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

SAMSUNG ELECTRONICS CO., LTD.,	)	
Petitioner,	)	
vs.	)	No. IPR2025-01069
WILUS INSTITUTE OF STANDARDS AND TECHNOLOGY INC.,	)	
Patent Owner.	)	

DEPOSITION OF ZHI DING, Ph.D., taken remotely via Zoom at 9:02 a.m. Pacific Time, Friday, February 27, 2026, before Theresa JoAnn Phillips-Blackwell, CSR 12700.

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I N D E X

EXHIBITS

(NONE MARKED)

(Zhi Ding, Ph.D., deponent, was sworn, examined and testified as follows:)

DEPOSITION OFFICER: Hello, everyone. My name is Theresa Phillips-Blackwell. I'm a California certified shorthand reporter, CSR No. 12700.

Raise your right hand, please.

You do solemnly state that the evidence you shall give in this matter shall be the truth, the whole truth, and nothing but the truth?

THE WITNESS: I do.

EXAMINATION

BY MR. MILKEY:

Q. Good morning. Could you please state your full name for the record.

A. Yes. Good morning, Mr. Milkey.

My name is Zhi Ding. I live in Davis, California, at the address of 2603 Nevelson Court.

Q. Great. Thank you very much, Mr. Ding.

You understand that you're here to testify today about an IPR proceeding involving the '077 patent; correct?

A. Yes, '077.

Q. And do you have a copy of the declaration that you submitted in that proceeding?

A. I do. I printed out a -- a clean copy here, so I have it here with me.

Q. Okay. Feel free to refer to any clean copy of any materials that you have with you today as long as they're already part of the IPR record. I am going to upload a copy of your declaration, which is Exhibit 1003, into the chat for the benefit of the reporter. But feel free to -- again, feel free to refer to any version that you have.

How did you prepare your declaration in this proceeding?

A. In preparation for today's proceeding I was provided by counsel for -- for Samsung a folder of documents, and from there I reviewed the patent -- the '077 patent, the PTAB's --

DEPOSITION OFFICER: The what?

THE WITNESS: The PTAB's. Sorry -- patent and trademark -- I forgot what the -- what the A stands for, but it's the -- yeah, it's patent and trademark office's decision. And I also reviewed a few prior arts that -- the main prior arts that I've cited in my declaration.

BY MR. MILKEY:

Q. Okay. Thank you for that.

So was that answer regarding how you prepared for today's deposition?

A. That's right. I thought that was what you were asking.

Q. Okay. So just -- just to clarify, my question was slightly different.

My question was, what -- how did you prepare the declaration that you submitted in this proceeding, Exhibit 1003?

A. Oh, okay. Well, at the time there was no decision; so my -- the process of my work began with a review of the patent, and I reviewed a large number of potential prior arts, and that's how I prepared.

Q. Okay. Approximately how long did you spend preparing your declaration in this proceeding?

A. Yeah. I honestly don't recall how long.

Q. Okay. You understand that all of the invalidity grounds that you raise in your declaration rely at least in part on the Bharadwaj prior art reference; correct?

A. Yes.

Q. Okay. And you -- you understand that the Bharadwaj reference claims priority, at least in part, to the Bharadwaj '059 provisional application; correct?

A. That is my understanding, correct.

Q. Okay. Again, feel free to refer to any copies of anything. I'm going to upload both Bharadwaj, which is Exhibit 1006, and the Bharadwaj provisional application. Or I might -- I may refer to it as Bharadwaj '059. I've uploaded both of those into the chat. Bharadwaj '059 is Exhibit 1007.

A. Yeah, I see them.

Q. Okay. Thank you.

Okay. So you -- so if you could take a look at Exhibit 1007, which is the Bharadwaj '059 provisional.

A. Yes.

Q. And if you could -- if you could go to Paragraph 51 of Exhibit 1007 and just let me know when you're there.

Are you there?

A. I'm trying to download that first. It will take a minute.

Okay. Which -- sorry. Which paragraph?

Q. Yeah. Paragraph 0051.

A. 0051. Okay. Yes.

Q. Okay. And do you see that in Paragraph 51 of Bharadwaj '059 there is an LLength formula?

A. Yes.

Q. Okay. And --

A. I think it's -- just to confirm, I believe

you're referring to Equation 2.

