 A. No.	Page 204 1 Q. If you could look at Figure 1 with 2 me, or really anywhere else. That's what I am 3 looking at. 4 Are you ready? 5 A. Yes. 6 Q. In your opinion, how many channels 7 can Kamieniecki's monitor monitor at the same 8 time? 9 A. Well, as we talked about earlier, it 10 can monitor two in the embodiment shown in 11 Figure 1, one from the out-of-band and one from 12 the in-band. 13 Q. Does Kamieniecki disclose that its 14 monitor could monitor more than two channels at 15 a time? 16 A. Well, it describes the Figure 2 17 block diagram that allows you to monitor all 18 the channels as you step through them 19 one-by-one on the in-band and simultaneously 20 monitor the out-band channel, out-of-band 21 channel. 22 Q. Does Kamieniecki disclose that its
Page 203 1 Q. You could have? 2 A. Well, the claim element was, when 3 one or more circuits reside in a customer 4 premise gateway, so I didn't think it was 5 necessary to design a circuit and show all the 6 connections, other than showing that it's 7 inside the customer premise gateway which I 8 believe Cholas shows. 9 Q. You could have explained where in 10 the customer premises gateway, said one or more 11 circuits reside, right? 12 A. Probably could have, yes. 13 Q. You didn't? 14 A. I don't think so. If you see it, 15 let me know and I will be happy to answer any 16 questions about it. 17 Q. Going back to Kamieniecki for a 18 moment, I just want to get something clear that 19 I am not quite so sure that I am clear on. 20 In your opinion -- I'm sorry. I 21 will wait for you to get there. Exhibit 1009. 22 A. Thank you.	Page 205 1 monitor could monitor more than two channels at 2 a time? 3 A. Not that I am aware of. 4 Q. Does Kamieniecki -- withdrawn. 5 Who wrote your declarations? 6 A. It was a collaborative effort with 7 myself and the attorneys. 8 Q. How much time did you personally 9 spend on the drafting of your declarations? 10 A. It's been -- 11 Q. And I want to limit it just to these 12 two cases. 13 A. I mean, I don't remember. It's been 14 a long time. It would be very difficult to say 15 how much time I spent on it. 16 Q. Do you think you spent more than a 17 hundred hours? 18 A. Probably not, but I can't say for 19 sure. I mean, it's been since February. It's 20 been, like, eight months. 21 Q. When were you first retained to work 22 on cases adverse to my client, Entropic?

Page 206 1 A. I don't remember. I would have to 2 look at my engagement agreement to know the 3 answer. 4 Q. Who was that engagement agreement 5 with? 6 A. With Banner Witcoff. 7 Q. Did the engagement agreement cover 8 all of your work on the Entropic -- I'm sorry, 9 all of your work for matters where you were 10 adverse to Entropic? 11 A. I think. You know, I shouldn't 12 speculate. I should probably just look at the 13 agreement because I don't remember, except 14 during the time of this engagement, if there 15 were any restrictions. 16 Q. How many engagement agreements had 17 you entered into with Banner Witcoff? 18 A. I don't remember. 19 Q. Have you -- I'm sorry, go ahead. 20 A. I worked on other cases for other 21 parties with Banner Witcoff before. 22 Q. Is it okay if I call them the	Page 208 1 A. I don't know. I would have to look 2 at my invoices and documents to answer that 3 question. 4 Q. Do you prepare your own invoices? 5 A. Yes. 6 Q. Do you review them and study them 7 before you send them out? 8 A. Yes. 9 Q. Are they accurate? 10 A. Yes. 11 Q. When is the last time you sent an 12 invoice? 13 A. Let's see. I think I sent one at 14 the end of last month. 15 Q. To whom did you send it? 16 A. To Banner Witcoff. 17 Q. Any particular attorney? 18 A. It was -- I think it was Wayne, but 19 carbon copy to some other people. 20 Q. Some other people at Banner Witcoff? 21 A. I can't ask them a question, can I? 22 Q. If it's about a privilege issue, you
Page 207 1 Entropic matters? 2 A. Okay. 3 Q. Is that -- do you understand what I 4 mean? It's basically matters where you are 5 opining on a matter that is adverse to my 6 client, Entropic. 7 Is that -- can I use that as a 8 shorthand? 9 A. I'm okay with that, yes. 10 Q. For the Entropic matters, how much 11 engagement agreements have you entered into 12 with Banner Witcoff? 13 A. I don't remember. I could be wrong, 14 but I think it's one. I could be wrong. I 15 can't testify that it was only one. 16 Q. Do you remember approximately when 17 you started working on the Entropic matters? 18 A. I mean, it was either last year or 19 this year, but I can't remember exactly. 20 Q. Approximately how much time have you 21 spent on all of your work in any of the 22 Entropic matters?	Page 209 1 can. 2 A. It's -- Donna. Donna was 3 carbon-copied. You were carbon-copied, I 4 think. No? I don't know. I will have to look 5 at the invoice to see. 6 Q. What is your understanding of who 7 Donna is? 8 A. She is an administrative assistant, 9 I think. 10 Q. Here at Banner Witcoff? 11 A. Yes. 12 Q. Do you recall the approximate amount 13 of that invoice you last sent? 14 A. I don't remember. 15 Q. Do you know approximately how much 16 you invoiced to Banner Witcoff for all of your 17 work on the Entropic matters? 18 A. I don't remember. 19 Q. Do you know if it is more than 20 \$50,000? 21 A. I don't remember. 22 Q. What would you need to remember?

