

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD. AND SAMSUNG
ELECTRONICS AMERICA, INC.,

Petitioner,

v.

APEX BEAM TECHNOLOGIES LLC,

Patent Owner.

Case IPR2023-00598
Patent No. 10,462,767

DEPOSITION OF MIGUEL GOMEZ

DATE: FEBRUARY 22, 2022

REPORTED BY: CHARLENE FRIEDMAN, CCR, RPR, CRR

JOB #55052

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2 1 TRANSCRIPT of the witness, called for Oral 2 Examination in the above-captioned matter, taken by and 3 before CHARLENE FRIEDMAN, a Notary Public and Certified 4 Court Reporter of the State of New Jersey, a Registered 5 Professional Reporter, and a Certified Realtime 6 Reporter, at FABRICANT, LLP, 51 John F. Kennedy Parkway, 7 First Floor West, Short Hills, New Jersey, on February 8 22, 2024, commencing at approximately 10:00 in the 9 morning. 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	4 1 I N D E X 2 WITNESS NAME PAGE 3 MIGUEL GOMEZ 4 By Mr. High 6, 91, 95 5 By Mr. Pymento 90, 95 6 7 E X H I B I T S 8 EXHIBIT NO. DESCRIPTION PAGE 9 Samsung 1039 One-page document 85 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
3 1 A P P E A R A N C E S: 2 3 4 FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, LLP 5 901 New York Avenue NW 6 Washington, DC 20001 7 (202) 408-4000 8 BY: ROBERT HIGH, ESQ. 9 Attorneys for Petitioner 10 11 12 FABRICANT, LLP 13 51 John F. Kennedy Parkway 14 First Floor West 15 Short Hills, New Jersey 07078 16 (212) 257-5795 17 BY: JULIAN PYMENTO, ESQ. 18 Attorneys for Patent Owner 19 20 21 22 23 24 25	5 1 --- 2 Deposition Support Index 3 --- 4 5 Direction to witness not to answer 6 Page Line 7 None 8 9 Request for production of documents 10 Page Line 11 None 12 13 Questions marked 14 Page Line 15 None 16 17 18 19 20 21 22 23 24 25

6 1 MIGUEL GOMEZ, 2 called as a witness, having been first duly 3 sworn according to law, testifies as follows: 4 5 MR. HIGH: Good morning. 6 My name is Robert High. I'm -- and 7 just for some brief housekeeping before the 8 deposition gets started, myself and opposing 9 counsel agreed to the admissibility of the 10 District Court deposition transcript 11 regarding Mr. Miguel Gomez. 12 I just wanted to confirm on the 13 record that that applies to all of these IPR 14 proceedings between all the parties. 15 MR. PYMENTO: Confirmed. 16 MR. HIGH: All right. 17 EXAMINATION BY MR. HIGH: 18 Q Okay. Can you please state your 19 name and address, for the record? 20 A Miguel Gomez, 2178 Sirah Court, 21 S-I-R-A-H, in Livermore, California 94550. 22 Q Do you go by any other names? 23 A No. 24 Q Do you understand that you're here 25 under oath, meaning that you must testify	8 1 Do you agree? 2 A Yes. 3 Q Okay. And if you need a break, 4 please let me know, but if a question is 5 pending, please answer my question before 6 taking a break. 7 Is that okay? 8 A Okay. 9 Q Do you understand that this 10 deposition is for IPR2023-00598? 11 A Yes. 12 Q And that's related to U.S. Patent 13 No. 10,462,767? 14 A Yes. 15 Q And you submitted a declaration in 16 this proceeding, right? 17 A I did. 18 Q And you've previously submitted a 19 declaration regarding claim construction in 20 the District Court case, right? 21 A I did. 22 Q And that related to the same 23 patent? 24 A Yes. 25 Q So when did you first become
7 1 truthfully today as if you're in court before 2 a judge? 3 A I do. 4 Q Is there any reason that would 5 prevent you from testifying truthfully today? 6 A No. 7 Q I'm sure your counsel probably gave 8 you some general ground rules, but I'm going 9 to go over a few of them for the record, 10 okay? 11 A Okay. 12 Q All right. So we have a court 13 reporter here who will be recording your 14 answers as if you were giving them in court. 15 So I ask that you answer all of the questions 16 truthfully and to the best of your knowledge. 17 Is that okay? 18 A Yes. 19 Q And please respond in an audible 20 answer, not a gesture or nod. 21 A Yes. 22 Q If you do not understand any of the 23 questions that I ask today, please tell me. 24 If you answer a question, I will assume that 25 you understand my question.	9 1 involved in this case? 2 MR. PYMENTO: Objection. 3 A It was sometime last summer. 4 Q Okay. And I guess just to be more 5 specific, when did you first become involved 6 in this IPR? 7 A I don't recall the exact date, but 8 it was sometime in 2023. 9 Q And when did you first review -- 10 well, let me back up. 11 Is it all right if I refer to that 12 patent as the '767 patent? 13 A Yes. 14 Q When did you first review the '767 15 patent? 16 A Oh, that would probably be August 17 or September of 2023. 18 Q About how many hours have you spent 19 on this IPR so far? 20 A I haven't totaled it, but it's been 21 a fair number of hours. 22 Q Just a ballpark guess? 23 A Well, between the -- just for this 24 IPR, over 100. 25 Q Over 100 hours?

10 1 A Yeah. 2 Q Does that include drafting your 3 declaration and preparation for this 4 deposition? 5 A Yes. 6 Q About how many hours did you spend 7 preparing your declaration? 8 A I don't recall exactly. Maybe half 9 that time. 10 Q Okay. So maybe about 50 hours or 11 so? 12 A Perhaps. I -- I didn't add it up. 13 Q And how did you -- can you just 14 walk me through the process of how you 15 drafted your declaration for this IPR? 16 A Well, there was a number of 17 documents that were provided to me by 18 counsel, and I reviewed all those documents, 19 you know, including patent, including the 20 petition, including various exhibits related 21 to those. 22 And once I reviewed them, then we 23 discussed the -- the theories, and eventually 24 we got down to writing some of the sections 25 and then -- then it was a collaboration	12 1 we reviewed them and then they finalized 2 them. 3 Q So just to be clear, the drafting 4 that you're referring to, did that drafting 5 occur before or after you had received an 6 initial draft of the declaration? 7 A I don't recall. 8 MR. PYMENTO: Objection to the 9 form. 10 Q You don't recall? 11 A No. 12 Q Do you recall whether you drafted 13 any sections of the declaration before you 14 received an initial draft from your 15 attorneys? 16 A Well, it gets a little muddled 17 because we also had the claim construction 18 issues that were -- that we had worked on 19 before, and so there was some back and forth 20 between all of that. 21 That's why it's difficult to 22 separate them at this point. 23 Q Are there any sections of your 24 declaration that your attorneys wrote? 25 MR. PYMENTO: Objection to form.
11 1 process. 2 Q Who wrote the first draft of your 3 declaration? 4 A I wrote it, but you know, I would 5 say that it was a combination, that the first 6 draft was a collaboration. 7 Q So you wrote some parts and then 8 your attorneys wrote other parts? 9 A I usually submit some pieces, and 10 then they usually add in the legal sections 11 and then we finalize it, flush it out, flush 12 out the details, and then finalize it. 13 Q Which parts did you physically 14 write the first draft of for your 15 declaration? 16 A There was various sections where I 17 submitted ideas, and that's what I'm talking 18 about when I said, you know, I submitted 19 excerpts that I thought were relevant. 20 Q So were there any specific sections 21 that you wrote the first draft of? 22 A I don't recall the specific 23 sections, but the theories that we had 24 developed I definitely contributed some in 25 writing. And then the attorneys took it and	13 1 I also instruct you not to answer 2 to the extent it includes privileged 3 information. 4 A They clearly wrote some of the 5 legal sections, which I'm not a lawyer so I 6 would have difficulty doing. 7 Q Are there any other sections that 8 you recall that they wrote the first draft 9 of? 10 A I don't recall. 11 Q If I gave you a copy of your 12 declaration, would you be able to identify 13 any sections that you remember them giving 14 you the first draft of? 15 A Like I said, it was a collaboration 16 process, and we worked on -- on things in 17 parallel between the first claim construction 18 rulings and then the later IPRs. 19 The theories and the opinions are 20 mine, and I made sure that I was in agreement 21 with everything that's in that document. 22 Q Okay. 23 A But in terms of, you know, when 24 something was written, I'd have to go back 25 and research it. I'm happy to do that for

