

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

3  
4 CISCO SYSTEMS, INC., DISH NETWORKS,  
5 LLC, COMCAST CABLE COMMUNICATIONS,  
6 LLC, COX COMMUNICATIONS, INC., TIME  
7 WARNER CABLE ENTERPRISES LLC,  
8 VERIZON SERVICES CORP., and ARRIS  
9 GROUP, INC.,

Case Nos.

IPR2016-01020

Patent 9,014,243

Petitioners,

vs.

IPR2016-01021

Patent 8,718,158

10 TQ DELTA, LLC,

Patent Owner.

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13  
14  
15 DEPOSITION OF JOSE TELLADO, Ph.D.  
16 Palo Alto, California  
17 Tuesday, June 20, 2017  
18  
19  
20  
21  
22  
23

24 REPORTED BY:

CYNTHIA MANNING, CSR No. 7645, CLR, CCRR

25 JOB NO. 125938

June 20, 2017  
9:03 a.m.

Deposition of JOSE TELLADO, Ph.D., held at Haynes and Boone, LLP, 525 University Avenue, Suite 400, Palo Alto, California, before Cynthia Manning, Certified Shorthand Reporter No. 7645, Certified LiveNote Reporter, California Certified Realtime Reporter.

APPEARANCES:

HAYNES and BOONE  
Attorneys for Petitioner Cisco Systems, Inc.  
2323 Victory Avenue  
Dallas, TX 75219

BY: JAMIE McDOLE  
2505 N Plano Road  
Richardson, TX 75082

BY: THEODORE FOSTER  
GREGORY HUH (Telephonically)  
30 Rockefeller Plaza  
New York, NY 10112

BY: DINA BLIKSHTEYN

COOLEY

Attorneys for Petitioner DISH Networks, LLC  
1299 Pennsylvania Avenue  
Washington, DC 20004

BY: STEPHEN McBRIDE (Telephonically)

APPEARANCES (Continued):

DUANE MORRIS  
Attorneys for Petitioners Comcast Cable, Communications, LLC; Cox Communications, Inc.; Time Warner Cable Enterprises LLC; Verizon Services Corp.; and ARRIS Group, Inc.

1075 Peachtree NE  
Atlanta, GA 30309

BY: COREY MANLEY

McANDREWS, HELD & MALLOY  
Attorneys for Patent Owner  
500 West Madison  
Chicago, IL 60661

BY: PETER McANDREWS  
ANDREW KARP (Telephonically)

Also present:  
Marcus Tzannes

PALO ALTO, CALIFORNIA;  
TUESDAY, JUNE 20, 2017, 9:03 A.M.

JOSE TELLADO, Ph.D.,  
having first been duly sworn, testified as follows:

EXAMINATION

BY MR. McANDREWS:

Q. Good morning, Dr. Tellado. How are you?

A. Fine. And you?

Q. Great.

So you've obviously had your deposition taken before; right?

A. Yes.

Q. And it was taken in this case?

A. Yes.

Q. Have you had a deposition taken since then in any other matters?

A. No.

Q. So you remember how this goes? I'm going to ask you questions. Hopefully they are clear enough for you to answer.

A. Yes.

Q. And when you answer, we need to provide

1 audible answers so the court reporter can record the  
2 answer.

3 Understood?

4 A. Yes.

5 Q. And I will try not to talk over you, and  
6 hopefully you'll do the same and try not to talk  
7 over me.

8 Understood?

9 A. Yes.

10 Q. Okay. Great.

11 Are there any reasons why you may not be  
12 able to testify truthfully and accurately today?

13 A. No.

14 Q. No prescription medications or things that  
15 could impair your ability to testify?

16 A. No.

17 Q. Okay. So you have provided a second  
18 declaration in these IPR matters; correct?

19 A. Yes.

20 Q. And it was just a single declaration  
21 provided for the two matters?

22 A. Yes.

23 (Exhibit 1026 previously marked for  
24 identification was referenced herein)

25 //

1 BY MR. McANDREWS:

2 Q. Okay. I'm going to put in front of you  
3 CSCO 1026. It appears that you have your own copy  
4 there in front of you as well.

5 MR. McANDREWS: But this was previously  
6 marked.

7 THE REPORTER: Okay.

8 BY MR. McANDREWS:

9 Q. So I'd like to refer your attention to  
10 paragraph 4. It's on page 2 of Exhibit 1026.

11 A. I see it.

12 Q. And you make the statement in paragraph 4  
13 there -- it says:

14 "Indeed, PAR reduction was an active area  
15 of research in the 1990s. It was  
16 well-known to use a bit-scrambler (or,  
17 equivalently, a phase scrambler) to produce  
18 a pseudorandomly phase-aligned multicarrier  
19 signal, which (as discussed above) has an  
20 amplitude with a Gaussian distribution."

21 Do you see that?

22 A. Yes.

23 Q. Does your declaration cite any evidence  
24 that PAR reduction was an active area of research in  
25 the '90s?

1 A. Repeat the question.

2 Q. Does your declaration cite to any evidence  
3 that PAR reduction was an active area of research in  
4 the 1990s?

5 A. Paragraph 62 has Exhibit 1025, includes my  
6 Ph.D. dissertation, and there are many references to  
7 publications that show a lot of activity in PAR  
8 reduction in the '90s.