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Page 210 1 A. I need to look at any invoices. 2 Q. Are those accessible? 3 A. I've got them on my PC. 4 Q. So if we were to ask for that 5 number, you would be able to provide it? 6 A. Yeah, I can do that. 7 Q. Do you know whether it was less than 8 \$100,000 that you have invoiced in total? 9 A. I mean, I really don't remember. I 10 think it was a lot less than a hundred 11 thousand, but I mean, I don't know. 12 Q. I am okay with general. I don't 13 need, like, to the penny. I am just trying to 14 gauge, you know, are we talking ten bucks, are 15 we talking ten million bucks. I don't think 16 it's either of those. 17 A. It is definitely not ten million. 18 And it's not \$10, so it is more than ten and 19 less than a million. 20 Q. All joking aside -- 21 A. Ten million. 22 Q. All joking aside, do we think it's	Page 212 1 A. Two were virtual, one was in person. 2 Q. Was in person yesterday? 3 A. Yes. 4 Q. Virtual obviously before that? 5 A. Yes. 6 Q. Approximately how many hours in 7 total do you think you spent preparing for your 8 deposition either with counsel or on your own? 9 A. I mean, again, I can look at my time 10 sheets that I keep and tell you, but I mean, I 11 don't know. Maybe around 20 hours. I mean, 12 again, I don't know if that is the answer but 13 I'm speculating that it is. 14 Q. Other than the three gentlemen in 15 the room here today from Banner Witcoff, did 16 anybody else attend those prep sessions? 17 A. No, I don't think so. 18 Q. Yes or no, have you had calls with 19 counsel about the subject matter of your 20 opinions in this case? 21 A. Yes. 22 Q. Okay. Without telling me the
Page 211 1 closer to 10,000 or closer to 60,000? 2 A. Somewhere in the middle between 3 those two. 4 Q. And then when you were retained, I 5 think you said it might have been this year, it 6 might have been last year, if it was last year, 7 are we talking the fall or winter of last year 8 or are we talking before that? 9 A. I'm sorry. I didn't study the dates 10 in my engagement agreement or my invoices to 11 prepare for this declaration, so I just don't 12 know. I don't remember. 13 Q. What did you do to prepare for the 14 deposition? 15 A. I studied the materials considered 16 and -- including my declaration. 17 Q. Yes or no, did you have meetings 18 with counsel? 19 A. Yes. 20 Q. How many? 21 A. We had three prep sessions I think. 22 Q. Virtual or in person?	Page 213 1 substance of those calls, who has attended 2 those calls? 3 A. I have had some calls with Paul. I 4 think Wayne, and I can't remember, but I -- I 5 got all that information somewhere in my files. 6 Steve was on the calls or -- one or more of the 7 calls. 8 Q. Have you ever had conversations with 9 people who were not Banner Witcoff attorneys 10 about the subject matter of this case -- 11 A. No. 12 Q. -- other than perhaps your family. 13 A. No, I haven't even talked to my 14 family about it. 15 Q. Have you talked with any in-house 16 counsel or business people at Comcast? 17 A. No. I mean, I may have in the past, 18 but certainly not related to this case. 19 Q. Yeah, in case it's not clear, all my 20 questions are narrowed and related to the 21 Entropic cases. 22 A. Yes. Okay.