14 1 you, but I just don't recall sitting here. 2 Q If I give you a copy of your 3 declaration, would you be able to just 4 quickly look through it and identify if you 5 remember any sections that your attorneys 6 wrote the first draft of besides the legal 7 section? 8 (Witness reviewing.) 9 A Well, some of the diagrams they did 10 identify and, you know, they clipped those 11 in. Some of the excerpted text from the 12 various patents, they did clip that in. But 13 like I said, I haven't actually sat down and 14 tried to recall exactly what the whole 15 process was between the two, between the IPR 16 and the -- and the earlier claim 17 constructions. 18 Q And you said part of the time that 19 you spent on this IPR was preparing for this 20 deposition? 21 A Yes. 22 Q About how much time did you spend 23 preparing for this deposition? 24 A Well, it was a significant amount 25 of time. Like I said, half of this was put	16 1 Julian. 2 Q About how long did each of those 3 meetings last? 4 A The one on -- via Zoom was only an 5 hour. Yesterday was -- we spent, you know, 6 several hours working together. 7 Q Before this case, have you provided 8 a declaration in an IPR before? 9 A Yes. 10 Q About, roughly, how many times? 11 A Twice, I think. I'd have to go 12 back through my CV. There was another case 13 some time ago. I don't recall the specifics. 14 Q Did you sit for a deposition on 15 both of those occasions? 16 A No. 17 Q Did you get deposed on either 18 occasion? 19 A In one I will be deposed. I 20 haven't been deposed yet. 21 Q So is this your first deposition 22 for a declaration in an IPR? 23 A That's why I have to go back and 24 check my CV, but as I recall, sitting here 25 today, I think it might be, yeah.
15 1 into the report generally, and I'm not saying 2 it was exactly half, but it was thereabouts. 3 And then the other half was 4 probably getting ready, again, for the 5 deposition, because a considerable amount of 6 time had gone by between submitting this 7 report and then getting ready for this 8 deposition. So I had to read all those 9 documents again. 10 Q So you -- strike that. 11 You estimated maybe about 100 hours 12 before. So are you saying that, you know, 13 roughly speaking, you might have spent 50 14 hours preparing for this deposition? 15 A It's a ballpark number. I don't 16 recall, off the top of my head. I didn't add 17 it all up before this meeting. 18 Q Did you meet with any attorneys to 19 help you prepare for this deposition? 20 A Yes. 21 Q About how many times? 22 A We met once over -- via Zoom and 23 then once yesterday. 24 Q And who was on those meetings? 25 A The attorney sitting next to me,	17 1 Q I want to discuss a little bit 2 about 4G LTE and 5G. 3 Are you familiar with those terms? 4 A Yes. 5 Q Just what are you -- do you 6 consider to be 4G LTE? 7 MR. PYMENTO: Objection to the 8 form. 9 A Well, 4G LTE is -- it's a carrier 10 protocol that is used in most cell phones 11 today. It is the dominant standard that uses 12 various carriers to -- in time slots to carry 13 the information to the cell phone. 14 Q And when was 4G LTE developed? 15 A It was in the early 2000s, although 16 I don't know the exact dates. 17 Q Okay. And do you recall, roughly, 18 when the technical specifications were 19 finalized? 20 A Well, I was deposed in a case 21 regarding LTE in 2005. So it was clearly 22 before that. 23 Q Have there been iterations of those 24 technical specifications since then? 25 A They are continually being updated,

18 1 although I don't know the latest versions of 2 them. 3 Q Do you know about how many times 4 they had been updated since they were first 5 adopted? 6 A Well, I wasn't asked to opine on 7 that, and I didn't do the research to 8 determine that. 9 Q Is there a difference between the 10 terms "4G" and "LTE"? 11 A Generally, they're referred to as 12 4G LTE. 13 Q So if I just say "LTE" for 14 shorthand, is that okay? 15 A That's fine. 16 Q And what is 5G? 17 MR. PYMENTO: Objection to form. 18 A Well, 5G is the fifth generation of 19 the protocol. So it's an evolution of the 20 concepts that are in 4G. 21 Q And I think in your declaration, 22 you used the term "5G/NR." 23 Is that different from 5G? 24 A 5G/NR, they refer to the new radio. 25 Q And is 5G/NR a particular type of	20 1 A As far as I can tell, they were 2 published -- many of the documents were 3 published after the priority date of the 4 '767, but again, I'd have to go back and look 5 at that to be sure to answer that correctly. 6 Q Does the publication occur before a 7 technical specification is finalized? 8 MR. PYMENTO: Objection. 9 A In some cases, it can. 10 Q So if the -- the specifications 11 were published after the priority date, then 12 would you expect those specifications to have 13 been finalized after the priority date as 14 well? 15 MR. PYMENTO: Objection to form and 16 scope. 17 A I have to go back and look at that. 18 I don't have an answer, sitting here today. 19 Q So you can't say, one way or the 20 other, whether the 5G technical 21 specifications were finalized before or after 22 the priority date? 23 MR. PYMENTO: Objection to form. 24 Q Regarding the '767 patent? 25 A When you say "finalized," there's
19 1 5G? 2 A It's generally known as 5G new 3 radio. 4 Q Is it all right if I just use "5G" 5 for shorthand? 6 A That's fine. 7 Q When was 5G developed? 8 A It's been evolving since around 9 2015, I believe, and I think some of the 10 documents were released around 2018. 11 Q When you say "released," does that 12 mean that they were, you know, finalized at 13 that point? 14 A They were published -- there were 15 documents that were published at that point 16 in terms of finalized. That's a -- that's a 17 fairly precise term, and so I'd have to go 18 back and look at that. 19 Q Do you recall when the technical 20 specifications for 5G were finalized? 21 A Not off the top of my head. I 22 wasn't asked to opine on that. 23 Q Were they finalized before or after 24 the priority date of the '767 patent? 25 MR. PYMENTO: Objection.	21 1 continual updates. So I'm not sure I 2 understand what you mean by "finalized," 3 although I do know that the specifications 4 are published on certain dates and that's 5 when some of the -- and then they're adopted 6 at other dates. 7 Q Okay. 8 A But your use of "finalized," I have 9 to go back and make sure I get that correct. 10 Q Well, what's the difference between 11 "published" and "adopted"? 12 A Well, there's -- there's several 13 communities that vote on whether or not 14 they're going to adopt the specifications 15 once they're published. 16 Q So does the adoption of a 17 specification occur after publication? 18 A Generally, it does. 19 Q So were the 5G technical 20 specifications adopted after the priority 21 date of the '767 patent? 22 MR. PYMENTO: Objection. 23 A Like I said, I hadn't studied that. 24 I haven't checked those dates. So again, I'd 25 have to be careful in answering that

22 1 question, but I'm happy to go look it up for 2 you, if you want me to. 3 Q So if a technical specification 4 hasn't been published yet, is it fair to say 5 that the committees haven't voted whether to 6 adopt them? 7 MR. PYMENTO: Objection. 8 Q Before the publication? 9 MR. PYMENTO: Objection to the 10 form. 11 A Like I said, I hadn't studied that 12 issue. It's not -- it's not something that I 13 have opined on. So I'd have to be careful in 14 answering that. 15 Q You mentioned there are several 16 committees that vote on whether or not 17 they're going to adopt the specifications 18 once they're published. 19 What committees are you referring 20 to? 21 A Well, like I said, there's these -- 22 these documents are published by various 23 committees, and those are the ones that I'm 24 referring to. 25 Q What are the committees?	24 1 Q Does it also support subcarrier 2 spacing at 7.5 kHz? 3 A There are provisions for that, 4 although I don't think that was used in the 5 cell phones that I'm aware of. 6 Q Okay. What devices were they used 7 in? 8 A I haven't made -- opined on what 9 devices those are used in. I don't have an 10 answer for you. 11 When you say "used in," are you 12 referring to the 15 kHz or are you referring 13 to the 1.5 kHz? 14 Q The 7.5 kHz. 15 A I haven't opined on that. 16 Q The '767 patent uses the term "user 17 equipment." 18 Are you familiar with that term? 19 A Yes. 20 Q Is the term "user equipment" 21 limited to cell phones? 22 A No, not necessarily. It's more of 23 a generic term. 24 Q Did LTE also use the term "user 25 equipment"?
23 1 A The committees that publish the 2 documents. 3 Q Did those committees have names? 4 A Yes, they do. 5 Q Do you know them? 6 A Off the top of my head, I don't 7 recall them right now. 8 Q Do you know the entity that they're 9 under? 10 A Like I said, I haven't opined on 11 that, and I am just not recalling them right 12 now, off the top of my head. 13 Q What does the term "subcarrier 14 spacing" mean? 15 A Subcarrier spacing refers to a 16 process of having multiple carriers that 17 carry information, and that's -- that refers 18 to the spacing that's between the carriers. 19 Q So that's referring to a frequency 20 spacing? 21 A Yes. 22 Q Did LTE support multiple subcarrier 23 spacings? 24 A LTE supported one subcarrier 25 spacing at 15 kHz.	25 1 A Yes, they did. Yes, they did. 2 Q In LTE was the term "user 3 equipment" limited to cell phones? 4 A I haven't opined on whether or not 5 it was limited to -- to cell phones in my 6 report. 7 Q Do you know the answer? 8 MR. PYMENTO: Objection to the 9 form. 10 A In my experience, much of this 11 technology has been applied to lots of 12 different forms, but I don't have a specific 13 answer for you, sitting here. 14 Q So for the devices -- well, let me 15 back up. 16 In LTE, do you know how the devices 17 that could support 7.5 kHz determined what 18 the subcarrier spacing they should apply is? 19 MR. PYMENTO: Objection to the form 20 and scope. 21 A Yeah, again, I haven't opined in my 22 report on any characteristics of LTE 23 supporting 7.5 kHz. 24 Q And just to be clear, do you know 25 the answer?

26 1 MR. PYMENTO: Same objection. 2 A You know, I don't have an opinion. 3 I haven't studied it. I'd have to go back 4 and just make sure I get a correct answer for 5 you. 6 Q So you understand that you're here 7 to answer my questions truthfully today, 8 right? 9 A Yes. 10 MR. PYMENTO: Objection. 11 Q And so, if I ask you a question 12 that you believe you haven't opined on in 13 your expert report and you know the answer, 14 do you agree that you should still answer the 15 question truthfully? 16 A My understanding is that I'm 17 supposed to truthfully answer about my 18 opinions in my report, and that's what I 19 intend to do today. 20 Q So -- 21 A If -- if you want me to answer 22 something that's not in the report, I'm happy 23 to go research it and make sure I get an 24 accurate answer for you, but as we sit here 25 today, I want to make sure that I answer	28 1 know, airwave issues that they may encounter. 2 Q What is a cyclic prefix? 3 A Cyclic prefix is the energies 4 that's applied to the end of the -- of the 5 symbol. 6 Q When you say that it supports 7 different cyclic prefix lengths in 5G, are 8 you referring to a normal cyclic prefix and 9 an extended cyclic prefix? 10 A I did. 11 Q Did LTE support normal cyclic 12 prefixes? 13 A Yes, they did. 14 Q Did LTE support extended cyclic 15 prefixes? 16 A That, I don't recall. I believe 17 they did, but I have to go back and check. 18 Q In LTE, if an extended cyclic 19 prefix is applied, how does that affect the 20 frame structure? 21 A Again, I haven't opined on that, 22 but it would change the number of symbols 23 that you could have in a frame structure. 24 Q So if you switched from a normal 25 cyclic prefix to an extended cyclic prefixes,
27 1 truthfully and accurately. 2 Q Your attorney has a right to object 3 to any questions, and in certain situations, 4 he can instruct you not to answer if it 5 involves privilege. 6 But do you agree that if I ask you 7 the question and you know the answer, you 8 should answer truthfully? 9 A I'll do my best. 10 Q Are you familiar with the term 11 "numerologies"? 12 A Yes. 13 Q What does the term "numerologies" 14 refer to? 15 A Numerologies refer to multiple 16 different subcarrier spacings. 17 Q Can it also refer to different 18 cyclic prefixes? 19 A Different cyclic prefixes are 20 applied to certain numerologies differently. 21 Q What do you mean? 22 A Well, in the numerologies for 5G, 23 they provide a certain cyclic prefix length 24 for certain numerologies and different cyclic 25 lengths for other numerologies based on, you	29 1 would the number of symbols be reduced? 2 A Yes. 3 Q In 5G, if you switched from a 4 normal cyclic prefix to an extended cyclic 5 prefix, would the number of symbols be 6 reduced? 7 A Yes. 8 Q In 5G, how does the frame structure 9 change when you apply the extended cyclic 10 prefix? 11 A I believe it goes from 14 symbols 12 to 12 symbols. 13 Q And is that per slot? 14 A Yes. 15 Q And LTE, when you switch from a 16 normal cyclic prefix to an extended cyclic 17 prefix, how does the number of symbols 18 change? 19 A It reduces them. I just don't 20 recall, off the top of my head, how it -- how 21 many it reduces it by, but I think it's the 22 same. 23 Q In LTE, how does switching from a 24 15 kHz subcarrier spacing to a 7 and a half 25 kHz subcarrier spacing affect the frame

