

# UNITED STATES INTERNATIONAL TRADE COMMISSION

---

-----  
In the Matter of: ) Investigation No.  
CERTAIN LIGHT-EMITTING DIODE ) 337-TA-1213  
PRODUCTS, FIXTURES, AND )  
COMPONENTS THEREOF )  
-----

## OPEN SESSIONS

Pages: 1 through 284 (with excerpts)  
Place: Washington, D.C.  
Date: May 3, 2021

---

## HERITAGE REPORTING CORPORATION

*Official Reporters*

1220 L Street, N.W., Suite 206

Washington, D.C. 20005

(202) 628-4888

contracts@hrccourtreporters.com

1 UNITED STATES INTERNATIONAL TRADE COMMISSION  
 2 Washington, D.C.  
 3 BEFORE THE HONORABLE CLARK S. CHENEY  
 4 Administrative Law Judge

5 - - - - -  
 6 In the Matter of: ) Investigation No.  
 7 CERTAIN LIGHT-EMITTING DIODE ) 337-TA-1213  
 8 PRODUCTS, FIXTURES, AND )  
 9 COMPONENTS THEREOF )  
 10 - - - - -

11  
 12 United States  
 13 International Trade Commission  
 14 500 E Street, Southwest  
 15 Washington, D.C.

16  
 17 Monday, May 3, 2021  
 18

19 EVIDENTIARY HEARING, VOLUME I - REMOTE PROCEEDINGS  
 20  
 21

22 The hearing commenced remotely, pursuant to the notice  
 23 of the Judge, at 9:06 a.m. EDT  
 24

25 Reported By: Marjorie Peters, RMR, CRR, FAPR

1 APPEARANCES:

2 For Complainant IDEAL INDUSTRIES LIGHTING L.C.C.

3 d/b/a CREE LIGHTING:

4 S. ALEX LASHER, ESQ.

5 MADELINE M. SMEDLEY, ESQ.

6 PETER BENSON, ESQ.

7 Quinn Emanuel Urquhart & Sullivan LLP

8 1300 I Street, N.W., Suite 900

9 Washington, D.C. 20005

10

11 RAYMOND N. NIMROD, ESQ.

12 RICHARD W. ERWINE, ESQ.

13 MATTHEW D. ROBSON, ESQ.

14 Quinn Emanuel Urquhart & Sullivan LLP

15 51 Madison Avenue

16 New York, New York 10010

17

18 NATHAN HAMSTRA, ESQ.

19 Quinn Emanuel Urquhart & Sullivan LLP

20 191 N. Wacker Drive, Suite 2700

21 Chicago, IL 60606

22

23 KEVIN JANG, ESQ.

24 Quinn Emanuel Urquhart & Sullivan LLP

25 865 S. Figueroa Street, 10th Floor  
Los Angeles, CA 90017

1 APPEARANCES (Continued):  
2 For Respondents RAB LIGHTING INC.:  
3                   DAVID A. HICKERSON, ESQ.  
4                   GEORGE C. BECK, ESQ.  
5                   BRADLEY ROUSH, ESQ.  
6                   MOLLY HAYSSEN, ESQ.  
7                   Foley & Lardner LLP  
8                   Washington Harbour  
9                   3000 K Street, N.W., Suite 600  
10                  Washington, D.C. 20007  
11                  202-672-5300  
12  
13                  JONATHAN E. MOSKIN, ESQ.  
14                  MITCHELL POIRIER, ESQ.  
15                  Foley & Lardner LLP  
16                  90 Park Avenue, 39th Floor  
17                  New York, New York 10016  
18                  212-682-7474  
19  
20                  KIRI LEE SHARON, ESQ.  
21                  Foley & Lardner LLP  
22                  3000 K Street, N.W., Suite 600  
23                  Washington, D.C. 20007  
24                  202-672-5300  
25                  \*\* Index appears at end of transcript \*\*

1 P R O C E E D I N G S

2 (9:06 a.m.)

3 JUDGE CHENEY: We're now on the record in  
4 Investigation Number 337-TA-1213. This is Certain  
5 Light-Emitting Diode Products, Fixtures and Components  
6 Thereof. We're meeting today in the first day of the  
7 evidentiary hearing.

8 Before we get started with that hearing, let's  
9 have counsel enter their appearances, beginning with  
10 counsel for the Complainant, Cree.