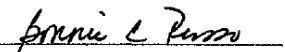
Page 214 1 Q. Have you had calls with any other 2 expert witnesses? 3 A. No. 4 Q. Have you exchanged e-mails with any 5 other expert witnesses? 6 A. No. 7 Q. Any in-person meetings with any 8 other expert witnesses? 9 A. No. 10 MR. QUALEY: Slow down to make sure 11 he finishes the question. You are answering a 12 little quick. 13 MR. GALLUZZO: Sorry, I'm a little 14 quick. 15 THE WITNESS: Sorry. 16 MR. GALLUZZO: I can move fast. So 17 when you answer fast, I am ready to go. 18 BY MR. GALLUZZO: 19 Q. Have you had any discussions with 20 attorneys from Kilpatrick Townsend Stockton 21 firm about the Entropic cases? You might have 22 heard of them as KTS or Kilpatrick?	Page 216 1 these cases, are you paid directly from Banner 2 Witcoff? 3 A. Yes. 4 MR. GALLUZZO: Let's go off the 5 record. 6 (A short recess was taken.) 7 BY MR. GALLUZZO: 8 Q. So before we finish up, I briefly 9 want to go back in time to your Scientific 10 Atlanta days again. 11 A. Okay. 12 Q. Do you recall a gentleman by the 13 name Sam Russ? 14 A. Yes. 15 Q. How do you know him? 16 A. He worked for me. He was a manager 17 and I forgot to mention him when you were 18 asking me about guys that had Ph.D.s. 19 Q. What would he do when he worked for 20 you? 21 A. He managed one of my groups of 22 developers.
Page 215 1 A. I don't think so. I have done some 2 consulting for KTS on another case. 3 Q. Another Entropic case? 4 A. No. 5 Q. This is a case wholly unrelated to 6 the subject matter in patents here? 7 A. That's correct. 8 Q. So not a case for Comcast or for 9 Cox? 10 A. Not for Cox, for sure. Let me think 11 about it. 12 Q. Maybe I should fix it and say not a 13 matter adverse to Entropic? 14 A. Correct. 15 Q. Have you had any discussions with 16 anybody who you understood to be employees of 17 Cox or attorneys for Cox about the Entropic 18 cases? 19 A. No. 20 Q. Any e-mail conversations? 21 A. No. 22 Q. When you are paid for your work on	Page 217 1 Q. Which one? 2 A. I don't know if I had a particular 3 name other than Sam's group. 4 Q. Was he generally knowledgeable in 5 your eyes? 6 A. Yes. 7 Q. About what? 8 A. Electronics design, embedded 9 systems, this kind of thing. 10 Q. The kind of technology we have been 11 talking about in this case? 12 A. I think that could be included, yes. 13 Q. Any reason to doubt his ability or 14 competence to provide testimony in this case? 15 A. No. 16 MR. GALLUZZO: Thank you very much 17 for your time today. No further questions, 18 although counsel might have some. 19 MR. QUALEY: No. We are good. 20 (Whereupon, the proceeding was 21 concluded at 4:43 p.m.) 22