30 1 structure? 2 A That I haven't studied, and I would 3 have to go back and look at that to give you 4 an accurate answer. 5 Q The fact that 5G would support 6 different numerologies was known before the 7 priority date of the '767 patent, right? 8 A That 5G -- 9 MR. PYMENTO: Objection. 10 A -- would support different 11 numerologies was known before the '767 12 patent, I think numerologies were in the 13 process of being developed, but I don't have 14 the exact dates on what the -- on what all 15 the thoughts were at the time. 16 Q Was it known before the priority 17 date of the '767 patent that 5G would support 18 different numerologies? 19 MR. PYMENTO: Objection. 20 A I think numerologies was a concept 21 that was understood at that time. I don't 22 know that they knew that it was going to -- 23 that 5G -- I don't know when they knew that 24 5G was going to support these different 25 numerologies, or at least which ones they	32 1 doesn't say here which ones they were and how 2 they would be configured. 3 Q So when you say numerologies were 4 known, just to be clear, you're saying that 5 the different numerologies were known? 6 A The concept of numerologies was 7 definitely known. 8 Q Was the concept that you could 9 switch between different numerologies known? 10 A I think that was also a 11 possibility. So it was a concept that was 12 known, yes. 13 Q And do you see in the next 14 sentence, starting at line 34 of Column 1, 15 where it says, "The various numerologies 16 refer to various subcarrier spacings, various 17 symbol time lengths, various cyclic prefix 18 lengths," et cetera? 19 A Yes. 20 Q So you agree that LTE supported 21 various cyclic prefix lengths, right? 22 A Yes. 23 Q So do you agree that LTE supported 24 various numerologies? 25 MR. PYMENTO: Objection to form.
31 1 would be. 2 Q I'm handing you what's been 3 previously marked as Samsung 1001. 4 Turn to Column 1. 5 Do you see the "Related Art" 6 section? 7 A Yes. 8 Q And in the second paragraph of that 9 section, do you see where it says, "In order 10 to be applied to various different 11 application scenarios flexibly, future 12 wireless communication systems, especially 13 5G/NR, will support various numerologies," 14 correct? 15 A Yes. 16 Q So do you agree that the '767 17 patent is acknowledging that it was known 18 before its priority date that 5G would 19 support different numerologies? 20 A Well, that's -- 21 MR. PYMENTO: Objection. 22 A Well, that's what it says here, and 23 that's consistent with my answer before that 24 numerologies were known and that numerologies 25 would be supported. But, you know, it	33 1 A Well, we had this discussion 2 already when we discussed the 15 kHz, which 3 was the primary numerology used in most LTE 4 devices. I think the concept of different 5 numerologies was known. 6 Q Does the switch between a normal 7 cyclic prefix and an extended cyclic prefix 8 indicate a change in numerologies? 9 A It doesn't necessarily have to. 10 Q Are you familiar with the -- the 11 concept of a frame structure? 12 A Yes. 13 Q What is a frame structure? 14 A A frame structure is a -- it is a 15 description of how to organize symbols within 16 the -- within a certain time period and a 17 time and frequency period. 18 Q In LTE, a frame is a part of the 19 frame structure, right? 20 A Yes. 21 Q And in 5G, a frame is also a part 22 of the frame structure, right? 23 A Correct. 24 Q And in both cases, a frame is fixed 25 at 10 milliseconds?

34 1 A Correct. 2 Q And then one level below that in 3 both cases is a subframe, right? 4 A Yes. 5 Q And in LTE and 5G, a subframe is 6 fixed at 1 millisecond, right? 7 A Yes, it is. 8 Q And one level below that is a slot 9 in both situations, right? 10 A In -- 11 MR. PYMENTO: Objection. 12 A They both contain slots, yes. 13 Q Do both LTE and 5G support 14 subcarrier spacings of 15 kHz? 15 A Yes. 16 Q And with a subcarrier spacing of 15 17 kHz, is the symbol length the same in both 18 LTE and 5G? 19 A Well, the slots are different, so I 20 believe the symbol is -- the symbol length 21 varies depending on the numerology in 5G. 22 And I just don't recall whether they're 23 exactly the same in -- in 15 kHz because the 24 slot numbers are different. 25 Q So because the slot numbers are	36 1 A I believe there's backwards 2 compatibility, although I didn't opine on 3 that. I have to go back and look at how 4 that's done. 5 Q 5G was a natural progression of 6 LTE, right? 7 MR. PYMENTO: Objection. 8 A I wouldn't say that it was a 9 natural progression. 5G has a number of 10 additional inventive concepts that weren't 11 part of LTE, and so there are a number of new 12 objectives in 5G that weren't part of LTE. 13 So in terms of a natural 14 progression, I think there's backwards 15 compatibility that's built in, but not 16 necessarily a natural progression forward. 17 These are new -- new ideas. 18 Q 5G built off of the concepts of 19 LTE, right? 20 A 5G -- 21 MR. PYMENTO: Objection. 22 A -- includes not just the 23 capabilities that LTE had, but also 24 additional objectives like ultra reliable low 25 latency communication as well as millimeter
35 1 different, you can't recall whether the 2 symbol length would change for a 15 kHz 3 subcarrier spacing? 4 A I believe it does change. I just 5 have to go back and look to recall it. I 6 didn't memorize that. 7 Q Are you familiar with the concept 8 of a resource block? 9 A Yes. 10 Q What is a resource block? 11 A A resource block is a -- an entity 12 that aggregates or has resource elements in 13 it. 14 Q In LTE, does the resource block 15 span twelve subcarriers? 16 A Yes. 17 Q In 5G, does the resource block span 18 twelve subcarriers? 19 A I believe it does, yes. 20 Q Do 5G devices today also support 21 LTE? 22 A 5G devices today support 15 kHz 23 with a different slot length in LTE. 24 Q Can a 5G device communicate with an 25 LTE base station?	37 1 bandwidth communication. 2 Those things weren't found in LTE, 3 so those were new things that 5G 4 incorporates. 5 Q Did 5G build off of concepts that 6 existed in LTE? 7 MR. PYMENTO: Objection to form. 8 A Some of the concepts, yes. 9 Q Did LTE include the concept of 10 paging? 11 A Yes, it did. 12 Q Does 5G include the concept of 13 paging? 14 A Yes, it does. 15 Q Did LTE include the concept of a 16 paging frame? 17 A Yes, it does. 18 Q Does 5G include the concept of a 19 paging frame? 20 A Some of those things in terms of 21 the communication are similar, but because of 22 the additional new goals for the different 23 communication band wavelengths, they had to 24 be modified. They had to be adopted and 25 changed, and those were some of the new

38 1 inventive qualities that I was referring to. 2 Q Did the 5G technical specifications 3 use the term "paging frame"? 4 A Yes, it does, but again, there's 5 all sorts of new things that had to be 6 accommodated in order to make that work in 7 5G. 8 Q Does LTE include the concept of a 9 paging occasion? 10 A Yes, it does. 11 Q Does 5G include the concept of a 12 paging occasion? 13 A Yes, but again, these are -- 14 because of the different bands, the 15 subcarrier bands as well as the new goals of 16 5G, those had to be -- you know, those needed 17 new inventive concepts to make it work 18 properly. 19 Q Did LTE include the concept of a 20 PDCCH? 21 A I'm sorry, one more time on the 22 question. 23 Q Sure. 24 Did LTE include the concept of a 25 PDCCH?	40 1 Q What is a control region? 2 A Well, it's a region which controls 3 information that's being transmitted. 4 Q Is it a region of a subframe? 5 A Again, I have to go back and look 6 at that for LTE. I don't recall if it's a 7 subframe or a slot. 8 Q Does the control region have a 9 particular number of symbols? 10 MR. PYMENTO: Objection to form. 11 A I don't recall that, off the top of 12 my head. 13 Q Do you recall whether the number of 14 symbols in a control region can change in 15 LTE? 16 A I haven't looked at LTE with regard 17 to this subject, so I have to go back and 18 look at it. 19 Q Was the control region where a 20 PDCCH was delivered for LTE? 21 A Again, I have to go back and look 22 at that to give you an accurate answer. 23 Q You've read all of the prior art 24 that was asserted in this IPR, right? 25 A Yes.
39 1 A Yes, it did. 2 Q Does 5G include the concept of a 3 PDCCH? 4 A Yes, it does. 5 Q And in LTE, did paging scheduling 6 information get delivered on the PDCCH? 7 A Yes. 8 Q And in 5G, does the paging 9 scheduling information get delivered on the 10 PDCCH? 11 A Again, yes, it does, in -- in ways 12 that had to be adopted for the new goals of 13 5G. 14 Q In LTE, are you familiar with the 15 concept of a control region? 16 A If this is in reference to LTE, can 17 you be more specific where I discuss that in 18 my report? 19 Q You opined about differences 20 between 4G LTE and 5G/NR, so I'm asking you 21 questions about those differences. 22 A Okay. 23 Q In LTE, are you familiar with the 24 concept of a control region? 25 A Yes.	41 1 Q Do you recall whether any of the 2 prior art references that you reviewed 3 discussed a control region? 4 A There are a number of them, you 5 know, including Dr. Bims' report. I do 6 believe it was discussed there, but I don't 7 recall the specifics, off the top of my head. 8 Q In LTE, a UE could apply to the 9 concept of discontinuous paging to save 10 power, right? 11 A Yes. 12 Q And in 5G, a UE can apply to the 13 concept of discontinuous reception to save 14 power? 15 A That's correct. 16 Q In LTE, did base stations and UEs 17 communicate using higher level signaling, 18 like RRC? 19 MR. PYMENTO: Objection to the 20 form. 21 A One more time on the question. 22 Q In LTE, did base stations and UEs 23 communicate using higher level signaling? 24 MR. PYMENTO: Same objection. 25 A I'd have to go back and look at