Q. Correct. Yes. Equation 2. Exactly.

And do you see there that in Equation 2, the -- the last part of Equation 2 says, "+ M where M = 1, 2"?

A. Yeah, I -- yes. I see it.

Q. Okay. And then going down on to the page -- it's still within Paragraph 51 but on the page -- the Page 19, the -- basically the second page that contains Paragraph 51 --

A. Yes.

Q. -- do you see that there's a sentence starting with, "The value m shown above"?

A. Yes.

Q. Okay. And -- okay.

So you agree that Bharadwaj's '059 provisional application teaches that the value m shown above has been added in IEEE 802.11ax to ensure that LLength is not exactly a multiple of 3 and is, therefore, used to distinguish between IEEE 802.11ax and IEEE 802.11ac transmissions, e.g., auto-detections?

A. That is -- that is a literal statement from Bharadwaj provisional, yes.

Q. Okay. So in light of the Bharadwaj provisional application, would you agree with me that, you know, the formula of Equation 2 has been added to ensure that

LLength is not exactly a multiple of 3 and is, therefore, used to distinguish between IEEE 802.11ax and IEEE 802.11ac transmissions, e.g., auto-detections?

A. I'm slightly lost. So you asked me whether I -- I agree -- whether or not I agree that these statements were in Paragraph 51 of Bharadwaj?

Q. Okay. So thank you, Dr. Ding. That's -- that's a good clarification.

So previously, I was asking if -- if the statement was in Bharadwaj provisional. Currently, I'm asking if you agree with the substance of the statement. So I'll -- I'll rephrase the question to be slightly more clear.

Would you agree with the substance of Bharadwaj '059 provisional's teaching when it says that the value m in Equation 2 ensures that LLength is not exactly a multiple of 3 and is, therefore, used to distinguish between IEEE 802.11ax and IEEE 802.11ac transmissions, e.g., auto-detections?

MR. STEPHENS: Objection to form.

THE WITNESS: Well, okay. First thing, I think we -- in your questioning and my answer we have established that Paragraph 51 states what it states; and then to the extent that whether or not having a value m where m equals to 1 or 2 would allow the length to be

not exactly a multiple of 3, I agree with that.

And also, in my opinion -- my declaration I also explain that you could add a positive m as over here 1 or 2 or the m could also be negative -- minus 1 or minus 2. All four possibilities can make this -- make sure that the LLength will not be exactly a multiple of 3.

And to the extent that this information allows a receiver to distinguish between IEEE 802.11ax and 802.11ac transmissions in auto-detections, I agree that you could add such a value m so long as the m is not 3. But the number of m -- the number of possible m's will be limited to basically plus/minus 1 or plus/minus 2 without having to repeat it when -- you could end up with plus/minus 5, but that would not be necessary. So there are four choices one could make.

MR. MILKEY: Okay. I'm going to object to that answer as nonresponsive.

BY MR. MILKEY:

Q. So my specific question, Dr. Ding, is whether what is disclosed in Bharadwaj's provisional application '059 as Equation 2 -- without any modification, just what is disclosed in Bharadwaj '059, Equation 2, ensures that LLength is not exactly a multiple of 3 and is, therefore, used to distinguish between IEEE 802.11ax and

IEEE 802.11ac transmissions, e.g., auto-detections?

MR. STEPHENS: Objection to form.

THE WITNESS: Yeah. So I believe I already answered that, and you're ask -- I believe your question is whether or not by adding a integer m can force LLength to be not exactly multiple of 3; and my answer is yes, you can. You can take some m's plus/minus 1 or plus/minus 2.

And then I think your question states that whether it is used or not for -- by IEEE 802.11 to distinguish between ax and ac transmissions; right? I think, yes, you said -- your question is whether it is useful or not. My answer is it can be used, but that -- that was -- I think that's extent of my answer.

MR. MILKEY: Okay. So, Dr. Ding, I'm going to object as -- as nonresponsive again.