9 Q. You're saying that your Ph.D. thesis cites  
10 to some papers; right?

11 A. Many papers.

12 Q. Okay. But as far as your declaration, this  
13 document, what does it cite as evidence that PAR  
14 reduction was an active area of research in the  
15 1990s?

16 MR. McDOLLE: Objection; asked and answered.

17 THE WITNESS: So I have an Exhibit 1025,  
18 and it includes my thesis, and it has many citations  
19 to publications in the '90s --

20 BY MR. McANDREWS:

21 Q. Okay. But --

22 A. -- that show PAR reduction.

23 Q. Okay. Are there any other references  
24 beyond your thesis?

25 I understand you're saying that your thesis

1 satisfies the answer to my question. But are there  
2 any other --

3 A. I don't recall any other, but this Exhibit  
4 1025 has a long list of citations.

5 Q. Okay. But you don't explain any of those  
6 citations in paragraph 62; right?

7 A. In paragraph 62, I don't see any list. I  
8 don't include a list in paragraph 62, but the  
9 exhibit has a long list.

10 Q. Okay. And the sum total of paragraph 62  
11 reads:

12 "I have reviewed Cisco's Exhibit 1025, and  
13 I confirm that it's a true and accurate  
14 copy of my Ph.D. dissertation entitled  
15 'Peak to Average Power Reduction for  
16 Multicarrier Modulation,' submitted to the  
17 Department of Electrical Engineering and  
18 Committee on Graduate Studies of Stanford  
19 University in September 1999."

20 Did I read that correctly?

21 A. I believe so.

22 Q. Okay. So other than the reference to your  
23 thesis in paragraph 62 -- strike that.

24 So in your declaration, did you cite to any  
25 prior art that discusses PAR reduction?

1 A. (Witness reviewing document.)  
 2 In paragraph 43, I read:  
 3 "A POSITA would also have known that  
 4 quantifying the exact level of increase in  
 5 PAR could not be calculated using a simple  
 6 Gaussian approximation. Instead,  
 7 quantifying the increase in PAR would have  
 8 called for running numerical simulations of  
 9 a transmitter. Such simulations were  
 10 commonly created and run by engineers in  
 11 the 1990s to investigate the impact of  
 12 proposed modulation techniques on a  
 13 communication system's performance."  
 14 My thesis includes a long list of work in  
 15 the area where people would do simulations to  
 16 quantify PAR performance.  
 17 Q. Okay. This portion of paragraph 43 that  
 18 you just read, though, it doesn't cite to your  
 19 thesis, does it?  
 20 A. My thesis was written in the '90s.  
 21 Q. It doesn't cite to your thesis, though,  
 22 does it?  
 23 A. My thesis is an example of work that was  
 24 being done in the '90s to increase --  
 25 Q. Do you understand what the word "cite"

1 means?  
 2 MR. McDOLE: Counsel, he wasn't done  
 3 answering your question. If you could let him  
 4 finish, I think that would be appreciated. That was  
 5 part of the rules that you told him, that you  
 6 wouldn't talk over each other.  
 7 MR. McANDREWS: Sure.  
 8 THE WITNESS: Okay. I lost my train of  
 9 thought.  
 10 So, yes. So I mentioned that the PAR  
 11 reduction was an active of research area. I include  
 12 my thesis as work that was done in the '90s. My  
 13 thesis includes a long list of citations. I believe  
 14 that is sufficient to show there was a lot of  
 15 activity of research in the '90s in PAR reduction.  
 16 BY MR. McANDREWS:  
 17 Q. Okay. But can you answer my question?  
 18 The paragraph that you just read, paragraph  
 19 43, does it mention anything about your thesis?  
 20 A. I assume this document has to be read as a  
 21 whole, and my thesis is part of this document. I am  
 22 sure if you get one line at a time, you can find  
 23 things that don't reference my thesis.  
 24 Q. So you agree with me that paragraph 43 does  
 25 not reference your thesis?

1 A. Can you repeat the question?  
 2 Q. Do you agree with me that paragraph 43 does  
 3 not reference your thesis?  
 4 A. (Witness reviewing document.)  
 5 So my thesis is an example of an active  
 6 research in 1990s and is not referenced in paragraph  
 7 4.  
 8 Q. At the end of paragraph 4, you state:  
 9 "Simply achieving Gaussian-level  
 10 performance - which is all that the simple  
 11 randomization techniques of the '243 and  
 12 '158 patents achieve - was trivial and  
 13 well-known."  
 14 Did you cite any document of any kind in  
 15 your second declaration that shows that  
 16 randomization was trivial and well known?  
 17 A. Repeat the question.  
 18 Q. At the end of paragraph 4, you have the  
 19 statement:  
 20 "Simply achieving Gaussian-level  
 21 performance - which is all that the simple  
 22 randomization techniques of the '243 and  
 23 '158 patents achieve - was trivial and  
 24 well-known."  
 25 Did you cite any document of any kind in