42 1 that. I believe they did, but I just want to 2 make sure I give a correct answer. 3 Q Did LTE use RRC signaling to 4 communicate? 5 A I'd have to go back and look at 6 that. 7 Q In 5G, do base stations and UEs 8 communicate using higher level signaling? 9 MR. PYMENTO: Objection to form. 10 A When you say "higher level 11 signaling," what do you mean by that? 12 Q Does that concept -- does that term 13 mean anything to you as a person of ordinary 14 skill in the art? 15 A Yes, it does, but I just want to 16 make sure I understand how you're using it. 17 Q What do you understand it to mean? 18 A Well, it's a signaling that's done 19 at a higher control level. 20 Q Does that occur in communications 21 between base stations and UEs in 5G? 22 MR. PYMENTO: Objection to form. 23 A Yes, it does. 24 Q Did that kind of signaling occur 25 between base stations in UEs in LTE?	44 1 A I haven't given an opinion on that 2 in my report. You know, this is outside the 3 scope of the report, so to the extent that it 4 is a signaling, it could be a higher level 5 signaling. 6 Q Do you recall reading any of the 7 documents in the IPR that discussed RRC 8 signaling? 9 A Not off the top of my head right 10 now. 11 Q Okay. You have a copy of the '767 12 patent, right? 13 A Yes, I do. 14 Q If you can, look at Column 2 of 15 that patent. 16 A Yes. 17 Q Look around line 48. 18 Do you see where it says, "In one 19 embodiment, any two of the X time intervals 20 have an equal time length"? 21 A Yes. 22 Q And then, in the next sentence, it 23 says, "In one embodiment, two of the X time 24 intervals have different time lengths"? 25 A So these are embodiments. These
43 1 MR. PYMENTO: Objection to the 2 form. 3 A Like I said, I'd have to go back 4 and look at that. 5 Q Is RRC an example of higher level 6 signaling? 7 A Again, I'm just trying to 8 understand how you used the term "higher 9 level signaling." 10 Q I'll use it in the way that you 11 understand it and in the way you provided it 12 in your definition. 13 A Well, I haven't opined on that in 14 my report, so I'd like to understand how 15 you're using it. 16 Q I'm using it the way you just 17 defined it. 18 A I don't believe I gave a definition 19 for it. 20 Q Higher level signaling, you said 21 it's signaling that's done at a higher 22 control level. 23 A Okay. 24 Q Is RRC an example of higher level 25 signaling under that definition?	45 1 are examples of what could occur. 2 I do see that, but like I said, 3 there's all these other embodiments above and 4 below that. 5 Q Right. 6 I just want to read through a few 7 more with you just to make sure that we're 8 talking about the same thing. 9 So now I'm at line 52. It says, 10 "In one embodiment, any one of the X time 11 intervals is a slot." 12 Do you see that? 13 A That's another embodiment, yes. 14 Q Okay. And at line 54, it says, "In 15 one embodiment, any two of the X time 16 intervals have an equal time length and the 17 time length of each one of the X time 18 intervals is correlated to the subcarrier 19 spacing of subcarriers included in the first 20 sub band." 21 A So this is yet one more embodiment. 22 Q And then at line 58, "In one 23 embodiment, any one of the X time intervals 24 comprises M orthogonal frequency division 25 multiplexing, parenthesis, OFDM symbols. M

46 1 is a positive integer smaller than 14," do 2 you see that? 3 A I see that. Again, another 4 embodiment. 5 Q And in line 61, "In one embodiment, 6 any one of the X time intervals comprises M 7 OFDM symbols. M is a positive integer 8 smaller than 7." 9 Do you see that? 10 A I do. 11 Q Do you agree that the '767 patent 12 discloses an embodiment where all of the X 13 time intervals have an equal time length? 14 A That's just one embodiment. That's 15 not the inventive quality -- necessarily the 16 only inventive quality of the '767 patent, 17 but that's what it says here, yes. 18 Q That's one embodiment? 19 A That's one embodiment, yes. 20 Q And you agree that the '767 patent 21 discloses an embodiment where all of the X 22 time intervals are M OFDM symbols? 23 A Which one was that again? Can you 24 point me to -- that's 58. Is that the one 25 you're referring to?	48 1 A I'm sorry, say that again. 2 Q One embodiment is where all of the 3 X time intervals comprise M OFDM symbols? 4 MR. PYMENTO: Objection to the 5 form. 6 A Again, "Any one of the X time 7 intervals comprises M orthogonal frequency 8 division multiplexing, OFDM symbols. M is a 9 positive integer smaller than 14." 10 That's what it says. 11 Q Right. 12 I'm not asking you what it says. 13 I'm asking you if the '767 patent discloses 14 an embodiment where all of the X time 15 intervals comprise M number of OFDM symbols? 16 A It's right here. What I'm citing 17 to is in part of the patent. 18 Q So you agree this part of the 19 patent discloses what I just said? 20 MR. PYMENTO: Objection to form. 21 A Again, where it says, "Any one of 22 the X time intervals comprises M orthogonal 23 frequency division multiplexing, OFDM 24 symbols. M is a positive integer smaller 25 than 14."
47 1 Q 58 to 60 and then 61 to 63. 2 A Okay. 3 Q I guess I should say, all of the X 4 time intervals comprise M OFDM symbols? 5 MR. PYMENTO: Objection to the 6 form. 7 A One more time on the question, I'm 8 sorry. 9 Q Sure. Let me repeat it. 10 You agree that the '767 patent 11 discloses an embodiment where all of the X 12 time intervals comprise M OFDM symbols? 13 MR. PYMENTO: Objection to form. 14 A So it says here, "In one 15 embodiment, any one of the X time intervals 16 comprises M orthogonal frequency division 17 multiplexing, OFDM symbols. M is a positive 18 integer smaller than 14." 19 Q All right. So M refers to a 20 particular number, right? 21 A Yes. It's a positive integer. 22 Q Okay. So one embodiment is where 23 all of the X time intervals comprise M OFDM 24 symbols? 25 MR. PYMENTO: Objection.	49 1 Q So I'm not asking you to read what 2 it says. 3 I'm asking you to answer whether 4 the '767 patent discloses an embodiment where 5 all of the X time intervals comprise an M 6 number of OFDM symbols? 7 MR. PYMENTO: Objection to form. 8 A Just exactly what it says, "Any one 9 of the X time intervals comprises M 10 orthogonal frequency division multiplexing, 11 OFDM symbols. M is a positive integer 12 smaller than 14." 13 Q It's a yes or no question. 14 MR. PYMENTO: Objection. 15 A I'm just citing what's in the 16 patent for you. 17 Q I'm asking you a different 18 question. 19 A How is that different? 20 Q So you agree that in Column 2, 21 lines 58 to 60, where it says, "Any one of 22 the X time intervals comprises M OFDM 23 symbols. M is a positive integer smaller 24 than 14," do you agree that that discloses an 25 embodiment where all of the X time intervals