BY MR. MILKEY:

Q. So you mentioned plus/minus 1 or 2 is the value of m. I am not asking about anything other than what is disclosed in Equation 2. Equation 2 says m = 1 or 2.

So my -- my question is specifically, regarding what is disclosed in Equation 2 of Bharadwaj '059 provisional, if that Equation 2 ensures that LLength is not exactly a multiple of 3 and is, therefore, used to distinguish between IEEE 802.11ax and IEEE 802.11ac

transmissions, e.g., auto-detections.

MR. STEPHENS: Objection to form. I believe this has been asked and answered, Counsel.

MR. MILKEY: Counsel, please limit your objections to form. And it has not been asked and answered because, again, as I pointed out, he is talking about plus or minus 1 or 2; and that is not the question.

MR. STEPHENS: I will limit speaking objections, Counsel; but I'm not aware of any basis in the rules for the question -- you're actually to object to questions as well to the witness's answer, so I'll note that for the record.

THE WITNESS: Allow me to repeat as I -- you're -- you're actually asking two questions; is that correct?

I mean, the court reporter's here; so you don't even have to look at it.

BY MR. MILKEY:

Q. Yeah. So I'm asking if in the Equation 2, as it is literally disclosed in Bharadwaj '059 provisional, without any modifications to that Equation 2, if that Equation 2 ensures that LLength is not exactly a multiple of 3 and is, therefore, used to distinguish between IEEE 802.11ax and IEEE 802.11ac transmissions,

e.g., auto-detections?

A. I understand that. I believe I already answered that your -- the first part -- so the first question, whether or not this particular way of adding a number m -- whether it's plus -- whether it's 1 or 2 or plus/minus 1 or plus/minus 2, as I explained, will ensure that this LLength value is not a multiple of IEEE. My answer was yes and still is yes.

I based -- I simply explained that the possible value of m is not limited to 1 or 2. It can be plus 1 or plus 2. But to the extent that if you want to say, Well, what if it is only 1 and 2? and of course that's included in my answer. So the answer is you will make -- get a LLength that's not exactly multiple of 3.

Q. Okay. And would you also agree that it -- the Equation 2 as disclosed in Bharadwaj '059 provisional application distinguishes between IEEE 802.11ax and IEEE 802.11ac transmissions, e.g., auto-detections?

A. I -- I'm not certain as to all the question. So whether the equation disclosure -- could you repeat that again.

Q. Yeah. Is the equation -- is the -- strike that.

Is the LLength formula in Equation 2 of Bharadwaj's '059 provisional used to distinguish IEEE

802.11ax and IEEE 802.11ac transmissions, e.g., auto-detections?

A. Is the question, Is that equation used? I don't know whether you're asking it by whom. I mean, my question -- are you asking me whether someone uses that in their device to distinguish ax and ac or -- I'm just not following the -- I heard the question. I think it's the same second half of the question you asked.

I wasn't able to answer it because I don't understand whether you're saying it is currently being used by someone or not or you're saying that was something that -- it could have been used --

Q. Okay.

A. -- and I answered it could have been prior arts.

Q. Okay. Thank you. So I'll -- let me clarify that a little bit.

Can the equation in Equation 2 of Bharadwaj '059 be used to distinguish between IEEE 802.11ax and IEEE 802.11ac transmissions, e.g., auto-detections?

A. Okay. Thank you.

That is a possibility. Distinguishing whether LLength is exactly a multiple of 3 or not, that particular determination is possible when -- it is possible for one to use that determination to tell

whether the data frame in transmission is a IEEE 802.11ax versus 820.11ac data frame.

Q. Are there any problems with the LLength formula as expressed in Equation 2 of Bharadwaj '059 provision?

MR. STEPHENS: Objection. Form.

THE WITNESS: In that the -- I don't understand the problem part. So the Equation 2 can be executed by a stated -- use the word '077, a processor, and I think the equation also uses the ceiling operator on top.

So to the extent that TXTime is specifically known to the processor, then the -- here the equation being -- the expression below Equation 2 tells what TXTime is, that's the -- that is the entire time that transmitter is active.