11 MR. ERWINE: Good morning, Your Honor. Richard  
12 Erwine of Quinn Emanuel on behalf of the Complainant, Cree  
13 Lighting. With me are my colleagues, Mr. Nimrod,  
14 Mr. Lasher, Mr. Hamstra, Mr. Robson, Mr. Jang, Mr. Benson,  
15 and Ms. Smedley.

16 Your Honor, also with us are representatives  
17 from Cree Lighting, Mr. Kurt Wilcox and Mr. Joseph  
18 Flerlage.

19 JUDGE CHENEY: Welcome to all of you.

20 MR. MOSKIN: Your Honor, this is Mr. Moskin of  
21 Foley & Lardner for RAB Lighting. Also present with us  
22 today are, it's a lengthy list, Mr. Hickerson; Mr. Roush;  
23 Mr. Beck; Mr. Mitchell Poirier; Molly Hayssen; our  
24 paralegal, Mary Ann Cochran; Kiri Lee Sharon, an attorney  
25 here at Foley; and two representatives of RAB Lighting,

1 Ross Barna and Scott Jacobson.

2 I hope I haven't omitted anyone.

3 JUDGE CHENEY: Welcome to all of you.

4 Now, let's talk a little bit about how we're  
5 going to proceed with all of these people in the event that  
6 we need to go on the confidential record in this  
7 investigation.

8 First, I will reiterate that it is my intention  
9 to try most of this proceeding on the public record. We  
10 have been through discussions about that at length. I hope  
11 you have taken my counsel to heart so that we don't spend a  
12 lot of time debating why we're going on the confidential  
13 record.

14 Each time a party wants to present information  
15 on the confidential record, they will tell me whose  
16 information it is, and an overview of what kind of  
17 information we'll be discussing on the confidential record.

18 When we go onto the confidential record, my  
19 attorney adviser will initiate a breakout session, and you  
20 should attempt to remove yourself from the confidential  
21 hearing when you see that indication the first time. And  
22 if we determine that you've remained in the confidential  
23 hearing and you should not be there, my attorney adviser  
24 will move you into the breakout session.

25 Very much like when we're in the courtroom, I

1 depend on the parties to monitor the list of participants  
2 and bring to my attention anyone in the confidential  
3 hearing that should not be there.

4           You'll see an alert the first time we start the  
5 breakout session. You may not see an alert the second  
6 time, but you should still move yourself into the breakout  
7 session if you are not signed onto the protective order.

8           Now, there will be different people in the  
9 breakout room, depending on whose information it is.  
10 That's why I ask the attorneys to identify whose  
11 confidential information we will be speaking about.  
12 Parties can listen to their own confidential information.

13           Are there any questions about this procedure,  
14 Mr. Erwine?

15           MR. ERWINE: I'm sorry, Your Honor. Just one  
16 question.

17           In terms of the nomenclature, I think that we  
18 had been instructed for representatives of the party, for  
19 example, Mr. Flerlage and Mr. Wilcox, to identify  
20 themselves with a P along with Cree Lighting and then their  
21 name as opposed to just their name. I think Mr. Jacobson  
22 asked if it should just be the name. So I wanted to  
23 clarify what the nomenclature should be for the naming.

24           JUDGE CHENEY: You're correct, Mr. Erwine, I  
25 think you were instructed that. The P tells us that the

1 person is not on the protective order.

2           So if you have no designation by your name, like  
3 I see Ross Barna has no designation by his name, you will  
4 be moved into the confidential -- you will be moved into  
5 the breakout session during the confidential hearing. If  
6 you have a P by your name, you will also be moved into the  
7 breakout room during the confidential session.

8           You're going to get real good at this by the  
9 time we get through the hearing. The first one will take a  
10 little bit of time, but that's okay. You will get used to  
11 it and we'll have a pattern pretty smoothly by as soon as  
12 this afternoon, I'm sure.

13           MR. ERWINE: Thank you.

14           JUDGE CHENEY: Mr. Moskin, any questions on your  
15 side?

16           MR. MOSKIN: Nothing, Your Honor.

17           JUDGE CHENEY: As of right now, I see no members  
18 of the public with us. There are members of the public  
19 allowed to be with us, so just keep that in mind.

20           Okay. I have received a stipulation over the  
21 weekend. I have some questions about it and I want to make  
22 sure that I understand it. These questions will probably  
23 start with Mr. Erwine of Cree. I want to make sure that I  
24 understand the claims that are going to trial.