50 1 comprise M OFDM symbols, M is a smaller -- or 2 is an integer smaller than 7? 3 MR. PYMENTO: Objection to form. 4 Q Or 14? 5 MR. PYMENTO: Asked and answered. 6 A So your question seems to be 7 paraphrasing the sentence in -- in Column 2 8 of the '767 patent. 9 And so, you know, to be precise, it 10 says, "Any one of the X time intervals 11 comprises M orthogonal frequency division 12 multiplexing, OFDM symbols. M is a positive 13 integer smaller than 14." 14 Q Do you agree that the language "any 15 one of the X time intervals" can mean "all of 16 the X time intervals"? 17 A I would say that's any one of the X 18 time intervals. 19 Q So are you saying that the '767 20 patent -- strike that. 21 Does the '767 patent disclose an 22 embodiment where all of the X time intervals 23 comprises M OFDM symbols? 24 MR. PYMENTO: Objection form, asked 25 and answered.	52 1 says, "Any one of the X time intervals 2 comprises the OFDM symbols." 3 And we're not talking about some 4 hypothetical example here. It's just simply 5 saying that any one of the X time intervals 6 comprises the OFDM symbols and M is a 7 positive integer less than 14. 8 Q So you're reading Column 2, lines 9 59 to 60, to say, "Any one of the X time 10 intervals comprises M OFDM symbols. M is a 11 positive integer smaller than 14," and at 12 least one of the other X time intervals 13 necessarily does not comprise M OFDM symbols. 14 Is that what you're saying? 15 MR. PYMENTO: Objection to form. 16 A It says, "Any one of the X time 17 intervals," and it's not talking about any 18 other. It's just saying any one of them. 19 So to be precise, it's any one of 20 the X time intervals comprises the OFDM 21 symbols, comprises M OFDM symbols. 22 Q So is there an embodiment in this 23 patent that covers the situation where all of 24 the X time intervals comprise the same number 25 of OFDM symbols?
51 1 A It doesn't say "all." It says "any 2 one of the X time intervals." 3 Q Would a sub-embodiment of that be 4 the situation where all of them comprise M 5 OFDM symbols? 6 MR. PYMENTO: Objection to form. 7 A So we're talking about one 8 embodiment, not a sub-embodiment. 9 "In this embodiment, any one of the 10 X time intervals comprises M OFDM frequency 11 division multiplexing, OFDM symbols. M is a 12 positive integer smaller than 14." 13 Q Let me try this a different way. 14 So if you have a situation where 15 there are two X time intervals and both of 16 them are three OFDM symbols, is that covered 17 under this embodiment? 18 A Say that again. 19 Q If you have a situation where there 20 are two X time intervals and both of them 21 comprise three OFDM symbols, is that covered 22 under this embodiment? 23 MR. PYMENTO: Objection to the 24 form. 25 A I don't believe so, because it	53 1 MR. PYMENTO: Objection to form. 2 A You want me to go through all of 3 the embodiments? 4 I mean, there's a large number of 5 them. Unless you have one to point me to, 6 it's -- you know, it's going to take 7 sometime. 8 Q Okay. What about just the language 9 "X time intervals"? 10 MR. PYMENTO: Objection to form. 11 A What's the question regarding X 12 time intervals? 13 Q Does the language "X time 14 intervals" permit an embodiment where all of 15 the X time intervals comprise the same number 16 of OFDM symbols? 17 MR. PYMENTO: Objection. 18 A Again, this particular embodiment 19 we've been talking about simply says that, 20 "In one embodiment any one of the X time 21 intervals comprises M orthogonal frequency 22 division multiplexing, OFDM symbols." 23 So again, it's just any one of the 24 X time intervals comprises M OFDM symbols. 25 It doesn't say anything about the other. It

54 1 doesn't say anything about all. It's just 2 any one of the X time intervals. 3 Q I'm not asking you about that 4 specific language right now. 5 A Okay. 6 Q Does the language "X time 7 intervals" perform an embodiment where all of 8 the X time intervals comprise the same number 9 of OFDM symbols? 10 MR. PYMENTO: Objection to the 11 form. 12 A One more time on the question 13 again. 14 Q Does the language "X time 15 intervals" permit an embodiment where all of 16 the X time intervals comprise the same number 17 of OFDM symbols? 18 MR. PYMENTO: Same objection. 19 A And we're still talking about the 20 same embodiment at line 58? 21 Q I just said that we're not. 22 A Oh, okay. 23 Q Listen to my question and -- 24 A So perhaps you can point me to the 25 embodiment that you would like me to --	56 1 "In one embodiment" -- and this is 2 at 53, "In one embodiment, any one of the X 3 time intervals is a slot." 4 In 54, "In one embodiment, any two 5 of the X time intervals have an equal time 6 length," and the time length of each one of 7 the X time intervals is correlated to the 8 subcarrier spacing of the subcarriers 9 included in the first sub band. 10 And then, "In one embodiment, any 11 one of the X time intervals comprises M 12 orthogonal frequency division multiplexing, 13 OFDM symbols. M is a positive integer 14 smaller than 14." 15 Q I'll also point you to Figure 6 and 16 Embodiment 6 that starts at Column 17, line 17 44, if you want to read that for yourself as 18 well. 19 (Witness reviewing.) 20 A All right. Read your question one 21 more time just so I get a... 22 Q Does the language "X time 23 intervals" permit an embodiment where all of 24 the X time intervals comprise the same number 25 of OFDM symbols?
55 1 Q I'm asking you about the language 2 "X time intervals" generally. 3 Does the language "X time 4 intervals" permit an embodiment where all of 5 the X time intervals comprise the same number 6 of OFDM symbols? 7 MR. PYMENTO: Objection to form, 8 asked and answered. 9 A Okay. So you're asking me for a 10 hypothetical embodiment. 11 I'm going to go through all the 12 embodiment until I can identify one that 13 works, but again, it's going to take a while 14 because there's a large number of embodiments 15 here, unless you want to point me to one that 16 you're thinking of. 17 Q If you want to read the embodiments 18 that we just covered, begin at lines 48 to 19 63. 20 (Witness reviewing.) 21 A So 48 it says, "In one embodiment, 22 any two of the X time intervals have an equal 23 time length." 24 In 50, it says, "In one embodiment, 25 two of the X times have different lengths."	57 1 MR. PYMENTO: Objection to form, 2 asked and answered. 3 A I don't see anywhere in this Column 4 2 or Figure 6 or Embodiment 6 where that is 5 explicitly stated. 6 I don't think it excludes it, but I 7 don't see it in here. 8 Q Okay. So you don't see an explicit 9 embodiment, but you agree that the language 10 "X time intervals" is broad enough to 11 potentially include such embodiment? 12 A Again, it's not -- 13 MR. PYMENTO: Objection to form. 14 A -- it's not stated here at all. 15 Q Right. My -- my question is a 16 little bit different, though. 17 You agree that it -- that there's 18 nothing in the patent that excludes that from 19 language X time intervals? 20 MR. PYMENTO: Objection to form. 21 A The patent doesn't -- doesn't state 22 that, doesn't teach that. It's just 23 simply -- you know, uses a language that's 24 different. 25 Q I still think you're not quite

58 1 answering my question, so I'm just going to 2 ask it again. 3 You agree that there's nothing in 4 the patent that excludes all of the X time 5 intervals being the same number of OFDM 6 symbols from the language "X time intervals"? 7 MR. PYMENTO: Objection to form, 8 asked and answered. 9 A Again, I'm trying to be precise and 10 I'm trying to answer your question. 11 The patent doesn't teach that. It 12 doesn't explicitly say that. 13 Q Okay. So you're saying if it is an 14 embodiment, it's not taught by the patent? 15 A I don't see it. 16 MR. PYMENTO: Objection to the 17 form. 18 A I see that there are a number of 19 embodiments that are stated and I'm just 20 showing you what is in the patent, what I see 21 in the patent right now in the sections you 22 pointed me to. 23 Q If you look at Figure 6, I want you 24 to look at the rectangles for time window 25 number A.	60 1 drawn to be the same width in this figure? 2 MR. PYMENTO: Objection to form. 3 A Again, I don't have a measuring 4 tool. And, you know, eyeballing it, maybe, 5 but they could or maybe not. I don't know. 6 Q So eyeballing it, they look roughly 7 the same width? 8 MR. PYMENTO: Objection. 9 A You know, that's an opinion I 10 haven't rendered in my report for sure. 11 Eyeballing it is a very, very bad way to make 12 an opinion. 13 Q Okay. So you can't say -- 14 MR. HIGH: Well, I'm going to just 15 stop there and we can take a break. We've 16 been going for a little while. 17 THE WITNESS: Okay. 18 (Brief recess taken.) 19 Q So you still have your copy of the 20 '767 patent? 21 A I do. 22 Q Okay. You can turn to Claim 1. 23 It's at the top of Column 23. 24 You see line 4, "Monitoring a first 25 signaling in X time intervals"?
59 1 Do you see that? 2 A Yes. 3 Q And in the shaded rectangles are 4 the X1 time intervals of UE number 1, right? 5 A Yes. 6 Q Would you agree that all three of 7 those X1 time intervals are the same time 8 length? 9 MR. PYMENTO: Objection. 10 A Same time length of -- 11 Q As each other. 12 MR. PYMENTO: Objection. 13 A It doesn't actually say that here. 14 Q Well, you see the time access at 15 the bottom, right? 16 A Yes. It doesn't have any 17 indications as to what those lengths are for 18 X1 time intervals. 19 Q Do they look to be roughly the same 20 width? 21 MR. PYMENTO: Objection to form. 22 A That's a judgment that's -- it's 23 just the way the drawing may have been drawn. 24 I don't know. 25 Q But you would agree that they're	61 1 A Yes. 2 Q Nothing in that language specifies 3 the time lengths of each of the time 4 intervals, does it? 5 MR. PYMENTO: Objection to the 6 form. 7 A It just says, "X time intervals." 8 It says, "Monitoring a first 9 signaling in X time intervals," nothing in 10 there about the lengths. 11 Q So all of the X time intervals 12 could be the same length, right? 13 MR. PYMENTO: Objection to the 14 form. 15 A It doesn't specify. 16 Q So because it doesn't specify, 17 that's one embodiment encompassed by Claim 1? 18 MR. PYMENTO: Objection to the 19 form. 20 A Yeah, I think we went through this 21 before, and again, we did not see that in any 22 of the embodiments. 23 Q So do you agree that Claim 1 covers 24 an embodiment where all of the X time 25 intervals have an equal time length?