A -- so then for -- it is possible for a processor at the transmitter end to determine this LLength by adding a small m to the TXTime minus 20 divide by 4, taking its ceiling, multiply by 3, subtract 3, and selecting m to be 1 or 2 or, like I said, other possible choices to prevent LLength to be a multiple of 3.

BY MR. MILKEY:

Q. Okay. When this -- or strike that.

If one were to use this LLength formula in the context of IEEE 802.11ax, would it allow legacy devices

to correctly calculate the -- the desired number of symbols, or NSYM?

A. I believe we are getting into the actual substance of my declaration, so if you -- if you don't mind going -- focusing back on my declaration, we can go to specific sections, if you'd like.

Q. Yeah. Feel free to refer to anything in your declaration, if you want to.

So again, my question is, if one were to use this LLength formula in the context of IEEE 802.11ax --

A. Yes.

Q. -- would it allow legacy devices to correctly calculate the desired number of symbols?

A. Understood. That's why I was saying -- I was explaining that you're -- you're mentioning the terminology for the first time, the number of symbols. Could you define what you mean by the number of symbols.

Q. You understand that the Bharadwaj '059 provisional refers to an NSYM number, N-S-Y-M; correct?

A. Yes.

Q. Okay. Do you have an understanding of what that is referring to?

A. I do.

Q. And what is that?

A. The NSYM, or the number of symbol -- that

particular value, it was computed not by the transmitter but by the receiver to determine or estimate the total number of equivalent OFDM symbols that are inside the -- a particular data packet that it receives.

Q. Okay. And then do you see in Bharadwaj provisional '059, at Paragraph 48, there is a reference to the number of symbols?

A. Yes. It does mention in most cases the number of symbols for the data unit can be computed from the following expression, Equation 1.

Q. Okay. And in Paragraph 52 of Bharadwaj '059 provisional, it states that the transmitter device provides LLength and TXTime so that the receiver device 320 can know the number of data symbols, NSYM, that need to be decoded; correct?

A. Yes, I see that.

Q. Okay. And then in IEEE 802.11ax, for the receiver device 320 to know the number of data symbols, NSYM, to be decoded, the transmitter device may provide LLength, TXTime, and TSE; correct?

A. Yes.

Q. Okay. So if LLength were calculated according to the formula in Bharadwaj '059 provisional's Equation 2 and then that LLength were provided to the receiver device, do you know whether that would allow legacy

receiver devices to correctly calculate the desired number of symbols?

MR. STEPHENS: Objection to form. Scope.

THE WITNESS: I believe we're -- we're looking at the Paragraph 57. Is that correct, Mr. Milkey? Paragraph 57 of the Bharadwaj provisional? I just want to explain that.

BY MR. MILKEY:

Q. I'm specifically asking if -- I'm not referring to any particular paragraph of Bharadwaj '059 other than the paragraph that sets forth the Equation 2, the LLength equation. All right?

My specific question is if LLength were calculated according to Equation 2 in Bharadwaj '059 and then that length were provided to a receiver device, if that would allow legacy receiver devices to correctly calculate the desired number of symbols.

MR. STEPHENS: Objection. Form. Scope.

THE WITNESS: All right. As -- let us -- let us -- let us go back to my declaration, Paragraph 67.

Okay. So the main -- I think that the main word -- the keyword you're -- you're using in the question is about legacy devices. In Paragraph 67 I explain in my declaration that, for example, for legacy devices that operate according to 802.11ac standard,

like those described in Bharadwaj provisional '059, the receiver of the legacy device would calculate the duration of the transmitter data unit using the following equation.

So there's a first step. The equation was given in my declaration at -- on Page 40. That is RXTime equals to the ceiling from the division of length plus 3 divided by 3, and that ceiling is multiplied by 4 plus 20.

So that's what a -- I explained what a legacy device of 802.11ac receiver would have done to compute the RXTime. And from that RXTime, when it would further move on to compute the LSYM -- or the particular legacy device as LSYM -- sorry -- the NSYM, that's N-S-Y-M, even here from Bharadwaj's Paragraph 0057, explain how to compute that from the RXTime.

And I further explain that in the case of -- as a -- as example -- and again, continuing from Paragraph 57, as example when length equals to 240, then the desired RXTime for legacy 802.11ac device would be computed as follows and because of the ceiling -- right? -- you would get 344. All right.