1 your second declaration that shows that  
 2 randomization was trivial and well known?  
 3 A. So the ANSI T1.413-1995 is an example of a  
 4 transceiver standard where it used a scrambler to  
 5 achieve Gaussian-like performance.  
 6 Q. And that was a bit scrambler; correct?  
 7 A. So bit scramblers and phase scramblers, if  
 8 designed correctly, achieve similar objectives.  
 9 Q. So are you saying that you could do with a  
 10 bit scrambler and not use a phase scrambler and  
 11 achieve the same objectives?  
 12 A. I didn't say that.  
 13 Q. So what did you just say?  
 14 A. Can you repeat the question?  
 15 Q. So your statement was, "bit scramblers and  
 16 phase scramblers, if designed correctly, achieve  
 17 similar objectives."  
 18 A. They are both meant to break the structure  
 19 on the bits or break the structure on the phases.  
 20 And just randomizing the bits or randomizing the  
 21 phases achieves Gaussian-like performance.  
 22 Q. So let me -- maybe it's a matter of  
 23 breaking down what you meant by "simple  
 24 randomization techniques of the '243 and '158  
 25 patents."

1 So in the last sentence of paragraph 4,  
2 when you say "the simple randomization techniques of  
3 the '243 and '158 patents," are you referencing bit  
4 scrambling or phase scrambling or both?

5 A. Can you repeat the question?

6 Q. Your sentence refers to "the simple  
7 randomization techniques of the '243 and '158  
8 patents."

9 A. Uh-huh.

10 Q. Are you intending to refer to bit  
11 scrambling there?

12 A. And/or. Bit and/or phase scrambling.

13 Q. Well, let's assume that you were referring  
14 to phase scrambling. Was it your intent to say that  
15 using phase scrambling for randomization was trivial  
16 and well known?

17 MR. McDOLE: Objection; form, lacks  
18 foundation.

19 THE WITNESS: Repeat the question.

20 BY MR. McANDREWS:

21 Q. Were you intending to say that using phase  
22 scrambling for randomization was trivial and well  
23 known?

24 A. Again, my thesis has a list of citations  
25 that includes many papers that show that phase

1 randomization could beat Gaussian performance. Just  
2 randomizing is a subset of that.

3 Q. Okay. But we need to start with what your  
4 sentence means.

5 Did you intend to imply by this sentence  
6 that phase scrambling for randomization was trivial  
7 and well known?

8 A. I mentioned that my thesis has a long list  
9 of publications that show that if you are clever  
10 about doing phase randomization, you could do better  
11 than Gaussian. So just one phase randomizer is a  
12 subset of that, where you only try once, and it only  
13 achieves Gaussian performance.

14 Q. Okay. I'm going to try it one more time,  
15 because I'm not getting an answer to my question.

16 The last sentence of paragraph 4, were you  
17 intending to imply that phase scrambling for  
18 randomization was trivial and well known?

19 A. So, as I said, the research community in  
20 the '90s was doing phase randomization to reduce PAR  
21 to make it better than Gaussian. If you only do it  
22 once, you get Gaussian.

23 Q. Okay. You may think that's an answer to my  
24 question. It doesn't seem like it's an answer to my  
25 straightforward question.

1 MR. McDOLE: I'll object to the gratuitous  
2 statement on the record.

3 BY MR. McANDREWS:

4 Q. Were you intending to imply that phase  
5 scrambling for randomization was trivial and well  
6 known? Is that the intent of the last sentence of  
7 paragraph 4 of your declaration?

8 A. Can I read my answer?

9 Q. Sure.

10 A. Because I'm going to keep repeating it.  
11 (Witness reviewing realtime screen.)

12 As I said, the research community in the  
13 '90s was doing phase-scrambling randomization to  
14 reduce PAR to make it better than Gaussian.

15 Q. Okay. The research community in the '90s  
16 doesn't know what you meant; right?

17 A. I am saying that people were trying to beat  
18 Gaussian. Phase randomizing is a subset, where  
19 you're not beating Gaussian.

20 Q. So were you or were you not intending to  
21 say that simple randomization using phase scrambling  
22 was trivial and well known?

23 A. The research community in the 1990s were  
24 trying to do better than simple randomization. They  
25 were trying to beat this performance, so this is an

1 assumption. You are trying to do better than, so  
2 it's assumed you know this already.

3 Q. Are you saying that because your thesis  
4 doesn't address phase scrambling?

5 A. My thesis has a long list of people that  
6 were doing research in phase scrambling. That was  
7 prior art for my thesis. It was well known when I  
8 wrote my thesis.

9 Q. But, again, you don't cite any of those  
10 research papers in here?

11 A. My thesis does.

12 MR. McDOLE: Objection; form.

13 You want to let him finish his question,  
14 please.

15 BY MR. McANDREWS:

16 Q. So you're saying your thesis cites those  
17 papers; right?

18 A. My thesis cites those papers.

19 Q. But your declaration does not cite those  
20 papers?

21 MR. McDOLE: Objection; form.

22 THE WITNESS: My declaration has my thesis,  
23 which was attached as an exhibit and includes a long  
24 list of publications that show how phase  
25 randomization could do better than Gaussian

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