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Page 218 1 CERTIFICATE OF NOTARY PUBLIC 2 I, Bonnie L. Russo, the officer before 3 whom the foregoing deposition was taken, do 4 hereby certify that the witness whose testimony 5 appears in the foregoing deposition was duly 6 sworn by me; that the testimony of said witness 7 was taken by me in shorthand and thereafter 8 reduced to computerized transcription under my 9 direction; that said deposition is a true 10 record of the testimony given by said witness; 11 that I am neither counsel for, related to, nor 12 employed by any of the parties to the action in 13 which this deposition was taken; and further, 14 that I am not a relative or employee of any 15 attorney or counsel employed by the parties 16 hereto, nor financially or otherwise interested 17 in the outcome of the action. 18 19  20 Notary Public in and for 21 the District of Columbia 22 My Commission expires: August 14, 2025	Page 220 1 DEPOSITION REVIEW 2 CERTIFICATION OF WITNESS 3 ASSIGNMENT REFERENCE NO: 6945802 4 CASE NAME: Comcast Cable Communications, LLC v. Entropic 5 Communications, LLC 6 DATE OF DEPOSITION: 10/8/2024 7 WITNESS' NAME: David B. Lett 8 In accordance with the Rules of Civil 9 Procedure, I have read the entire transcript of 10 my testimony or it has been read to me. 11 I have made no changes to the testimony 12 as transcribed by the court reporter. 13 14 Date <u>David B. Lett</u> 15 Sworn to and subscribed before me, a 16 Notary Public in and for the State and County, 17 the referenced witness did personally appear 18 and acknowledge that: 19 20 They have read the transcript; 21 They signed the foregoing Sworn 22 Statement; and 23 Their execution of this Statement is of 24 their free act and deed. 25 26 I have affixed my name and official seal 27 this _____ day of _____, 20____. 28 29 _____ 30 Notary Public 31 _____ 32 Commission Expiration Date
Page 219 1 Veritext Legal Solutions 2 1100 Superior Ave 3 Suite 1820 4 Cleveland, Ohio 44114 5 Phone: 216-523-1313 6 October 21, 2024 7 David B. Lett 8 lettinnovations@gmail.com 9 10 Case Name: Comcast Cable Communications, LLC v. Entropic 11 Communications, LLC 12 Veritext Reference Number: 6945802 Deposition Date: 10/8/2024 13 Dear Sir/Madam: 14 Enclosed you will find a transcript of your deposition. 15 As the reading and signing have not been expressly 16 waived, please review the transcript and note any 17 changes or corrections on the errata sheet 18 included, indicating the page, line number, change and 19 reason for the change. Sign at the bottom of the sheet 20 in the presence of a notary and forward the errata sheet 21 back to us at the address shown above or email to 22 production-midwest@veritext.com. 23 If the errata is not returned within thirty days of your receipt of 24 this letter, the reading and signing will be deemed waived. 25 Sincerely, 26 Production Department 27 NO NOTARY REQUIRED IN CA	Page 221 1 DEPOSITION REVIEW 2 CERTIFICATION OF WITNESS 3 ASSIGNMENT REFERENCE NO: 6945802 4 CASE NAME: Comcast Cable Communications, LLC v. Entropic 5 Communications, LLC 6 DATE OF DEPOSITION: 10/8/2024 7 WITNESS' NAME: David B. Lett 8 In accordance with the Rules of Civil 9 Procedure, I have read the entire transcript of 10 my testimony or it has been read to me. 11 I have listed my changes on the attached 12 Errata Sheet, listing page and line numbers as 13 well as the reason(s) for the change(s). 14 I request that these changes be entered 15 as part of the record of my testimony. 16 17 I have executed the Errata Sheet, as well 18 as this Certificate, and request and authorize 19 that both be appended to the transcript of my 20 testimony and be incorporated therein. 21 22 Date <u>David B. Lett</u> 23 Sworn to and subscribed before me, a 24 Notary Public in and for the State and County, 25 the referenced witness did personally appear 26 and acknowledge that: 27 They have read the transcript; 28 They have listed all of their corrections 29 in the appended Errata Sheet; 30 They signed the foregoing Sworn 31 Statement; and 32 Their execution of this Statement is of 33 their free act and deed. 34 I have affixed my name and official seal 35 this _____ day of _____, 20____. 36 37 _____ 38 Notary Public 39 _____ 40 Commission Expiration Date

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2 VERITEXT LEGAL SOLUTIONS MIDWEST

3 ASSIGNMENT NO: 6945802

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20 Date David B. Lett

21 SUBSCRIBED AND SWORN TO BEFORE ME THIS _____

22 DAY OF _____, 20____.

23 _____
Notary Public

24 _____

25 Commission Expiration Date

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and
(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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