However, when one -- that would be the correct value. But when you add a plus 1 or a plus 2 as described in Bharadwaj provisional '059, the length that

are -- that is communicated to the receiver would have become the true length plus m, and being -- again, being 1 or 2.

Therefore, I explain on the top of Page 41 in my declaration that the same operation now having 240 plus m inside the ceiling operator before dividing by 3 is going to give you a 348, and that would be a incorrect number based on the received LLength having been altered by adding a small number m equal to 1 or 2. So -- but you would have gotten a, like -- an incorrect receiver time.

And on the other hand, if one changes that equation to m equal minus 1 or minus 2, still in the spirit of -- spirit of making sure that LLength is not exactly a multiple of 3, then the RXTime calculated by a legacy device would have been 344, which now it's going to be correct. And once the receiver obtains a correct RXTime, it can proceed to obtain the correct NSYM value.

Thank you.

BY MR. MILKEY:

Q. Okay. That -- that's very helpful. Thank you, Dr. Ding.

So I see that you have a fair amount of calculation in your Paragraph 67 explaining why Bharadwaj '059's Equation 2 would result in an incorrect

RXTime if used to calculate RXTime in a legacy 802.11ac device.

Did any prior art recognize that this RXTime calculation wouldn't -- would be incorrect if based off of Bharadwaj '059's Equation 2?

MR. STEPHENS: Objection. Form. Scope.

THE WITNESS: In my -- in my declaration, Mr. Milkey, I also cited two additional prior arts; and those are the Yu provisional -- Y-u, Yu provisional -- and also the Lee prior art.

So these -- from these two prior arts, a person skilled in the art would have understood that using a positive m here as described in Bharadwaj would have led to a overestimate of the RXTime; and for that reason, the Yu provisional as well as Lee -- I'm trying to get my exhibit number out, so just give me a second.

Yeah. So I had Lee in -- in my declaration. That -- that's Samsung Exhibit 1018. And the Yu provisional -- let me see -- is the -- it's Samsung Exhibit 1020.

They both recognizes that it would have been -- it would have -- one would have achieved the same objective of generating an LLength that is not a multiple of 3 and then avoided this problem we just talked about, that is, having the -- a legacy receiver

unaware of the change -- change addition -- unaware of the additional m in the LLength when computing the RXTime, therefore, when computing the NSYM, the number of symbols.

BY MR. MILKEY:

Q. Okay.

A. So yes. The answer it has been recognized, at least to a person of the skill in the art, by Lee and by Yu provisional.

Q. Okay. Thank you.

So let's start with the Lee. What portion of Lee teaches that Bharadwaj's formula as expressed in Equation 2 would lead to an incorrect calculation of RXTime or the number of symbols?

And strike that. I'll -- I'll re-ask the question to make clear that I'm talking about Bharadwaj provisional.

Starting with Lee, what portion of Lee teaches that Bharadwaj's provisional application '059 formula as expressed in Equation 2 would lead to an incorrect calculation of RXTime or the number of symbols?

MR. STEPHENS: Objection. Form. Scope.

THE WITNESS: If we go to Lee -- that's -- and we go straight to Equation 3, Equation 3 in Paragraph 0078, the Lee equation, currently provided that the

LLength be changed by putting a minus n after the subtraction of 3 in this Equation 3.

And further, going forward, to compensate for the minus 3 and minus n, the -- Lee further shows, in Paragraph 86, that in this case the CCA, clear channel assessment -- the CCA visit time of the data packet transmitted by Equation 3 above is shown in Equation 7 below, where the -- in the -- within the ceiling operator, the LLength plus 3 plus n is added to the LLength before dividing by 3 and taking the ceiling.

So this is coming from a view of a person of skill in the art at the time of that 2012 but definitely prior to the priority date of the '077 patent, and a person of ordinary skill would have recognized that using Lee's equation would have resulted in a legacy device correctly computing the RXTime. And therefore, in view of that, the recognition when reviewing Lee and in reviewing what Bharadwaj provisional has suggested that it's -- rather than minus n, it added a plus n. A person of ordinary skill in the art would have recognized that it would have been possible to use a subtraction rather than addition to the LLength and, therefore, providing the legacy device a -- with a correct RXTime computation.