62 1 MR. PYMENTO: Objection to form. 2 A It's just a monitoring for 3 signaling and X time intervals. 4 Q Yes or no. Does Claim 1 cover the 5 embodiment where all of the X time intervals 6 have an equal time length? 7 MR. PYMENTO: Object to the form, 8 asked and answered. 9 A Again, I don't think it's a simple 10 yes-or-no question -- answer because it says, 11 you know, that it's monitoring a first 12 signaling in X time intervals. So it doesn't 13 say anything about the X time intervals here. 14 It's just that it's monitoring them in X time 15 intervals. 16 Q So why is that not a simple 17 yes-or-no answer? 18 MR. PYMENTO: Objection to form. 19 A We went through this before and we 20 found that there was no embodiment in the 21 specification that limits it to that. 22 Q When you say there's no embodiment 23 that limits it to that, you're saying that 24 there's -- there's no language in the 25 specification that excludes all of the X time	64 1 form. Asked and answered. 2 A It's not even contemplating that. 3 It's just simply saying, "Monitoring a first 4 signaling in X time intervals." 5 Q Right? 6 It doesn't specify, one way or the 7 other, right? 8 A Nowhere in the patent does it. So 9 the X time intervals could be different 10 lengths or they could be the same length. 11 Again, I haven't opined on -- 12 MR. PYMENTO: Objection to the 13 form. 14 A -- that specifically. All it's 15 saying in the patent is that it's monitoring 16 the first signaling in X time intervals. 17 Q So you haven't opined on whether 18 the X time intervals have to be different 19 time lengths? 20 A All I've said is that the X time 21 intervals are, you know, variables and that 22 there could be ranges in time. But the 23 variables of variable time intervals, that's 24 what I've opined on in my specification. 25 Q Okay. So under that definition,
63 1 intervals being the same time length? 2 MR. PYMENTO: Objection to the 3 form. 4 A It just doesn't have any -- it 5 doesn't say anything about the fact that they 6 would be all the same lengths. There's no 7 embodiment described there in the patent 8 about that. 9 Q Okay. Is there any language in 10 Claim 1 that excludes the possibility of all 11 the X time intervals being the same time 12 length? 13 MR. PYMENTO: Objection to the 14 form. 15 A Again, it just says monitoring and 16 first signaling and X time intervals. It's 17 discussing the monitoring of the first 18 signaling in the X time intervals. It's not 19 discussing embodiments. It's not discussing 20 anything beyond what it says here. 21 Q So there's nothing in Claim 1 that 22 excludes the ability for the X time intervals 23 to all be the same time length? 24 A I don't think there's -- 25 MR. PYMENTO: Objection to the	65 1 could the X time intervals all be the same 2 time length? 3 A Again, we saw here in the patent 4 that there's no embodiment that says that or 5 in this claim language, it doesn't refer to 6 that, either. 7 Q But there's nothing in the patent 8 or the claim language that excludes that, 9 right? 10 MR. PYMENTO: Objection, asked and 11 answered. 12 A Or include it. 13 Q All right. So you've proposed 14 construing time intervals to mean variable 15 ranges of time, right? 16 A So at paragraph 34, I've written, 17 "In my opinion a POSITA reading the '767 18 patent specification and the claims 19 themselves would consider time intervals to 20 mean variable ranges of time." 21 Q So the answer to my question is 22 yes? 23 A Can you state your question again, 24 just so I can make sure? 25 Q You've proposed construing time

66 1 intervals to mean variable ranges of time, 2 right? 3 A Yes. 4 Q Can you give me an example of 5 variable ranges of time? 6 A That would be -- yeah. In fact, I 7 think I give you several dictionary examples 8 that are pertinent. 9 So, you know, a space or separation 10 between two points give a -- give a given 11 range of values, but I think the one I like 12 the -- that strikes a chord with me is, "The 13 time that elapses between the occurrence of 14 two specified events, states or instants. 15 For example" -- and these are good 16 examples -- "the regular intervals at which 17 AV voltage alternates, the irregular 18 intervals at which a circuit with a loose 19 connection might open and close, or the time 20 within which a pulse rises from 0 to its 21 maximum amplitude." 22 Q Okay. So in those examples, would 23 regular intervals at which AV voltage 24 alternates be a fixed time interval? 25 A It's -- you know, AV voltage can	68 1 MR. PYMENTO: Objection to form. 2 A Well, I would say that the -- you 3 know, irregular interval is definitely a 4 variable. 5 Q But regular interval is not 6 variable, right? 7 MR. PYMENTO: Objection to the 8 form. 9 A Well, of course, it could be 10 variable in terms of what the regular is, you 11 know. Regular can be -- can be changing over 12 time. It -- it just means that, you know, at 13 some point, they -- they -- they're similar, 14 but they don't have to be. 15 Q But it could be the exact same 16 regular interval -- 17 A It could be -- I'm sorry. 18 Q Regular intervals could also mean 19 the exact same time interval repeated over 20 and over and over again, right? 21 A For some very short period of time 22 and they could be changing later on. 23 Q But it could include a fixed time 24 interval? 25 A But it doesn't have to necessarily
67 1 change a little bit in terms of its time 2 intervals. It's not -- it doesn't 3 necessarily have to be exactly constant. 4 In fact, a power grid sometimes 5 does have, you know, variations in their 6 cycles, but the key thing is that it also can 7 be irregular intervals in which a circuit 8 with a loose connection might open and close. 9 And that's a very irregular example. It's a 10 randomly-occurring event. 11 Q Okay. So your definition of time 12 intervals excludes the regular intervals but 13 includes the irregular intervals? 14 MR. PYMENTO: Objection to the 15 form. 16 A You asked for some examples. Those 17 are examples in, you know, my definition on 18 the previous page which says that I would 19 consider time intervals to mean variable 20 ranges of time, and those are examples of 21 variable ranges of time. 22 Q Right. 23 But this definition 3 here doesn't 24 specify that those time intervals have to be 25 variable, right?	69 1 be confined to a short -- to a fixed time 2 interval. 3 Q Right. 4 So it could be fixed, it could be 5 variable, right? 6 MR. PYMENTO: Objection to form. 7 A No, it's variable. That's the -- 8 that's what -- you know, time intervals mean 9 variable ranges of time. And that -- you 10 know, they might be regular over some short 11 period of time, but they don't necessarily 12 have to be regular over any, you know, 13 defined period of time. 14 Q Does the time length have to change 15 at some point for it to be considered a 16 variable range of time? 17 MR. PYMENTO: Objection. 18 A Say that again. 19 Q Does the time length of one of the 20 X time intervals have to change for it to be 21 considered a variable range of time? 22 A Well, variable -- 23 MR. PYMENTO: Objection to form. 24 A -- means that it changes over time. 25 Q So your definition of -- of

70 1 variable excludes the situation where all of 2 the X time intervals are the same time 3 length? 4 MR. PYMENTO: Objection to the 5 form. 6 A So variable ranges of time mean 7 that the ranges can change over time. That's 8 all it means. 9 Q The ranges could change if the 10 subcarrier spacing changed, right? 11 A That might be one example, you 12 know. There's no definition of exactly what 13 the -- what it requires in order to change, 14 but that would be definitely one of them that 15 would change them. 16 Q I'm handing you what has been 17 pre-marked as Samsung Exhibit 1006. This is 18 the Liu reference. 19 Have you reviewed this reference? 20 A Yes, I have. 21 Q You read all the words? 22 A I believe so. 23 Q You reviewed all the figures? 24 A I believe so. 25 Q Okay. I want you to turn to the	72 1 equals 60 kHz. 2 Do you see that? 3 A Yes, I see that. 4 Q Do you agree that in this top 5 figure that the shaded portions refer to the 6 DCI monitoring occasions? 7 A It doesn't say that here, but I'd 8 have to go back and look at the specification 9 and see what it says on it. 10 Q Do you agree that the length of the 11 slot -- I'm sorry, let me back up. 12 Do you agree that the time length 13 of the slot changes when you switch from a 14 subcarrier spacing of 15-kilohertz to a 15 subcarrier spacing of 60-kilohertz? 16 A One more time on the question. 17 Did you say a time length, is that 18 what you said? 19 Q Yes. 20 Do you agree that the time length 21 of the slot changes when you switch from a 22 subcarrier spacing of 15 kHz to a subcarrier 23 spacing of 60 kHz? 24 A Yes, it does. 25 Q Okay. And do you agree that the
71 1 figures, and in particular, start at Figure 2 1. 3 Have you seen this figure before? 4 A Yes. 5 Q Step 101 in this figure says, 6 "Transmitting a DCI configuration parameter 7 to a terminal device," right? 8 A Yes. 9 Q And that DCI configuration 10 parameter can include, you know, a variety of 11 pieces of information, right? 12 A I would think so, yes. 13 Q One of those pieces of information 14 is the subcarrier spacing, right? 15 A Yes. 16 Q It could specify, for example, 15 17 kHz or 60 kHz for the subcarrier spacing? 18 A Okay. 19 Q Do you agree with that? 20 A I'd have to go back and look at the 21 specification, but I think that's correct. 22 Q If you look at Figure 2, that 23 depicts -- you know, the top diagram shows 24 that subcarrier spacing equals 15 kHz and the 25 bottom diagram shows subcarrier spacing	73 1 time length of the shaded regions shortens 2 when you switch from a subcarrier spacing of 3 15 kHz to a subcarrier spacing of 60 kHz? 4 A Well, in this case it stays with 5 the slot length. 6 So it does shorten it according to 7 the slot length that's used in 60 kHz versus 8 the one used in 15 kHz. 9 Q Okay. 10 A But it's constant to the slot 11 length. 12 Q So it's proportional in this 13 situation to the slot length? 14 A It looks like it's the same length 15 as the slot length. 16 Q What do you mean? 17 A Well, it fills into our slot. 18 Q The shaded portions do? 19 A Yes. 20 Q So it's your opinion that the 21 shaded portions in Figure 2 fill the entire 22 slot? 23 A So -- oh, I'm sorry, I'm looking at 24 this incorrectly here. 25 The slot is the different -- it's a