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BY MR. MILKEY:

Q. Okay. Does -- does Lee discuss the possibility of using a -- strike that.

So you mentioned that Lee, for example, in Paragraph 78 discusses a formula Equation 3 which ends in minus n where n has a value of 0, 1, or 2. Does Lee discuss any situation in which it would add n instead of subtract n in calculating LLength?

A. No. Not to my recollection. Lee did not go specifically to enumerate various possibilities of whether this minus n could also be negative; therefore, that would be an adding as opposed to here the n's are positive in a subtraction.

Therefore -- I understand from the perspective of -- of a skilled person in the art that Lee did not need to enumerate all the possibilities and would have considered them. But in Equation 3 and then, later on, Equation 7, they were correct for that subtraction. Lee suggested that the value n would be 0, 1, and 2 to indicate different number of timetables for petition in the -- in the transmitted data packet.

Q. Does -- does Lee teach that if you added n instead of subtract n, that that would cause an incorrect result in any subsequent calculations?

A. Not in so many words. Lee, by explaining sort

of subtraction, you would have obtained a RXTime, a person of skill in the art would have been usually -- would have the opportunity to test it and confirm that the RXTime is correctly calculated by the legacy device, therefore, reaching their own conclusion that you would -- they would be -- this is likely going to be a small error in computing the RXTime if you change the minus n from minus 1, minus 2, or -- sorry -- changing minus n into a plus n. For Lee, that is.

Q. Okay. And then you mentioned the Yu provisional, Exhibit 1020. And by the way, before we go on to that, I'm also going to upload 1018 and 1020 into the chat again. Of course, feel free to refer to any copies that you have.

A. Thank you.

Q. You mentioned the Yu provisional, Exhibit 1020, as teaching that Bharadwaj's equation -- Bharadwaj '059 provisional's Equation 2 would lead to an incorrect calculation of -- of RXTime.

What portion of the Yu provisional discloses that Bharadwaj '059's Equation 2 would lead to an incorrect calculation of RXTime or number symbols?

MR. STEPHENS: Objection. Form. Scope.

THE WITNESS: Sorry. Thank you.

I received your -- I received the uploaded

Exhibit 1026. And so it's slightly harder to refer to a paragraph; so I'll just go back the page, if it's okay.

BY MR. MILKEY:

Q. Yeah.

A. Okay. So if we look at the page numbers of 12, slash, 16 -- I believe that I'm in 12 -- Page 12 of 16 total -- there is a equation from -- two -- Line 11 from the top of that page where this Yu provisional prior art provided another length field called the LLength field or the length -- LLength field. That's -- that's being -- referring to the ax designation. It's called LLength field, and then he also said a length field in the legacy can be used.

But he explained that using the LLength information via -- with m in the following equation; and here again, it shows that the length equals the TXTime minus 20 divided by 4 times 3, and then minus 3 minus m, specifically comma, m is greater than/equal to 0 or less than/equal to 2.

So Lee -- so Yu, in this case, explained that these different values are possible by selection of m equals 0, 1, and 2, and then explained that the legacy receiver identified the same length becomes the same packet duration because one of them assembled lowest rate include three byte data, and it further says that

the LLength may imply three different states for the value of m without changing the operation of the legacy receiver.

So a person of skill in the art reading that would have understood that the reasons for putting a subtraction m -- right? -- with m being positive in this case -- because of the subtraction, would not change the operation of the legacy device and also properly conclude from this disclosure that doing it otherwise -- that is, if we use this equation of Yu, but then instead of putting a subtraction, putting addition here, one would have changed the operation of the legacy device.

So in -- in a nutshell, Yu provided the correct information that would not affect the legacy receiver's operation and person of skill in the art looking this -- at this equation would have concluded that Yu is providing the teaching that by -- by using a plus sign, one is likely going to run into the changing of operation for the legacy receiver.

Q. Okay. And does the Yu provisional teach that if you added m instead of subtracted m, that that would cause an incorrect result in any subsequent calculations?

MR. STEPHENS: Objection. Form.

THE WITNESS: The -- the Yu provisional, as I explained, provided how you would change the length by providing a subtraction and then emphasizing that doing so would not change the operation of the legacy device.

Therefore, it is implied, but it is also very direct and straightforward within -- totally within the skill set of person of -- person of ordinary skill in the art to try different m and say -- would think, like, why would you have different -- why would you only have m equal to 0 and 2 rather than, you know, thinking about something that's negative, say, plus m instead of minus m, and recognize that it would have changed the changed the operation of the legacy device.

So very often, by providing something -- in this case, by providing the correct answer and the correct rationale, the Yu provisional signals to a person of ordinary skill in the art that it would likely run into a incorrect calculation of RXTime if one were to change the minus sign into plus sign, even though it is still not -- you still have gotten LLength that's nonmultiple of 3.

BY MR. MILKEY:

Q. Okay. Is it your opinion that because Yu specifies that m should be subtracted and m should be a value between 0 and 2, that Yu suggests that you should

not implement a solution where m is added and m is a value between 0 and 2?

MR. STEPHENS: Objection --

THE WITNESS: My -- my response and my opinion is outlined in my declaration that as a person of ordinary skill in the art, looking at this particular disclosure and looking at Bharadwaj's disclosure, would have tried both and very easily recognized that in one case, where it's a minus m here in Yu provisional, the -- Yu would not have changed the operation of the legacy receiver, as Yu clearly stated.

And in the context of what Bharadwaj has provided, with a plus m in Bharadwaj provisional, a person of skill in the art would have easily recognized that Yu provisional is teaching a alternative to Bharadwaj and that alternative would have the added benefit of not changing the operation of the legacy device. In addition to making -- to ensure that the length field is -- the value is not a multiple of 3.

BY MR. MILKEY:

Q. And do you know what level of skill the listed inventors of the Yu provisional had?

A. I apologize. You mean do I know them personally?

Q. Do you know how much experience they had when

they submitted this -- this application?

A. No. I do not know them; therefore, I cannot provide you with a characterization of what are their skills and level of education.

Q. And do you know what level of skill the inventors of the Lee reference had when they submitted the Lee application?

A. No. I did not analyze their -- their level of education or their experience. My general -- or my general analysis applies to a person of ordinary skill in an art, so -- but I did not specifically go into individual inventors of the patents to check on their skill set.

Q. And do you know the level of skill of the inventor -- or strike that.

Do you know the level of skill of the inventors of the Bharadwaj provisional application?

A. No. I -- I do not know them personally. I believe many of the names that appeared as -- appeared as inventors of the prior arts, they work for a company that participated in IEEE 802.11 standard working groups.

Q. Is it possible that the inventors of the Bharadwaj reference had a level of ordinary skill -- sorry. Strike that.

Is it possible that the inventors of the Bharadwaj provisional application had a level of skill that was far greater than your proposed level of ordinary skill in the art?

MR. STEPHENS: Objection. Form. Scope.

THE WITNESS: I -- I imagine they -- they could have other skills that are not -- that's -- that's not in the context of 802.11, but I can't -- since I don't know them, I can't tell you.

BY MR. MILKEY:

Q. Why would a person of far greater than ordinary skill in the art have proposed an LLength formula that provides the wrong downstream results in calculating RXTime and n symbols?

MR. STEPHENS: Objection. Foundation. Scope. Form.

THE WITNESS: I -- I cannot speculate why -- whether they have a skill set way beyond a person of ordinary skill in the art or not.

In fact, I believe the -- the entire scope of our discussion regarding the LLength would be a multiple of 3, of whether substituting a altered LLength into a simple calculation at the arithmetic level could obtain the RXTime, these are clearly and very simply skills that are well within the grasp of a person with ordinary

skill in the art.

Other -- just about -- this is all about if you look at the -- the huge number of equations in -- in these prior art, and also, I cited them in my declaration, they're no more than divisions and subtractions and additions. These are really at the arithmetic level.

MR. MILKEY: We've been going about an hour. Let's go off the record.

(A recess is taken.)