74 1 different designation. So it -- it fills 2 each one of the segments within the slots. 3 Q And each of those segments changes 4 their -- their time duration depending upon 5 the subcarrier spacing, right? 6 A Yes. 7 MR. PYMENTO: Objection to the 8 form. 9 A But it fills the same -- it fills 10 the segment of what's within the slot. 11 Q So if the DCI configuration 12 parameter initially specified a subcarrier 13 spacing of 15 kHz and a single DCI duration 14 of two symbols, would you agree that that's 15 consistent with what's depicted in Figure 3A? 16 A Say that one more time on the 17 question. 18 Q Well, let me just make it easier. 19 I'll change my question slightly. 20 Would you agree that if the DCI 21 configuration parameter specified a 22 subcarrier spacing of 15 kHz and a single DCI 23 duration of two symbols, that's consistent 24 with this top diagram in Figure 2? 25 A So the DCI configuration parameter,	76 1 those parameters is being used to identify 2 the number of symbols and the number of -- 3 within the slot and -- and the location 4 within the slot of where this -- where 5 this -- these time intervals would be 6 located. 7 Q Is that consistent with your 8 reading of Liu? 9 A Yeah. 10 Q One of the DCI configuration 11 parameters would also include a -- a 12 periodicity? 13 A I believe that's correct, and you 14 can point me to where that is. I just want 15 to make sure we have that right. 16 Q Paragraphs 48 and 49. 17 I think the specific term that we 18 use is the DCI occurrence occasion? 19 A It says here, "The DCI occurrence 20 occasions can be periodic, that is to say, 21 the DCI monitoring will be performed 22 periodically. For example, every A 23 predetermined number of slots, every A 24 predetermined number of symbols." 25 And then it points to 3A, which we
75 1 your question says that the DCI configuration 2 parameter is sending two pieces of 3 information. The subcarrier spacing plus the 4 number of symbols to populate the DC 5 scheduling, DL scheduling. 6 Q At least those two pieces of 7 information? 8 A Yeah, and there would be others, 9 but at least those two. So that's what I see 10 here, yes. 11 Q And if you kept the symbol duration 12 as two, but you changed the subcarrier 13 spacing to 60 kHz, would the DCI length 14 shorten its time length? 15 A It would still fill the two symbols 16 in the slot, but definitely the length would 17 be shortened, the time length would be 18 shortened. 19 Q Okay. 20 A Just so to make sure that I 21 answered your question correctly, the 22 information that's being transmitted from the 23 node to the UI or to the UE, rather, 24 transmitting a DCI configuration parameter. 25 And in that -- that information in	77 1 already looked at as the DCI occurrence 2 occasions are per slot. In other words, the 3 DCI monitoring is performed in every slot. 4 In 3B, which we haven't examined 5 yet, it goes on to say that, "DCI occurrence 6 are per multi-slot; for example, two slots, 7 the subframe, that is to say that the DCI 8 monitoring can be performed per multi-slot. 9 In such case, the DCI occurrence occasions 10 can be indicated by a periodicity and offset 11 of the DCI occurrences. A periodicity can 12 be, for example, a pre-termed number of slots 13 or frames." 14 So yeah, I -- I agree that that's 15 the transmitting DCI configuration parameter 16 to the terminal. It contains information 17 about where these DL scheduling should be 18 located. 19 I guess what I was looking for -- 20 and haven't really seen it here -- is that 21 this information is determined by the node -- 22 the node B, whereas that's different than 23 what's in the '767 patent where the 24 subcarrier spacings are determined by the -- 25 or the X time intervals are determined by

78 1 reference to the subcarrier spacings in the 2 UE. 3 It's -- a fundamental difference 4 between the Liu patent and the '767 patent is 5 that in the Liu patent, the node B is making 6 the determination about where all the 7 scheduling is occurring. But in the '767 8 patent, the claim clearly says that, "In at 9 least one location of first sub band in 10 frequency domain, subcarrier spacing or 11 subcarriers included in the first sub band is 12 used for determining the X time intervals, 13 and that's in a method of a UE, user 14 equipment, for paging." 15 Q So -- 16 A So I was a little confused by the 17 question, because there's -- you know, that's 18 pointing to a fundamental difference between 19 what the '767 patent teaches versus what Liu 20 teaches. 21 Q Liu discloses that the node 22 transmits the DCI configuration parameter to 23 the terminal device, right? 24 A Correct. 25 Q And the terminal device has the DCI	80 1 DCI occurrence occasions after it receives 2 the DCI configuration parameter, right? 3 MR. PYMENTO: Objection to the 4 form. 5 A Who -- in which patent are you 6 referring to? 7 Q In Liu. 8 A And where would that be? 9 Because I haven't seen that in Liu. 10 I see that the DCI configuration parameters 11 are transmitted, and there's nothing in Liu 12 that teaches that the UE does the 13 determining. 14 It's just that in Liu, the UE 15 accommodates the subcarrier spacing by -- by 16 conforming to these DCI configuration 17 parameters. In the '767 patent, the UE 18 determines the X time intervals according to 19 the sub band frequency subcarrier spacing of 20 subcarriers. 21 There's a fundamental difference in 22 that Liu seems to just accommodate them, 23 whereas the '767 actually does the 24 determining according to the subcarrier's 25 spacing.
79 1 configuration parameter and uses those 2 parameters to determine the DCI occurrence of 3 occasions, right? 4 A The way I read Liu is that the node 5 transmits the information about what to do, 6 and the UE just simply accepts that and 7 enacts that. 8 So it's -- the UE just simply takes 9 instructions from the node B, whereas the key 10 fundamental difference is in that '767 patent 11 it is the UE that's making the determination, 12 and that's the terminology used here in the 13 claim. 14 It's -- subcarrier's location on 15 first sub band -- I'll start over. 16 "Location of the first sub band in 17 frequency domain, subcarrier spacing or 18 subcarriers included in the first sub band is 19 used for determining the X time intervals." 20 So the determination is made in the 21 UE. That's different than what Liu teaches, 22 which is that it's -- that a termination is 23 made in the node B. That's the way I read 24 Liu. 25 Q The terminal device determines the	81 1 Q Can you turn to paragraph 19 of 2 Liu? 3 A Sure. 4 Q And in that second sentence, it 5 says, "The terminal device may monitor the 6 transmitted DCI based on received DCI 7 configuration parameter, which means that 8 flexible DCI monitoring solution and thus, 9 can support the DCI monitoring occasion 10 change due to numerology and scheduling unit 11 size." 12 A Well, again, my point is that Liu 13 says that it will send the DCI configuration 14 about how it should be structured so that the 15 UE can accommodate the -- the numerology, but 16 it doesn't say that the UE will determine 17 according to the subcarrier spacings. 18 So that's a fundamental difference 19 that there's additional information in that 20 the '767 patent teaches that would -- that 21 will allow the UE to determine, to do the 22 determining. This simply shows that the UE 23 in Liu was accommodating the -- their 24 numerology, but it's getting instructions 25 from the node.

82 1 Q And it monitors the transmitted DCI 2 based on the received DCI configuration 3 parameter, which includes the subcarrier 4 spacing, right? 5 MR. PYMENTO: Objection to the 6 form. 7 A And as we discussed, it has other 8 information directed as to how the -- to the 9 DL, how to accommodate the numerology. 10 Q So the terminal device determines 11 the DCI monitoring occasions based on the DCI 12 configuration parameter, which, in part, 13 includes the subcarrier spacing? 14 MR. PYMENTO: Objection to form. 15 A Liu doesn't teach that it's doing 16 the determining only from the -- from the 17 subcarrier spacings. 18 Q Right. 19 It -- the DCI configuration band 20 parameter includes the subcarrier spacing, 21 which the terminal device uses, in part, with 22 other information? 23 MR. PYMENTO: Objection to the 24 form. 25 A With other information, but the	84 1 intervals, whereas Liu lacks that component 2 entirely. 3 Q Going back to the DCI occurrence 4 occasions, paragraph 49 -- 5 A Of which patent? 6 Q -- of Liu. 7 A Of Liu. 8 Paragraph 49? 9 Q Yeah. 10 It says that in Figure 3A, "The DCI 11 occurrence occasions are per slot. In other 12 words, the DCI monitoring is performed every 13 slot, like in slots 0, 1, dot dot dot." 14 Do you see that? 15 A Yeah. In Figure 3A, the DCI 16 occurrence occasions are per slot. 17 Q So the DCI occurrence occasions 18 parameter can indicate a slot periodicity, 19 and that periodicity can be, for example, a 20 predetermined number of slots? 21 MR. PYMENTO: Objection to form. 22 A I'm sorry, I got lost on the 23 question. 24 One more time. 25 Q The DCI occurrence occasions
83 1 other information is the key part, whereas in 2 the '767 patent, it doesn't require that 3 other information. At least it doesn't teach 4 that it needs that other information, whereas 5 Liu does. 6 Q But it doesn't exclude the other 7 information, either, does it? 8 A What, Liu or -- 9 MR. PYMENTO: Objection to the 10 form. 11 Q The '767 patent? 12 MR. PYMENTO: Objection to the 13 form. 14 A But it does say specifically that 15 it's used for determining -- that the 16 subcarrier -- that the location of sub band 17 in the frequency subcarrier spacing of 18 subcarriers included in the first sub band is 19 used for determining the X time intervals. 20 Q Right. 21 So it doesn't say exclusively used, 22 right? 23 MR. PYMENTO: Objection to form. 24 A But it's pretty clear that it's the 25 UE that's doing the determining in the X time	85 1 parameter can indicate a periodicity, and 2 that periodicity can be on a per slot basis, 3 meaning like which slots include the DCI 4 occurrence occasions? 5 A So it says, "DCI monitoring is 6 performed every slot, like in slots 0, 1, dot 7 dot dot." 8 It also says in Figure 3B, "The DCI 9 occurrence occasions are per multi-slot, two 10 slots of subframe." 11 Q And if we look back at Figure 3A -- 12 A Yeah. 13 Q -- this is the slot level 14 monitoring that it's referring to, right? 15 A I believe so, yes. 16 Q So in this example, it monitors the 17 first two symbols of each slot? 18 A Yes. 19 Q I'm going to hand you what I had 20 pre-marked as Samsung Exhibit 1039. 21 MR. HIGH: And this is a new 22 exhibit. It hasn't been marked. 23 MR. PYMENTO: Okay. 24 (Above-mentioned document marked 25 for Identification.)

86 1 Q I'm just going to read what's on 2 this page. 3 It says, "In paragraph 59 of his 4 declaration, Mr. Gomez says," quote, "I," 5 open bracket, "improperly," closed bracket, 6 "note that while petitioner relies on the 7 combination of You and Liu for the entirety 8 of the claim limitation, petitioner only 9 relies on You's SIB to disclose the second 10 radio signal aspect." 11 Does the quoted sentence that I 12 just read, the only quoted sentence in 13 Exhibit 1039, match the first sentence of 14 paragraphs 59 in your declaration? 15 A I'm not seeing that. 16 One more time on the question. 17 Which part are you referring to? 18 Q Does the quoted sentence I just 19 read, the only quoted sentence in Exhibit 20 1039, match the first sentence of paragraph 21 59 in your declaration? 22 A I don't see that. I'm not seeing a 23 match. 24 Q The quoted sentence in Exhibit 1039 25 differs from the first sentence in paragraph	88 1 Q No. 2 A -- or was that a separate document? 3 Q A separate document. 4 A I don't recall, off the top of my 5 head. I looked at a large number of 6 documents. 7 Q Is it your opinion that Dr. Bims, 8 during his deposition, attempted to, quote, 9 "Match petitioner's incorrect claim 10 construction in the related District Court 11 litigation where it construed X times 12 intervals wherein X is a positive integer as 13 plural positive integer number of time 14 intervals"? 15 A What page is that on? 16 Q It's paragraph 50. 17 A Paragraph 50, okay. 18 Okay. I do have a paragraph about 19 that, yes. 20 Q What part of your technical 21 expertise qualifies you to testify as to Dr. 22 Bims' motivations when testifying? 23 MR. PYMENTO: Objection to form. 24 A Well, Dr. Bims was testifying about 25 the number one not being a positive integer,
87 1 59 because it includes the word "improperly" 2 in brackets, right? 3 A Yes. 4 Q Adding the word "improperly" when 5 quoting a sentence completely changes the 6 meaning of a sentence, right? 7 A Well, in the context that you have 8 of your excerpt, "improperly" might refer to 9 me, but I think if this was -- and I don't 10 recall this part here, but it might also 11 refer to that You and Liu were improperly 12 combined. 13 Q The word "improperly" inserted into 14 that sentence, that quoted sentence in 15 brackets, mischaracterizes the first sentence 16 in paragraph 59, right? 17 A Well, if it was referring to me, I 18 certainly would agree with that, yes. 19 Q Did you review the briefing that 20 was filed in the District Court action 21 between the parties? 22 I'm sorry, did you review the claim 23 construction briefing that was filed in the 24 District Court action between the parties? 25 A Was that part of the petition --	89 1 and in specific, he was referring to a 2 diagram in the '767 patent where it 3 specifically says that X equals 1. So that's 4 the only thing I was pointing out. 5 Q All right. But the term that he 6 was discussing is X time intervals, plural, 7 right? 8 MR. PYMENTO: Objection to form. 9 A Well, he said in the context of 10 Claim 1, the number 1 is not a positive 11 integer, but at the same time, we have this 12 diagram in Figure 7, which says X equals 1. 13 Q But your technical expertise 14 doesn't allow you to opine on Dr. Bims' 15 motivations, does it? 16 MR. PYMENTO: Objection to the 17 form. 18 A I'm not trying to opine on his 19 motivations, just what he said. 20 MR. HIGH: I'll pass the witness. 21 MR. PYMENTO: All right. Can we 22 take a ten-minute break or so? 23 MR. HIGH: That's fine. 24 MR. PYMENTO: Okay. 25 (Brief recess taken.)

90 1 EXAMINATION BY MR. PYMENTO: 2 Q Could you please turn to Column 2, 3 lines 48 to 49 of the '767 patent? 4 Just let me know when you're there. 5 A Okay. I'm at lines 48 to 49, 6 Column 2. 7 Q Do you recall that counsel asked 8 about lines 48 to 49, which read, "In one 9 embodiment, any two of the X time intervals 10 have an equal time length"? 11 A Yes. 12 Q In your opinion, does, quote, "Any 13 two of the X time intervals," end quote, 14 necessarily mean all of the time intervals 15 must be equal"? 16 A In, just that they have an equal 17 time length. 18 Q And just to be clear, that's 19 referring to any two of the X time intervals, 20 but not necessarily all of the X time 21 intervals, correct? 22 A Correct. 23 Q Counsel also previously mentioned 24 whether you opined on the related District 25 Court claim construction.	92 1 have an equal time length," right? 2 A Yes, that's what it says. 3 Q Could X equal to in certain 4 situations? 5 MR. PYMENTO: Objection to form. 6 A X equals -- so any two of the X 7 time intervals have an equal time length. 8 Q Right. 9 So I'm saying in the set of X time 10 intervals, could the number X be equal to 2? 11 A Well, it doesn't actually say that. 12 All it's saying here is that any two of the X 13 time intervals have an equal time length. 14 Q I'm not asking what it says here. 15 I'm saying, in general, in the set 16 of X time intervals, could the number X be 17 equal to two? 18 MR. PYMENTO: Objection. 19 A It could be equal to a large number 20 of different numbers as well. Any positive 21 number, any positive integer. 22 Q Two is one of the positive integers 23 it could be, right? 24 MR. PYMENTO: Objection to the 25 form.
91 1 Is that correct? 2 A Correct. 3 Q So you were aware of Samsung's 4 claim constructions in the District Court 5 litigation while drafting your declaration in 6 this IPR, correct? 7 MR. HIGH: Objection to the form. 8 A Yes. 9 Q So you would be able to opine on 10 the differences between Dr. Bims' testimony 11 regarding construction and Samsung's District 12 Court constructions, correct? 13 MR. HIGH: Objection to the form. 14 A I believe so, yes. 15 Q And counsel also introduced an 16 exhibit, Samsung Exhibit 1039, during this 17 deposition, correct? 18 A Yes. 19 Q Had you ever seen this exhibit 20 before this deposition? 21 A No. 22 MR. PYMENTO: No further questions. 23 CONTINUED EXAMINATION BY MR. HIGH: 24 Q Looking at Column 2, lines 48 to 25 49, it says, "Any two of the X time intervals	93 1 A It's possible. 2 Q And in that situation, under this 3 embodiment, all of the X time intervals would 4 have an equal time length, right? 5 MR. PYMENTO: Objection to the 6 form. 7 A Any two of the X time intervals 8 would have an equal time length. 9 Q And if there were only two X time 10 intervals, then all of the X time intervals 11 would have an equal time length, right? 12 MR. PYMENTO: Objection to the 13 form. 14 A Again, the language says any two of 15 the X time intervals have an equal time 16 length. 17 Q Yes or no. If there were only two 18 X time intervals, then under this embodiment, 19 all of the X time intervals have an equal 20 time length. 21 MR. PYMENTO: Objection to the 22 form. 23 A So we've been through this before, 24 and again, we came to the conclusion that 25 this specification doesn't actually say that.

94 1 Q It says, "Any two of the X time 2 intervals have an equal time length," right? 3 A That's exactly what it says, "Any 4 two of the X time intervals have an equal 5 time length." 6 Q And if there are only two time 7 intervals that fall under the category of X 8 time intervals, then all of the X time 9 intervals have an equal time length, right? 10 MR. PYMENTO: Objection. 11 A I agree that that's a hypothetical 12 in that any two of the X time intervals have 13 an equal time length. So it's a positive 14 number. I agree it's a hypothetical that 15 you're giving me, but the language says any 16 two of the X time intervals have an equal 17 time length. 18 Q So under my hypothetical, this 19 language covers the embodiment where all two 20 X -- all two time intervals of the X time 21 intervals have an equal time length? 22 MR. PYMENTO: Objection. 23 A Again, we've been through this, and 24 my point is that any two X time intervals 25 have an equal time length, whatever the --	96 1 ask it again. 2 Under the embodiment where X equals 3 1 in your opinion, does the variability 4 requirement that you impose on the time 5 intervals term not apply? 6 MR. PYMENTO: Objection to form. 7 A There's no limit to -- that the X 8 time intervals would not apply. It doesn't 9 get into that here in the specification. 10 Q So if it doesn't get into it in the 11 specification, what happens -- well, strike 12 that. 13 So if there's only one time 14 interval in the set of X times intervals -- 15 sorry, let me start over again. 16 If there's only one time interval 17 and -- sorry about that. 18 So if there's only -- if X is equal 19 to 1 in the term X time intervals, then that 20 time interval could necessarily not vary from 21 any other time intervals, right? 22 MR. PYMENTO: Objection to the 23 form. 24 A Well, certainly this embodiment, 25 any one embodiment -- in one embodiment, any
95 1 whatever the consonance that you're giving 2 me. 3 MR. HIGH: I'll pass the witness. 4 CONTINUED EXAMINATION BY MR. PYMENTO: 5 Q Is it also true that X could equal 6 1? 7 A There's -- in Figure 7, there's an 8 example of X equals 1. 9 Q And in an example where X equals 1, 10 would the embodiment of any two of the X time 11 intervals having an equal time length even 12 apply? 13 A No. 14 MR. PYMENTO: All right. No 15 further questions. 16 CONTINUED EXAMINATION BY MR. HIGH: 17 Q So under the embodiment where X 18 equals 1, in your opinion, does the 19 variability requirement not apply? 20 MR. PYMENTO: Objection to the 21 form. 22 A Say that question again. 23 Q Sure. 24 Under the embodiment where X equals 25 1, in your opinion, does the -- let me just	97 1 two of the X time intervals have an equal 2 time length wouldn't apply, but you still 3 have X time intervals. There's just one time 4 interval. 5 MR. HIGH: No further questions. 6 MR. PYMENTO: No other questions 7 for me. 8 MR. HIGH: Just for housekeeping 9 purposes, will you stipulate to the 10 admissibility of this transcript for the 11 other IPRs involving the same parties? 12 MR. PYMENTO: Sure. 13 MR. HIGH: Okay. Thank very much. 14 MR. PYMENTO: Thank you. 15 (Proceeding concluded at 12:15 16 p.m.) 17 (Witness was excused.) 18 19 20 21 22 23 24 25

98 C E R T I F I C A T E I, CHARLENE FRIEDMAN, a Certified Court Reporter and Notary Public, qualified in and for the State of New Jersey, do hereby certify that prior to the commencement of the examination MIGUEL GOMEZ was duly sworn by me to testify to the truth the whole truth and nothing but the truth. I DO FURTHER CERTIFY that the foregoing is a true and accurate transcript of the testimony as taken stenographically by and before me at the time, place and on the date hereinbefore set forth. I DO FURTHER certify that I am neither a relative of nor employee nor attorney nor counsel for any of the parties to this action, and that I am neither a relative nor employee of such attorney or counsel, and that I am not financially interested in the action. _____ CHARLENE FRIEDMAN, RPR, CRR, CCR of the State of New Jersey License No: 30XI00204900 Date: February 22, 2024																																																																															
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