BY MR. MILKEY:

Q. So welcome back, Dr. Ding. I know we've talked a little bit about the Lee reference and the Yu provisional reference and your opinions regarding whether those would make it obvious to a POSITA that Bharadwaj '059 provisional's Equation 2 would lead to some incorrect results. I want to ask about something more specific. Specifically, does the Bharadwaj '059 provisional itself teach that its Equation 2 would lead to an incorrect calculation of either RXTime or NSYM?

A. Bharadwaj's provisional in the equation 5 described how a nonlegacy device receiver would have computed the RXTime correctly. It did not get into the RXTime computation of a legacy device.

Since you're -- you want me to continue? It

would have been obvious to a person of skill in the art to use Bharadwaj equation and test it with a legacy device equation and concluded that the RXTime would have been incorrectly calculated, which is what I've shown in my declaration.

Q. Okay. I think that went a little beyond the scope of my question. I just want to clarify.

In the Bharadwaj provisional application Bharadwaj doesn't disclose that legacy device RXTime calculation would be incorrect if its LLength formula in Equation 2 were used; correct?

MR. STEPHENS: Objection. Form.

THE WITNESS: Right. Bharadwaj clearly described that the LLength will be carried in the legacy signal field of L-6 in the same paragraph, Paragraph 0051; right?

So for -- to a ordinary -- to a person of ordinary skill in the art, one would have look at the suggestions by Bharadwaj and put it into the equation used by legacy device in deriving the RXTime and easily, quickly determine that that value would have been slightly over the correct RXTime.

That's what I'm explaining, is that Bharadwaj provided that information about a legacy signal field, and then the equation that it suggests to change the

length for the legacy signal field and -- making it clear and obvious to a person of skill in the art to check on the legacy device computation for RXTime.

BY MR. MILKEY:

Q. So a person of ordinary skill in the art would know how to calculate RXTime on the basis of Bharadwaj's equation -- strike that.

A person of ordinary skill in the art would know how to calculate RXTime for a legacy device on the basis of Bharadwaj '059's Equation 2; correct?

A. Yes. A person of ordinary skill in the art would have -- would have known since the legacy device would follow the standard in computing the RXTime and know how to use this LLength to check the RXTime.

MR. MILKEY: Okay. I'll pass the witness.

MR. STEPHENS: Can we take ten minutes, please?

MR. MILKEY: Okay.

MR. STEPHENS: Thank you.

THE WITNESS: Thank you.

(A recess is taken.)

MR. STEPHENS: We have no questions for the witness.

MR. MILKEY: Okay.

MR. STEPHENS: Off the record.

DEPOSITION OFFICER: Would you like to order a

copy, Mr. Stephens?

MR. STEPHENS: We do not need an order.

(Deposition session concluded at 10:36 p.m. Pacific Time)

-oOo-

I have read the foregoing and by signing hereafter, approve same.

Dated _____.

_____

(Signature of Deponent)

DEPOSITION OFFICER'S CERTIFICATE

STATE OF CALIFORNIA }
} ss.
COUNTY OF LOS ANGELES }

I, THERESA JOANN PHILLIPS-BLACKWELL, hereby certify:

I am a duly qualified Certified Shorthand Reporter in the State of California, holder of Certificate Number CSR 12700 issued by the Court Reporters Board of California and which is in full force and effect. (Fed. R Civ. P. 28(a)).

I am authorized to administer oaths or affirmations pursuant to California Code of Civil Procedure, Section 2093(b) and prior to being examined, the witness was first duly sworn by me. (Fed. R. Civ. P. 28(a), 30(f)(1)).

I am not a relative or employee or attorney or counsel of any of the parties, nor am I a relative or of such attorney or counsel, nor am I financially interested in this action. (Fed. R. Civ. P. 28).

I am the deposition officer that stenographically recorded the testimony in the foregoing deposition and the foregoing transcript is a true record

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of the testimony given by the witness. (Fed. R. Civ. P. 30(f)(1)).

Before Completion of the deposition, review of the transcript { } was { } was not requested. If requested, any changes made by the deponent (and provided to the reporter) during the period allowed, are appended hereto. (Fed. R. Civ. P. 30(e)).

Dated:_____, 2026

Theresa JoAnn Phillips-Blackwell

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