25           So I'm going to read the claims that I



1 understand are going to trial by patent and claim number,  
2 and I will ask you to confirm them.

3           So, Mr. Erwine, I understand that we will have  
4 trial on the '819 Patent, Claims 1, 24 to 27, 29, 48 to 50,  
5 52, 57 through 59, 60, and 65 through 67.

6           Does that match your understanding, Mr. Erwine?

7           MR. ERWINE: Yes, it does, Your Honor.

8           JUDGE CHENEY: Thank you.

9           For the '531 Patent, I understand that we will  
10 be going to trial on Claims 1, 10 through 12, 25 and 26.

11          Does that match your understanding, sir?

12          MR. ERWINE: Yes, Your Honor.

13          JUDGE CHENEY: For the '449 Patent, I understand  
14 we will only be trying a single claim, Claim 10; is that  
15 correct?

16          MR. ERWINE: Yes, Your Honor.

17          JUDGE CHENEY: For the '270 Patent, we will try  
18 Claims 1 and 2; is that correct?

19          MR. ERWINE: I believe so, Your Honor.

20          JUDGE CHENEY: For the '570 Patent, we will try  
21 Claims 1, 3 through 5, and 10; is that correct?

22          MR. ERWINE: Yes, Your Honor.

23          JUDGE CHENEY: Thank you.

24          My next questions are for Mr. Moskin.

25          I understand for the '819 Patent, Mr. Moskin,

1 that your client is conceding that the products listed in  
2 CX-0697C and CX-0698C have every element listed in the  
3 claims.

4 Am I understanding the stipulation correctly?

5 MR. MOSKIN: Yes. The claims as written.

6 JUDGE CHENEY: Okay. Do those exhibits that I  
7 have just named cover all of the accused products; in other  
8 words, are all of the products accused of infringing the  
9 '819 Patent in those two exhibits?

10 MR. MOSKIN: Yes, they should be.

11 JUDGE CHENEY: Okay. So there are no products  
12 left that are accused of infringement other than those  
13 products?

14 MR. MOSKIN: Yes, as appears have been previewed  
15 in the first instance, correct.

16 JUDGE CHENEY: Okay. Similar question for the  
17 '531 Patent. I understand that you are stipulating that  
18 the products listed in CX-0699C have all of the limitations  
19 recited in the asserted claims of the '531 Patent; is that  
20 correct?

21 MR. MOSKIN: Correct, as stated in the patent.

22 JUDGE CHENEY: And there are no products that  
23 are not listed in CX-0699C which are accused of  
24 infringement of the '531 Patent; is that correct?

25 MR. MOSKIN: Correct.

1 JUDGE CHENEY: Okay. For the '449 Patent,  
2 Mr. Moskin, I understand that you contest both infringement  
3 and the domestic industry technical prong; is that right?

4 MR. MOSKIN: Yes, Your Honor.

5 JUDGE CHENEY: For the '270 Patent, I understand  
6 that your stipulation is that the products with SKUs  
7 beginning PIP or PIPXL, as recited in CX-0017C and  
8 CX-0016C, have every limitation recited in the asserted  
9 claims of the '270 Patent; is that correct?

10 MR. MOSKIN: Correct, Your Honor.

11 JUDGE CHENEY: Are there any other products  
12 accused of infringing the '270 Patent that are not included  
13 in those two exhibits?

14 MR. ERWINE: Your Honor, I can speak to that. I  
15 believe the answer is yes.

16 MR. MOSKIN: Yeah.

17 JUDGE CHENEY: Okay.

18 Mr. Erwine, can you give me some kind of  
19 shorthand summary of what is left accused other than the  
20 PIP and PIPXL products for the '270 Patent.

21 MR. ERWINE: Yes, I can, Your Honor.

22 I believe that it consists of the FALCOR, the  
23 CANVAS EZLED, and the FFLED family of products. And I've  
24 got my colleague, Mr. Hamstra, who can confirm that I  
25 hopefully have that set of product families correct.

1 MR. HAMSTRA: That is correct, Mr. Erwine.

2 JUDGE CHENEY: Mr. Moskin, I understand, then,  
3 that you dispute infringement for the FALCOR, CANVAS EZLED,  
4 and FFLED families of products; is that correct?

5 MR. MOSKIN: That is correct.

6 JUDGE CHENEY: Thank you.

7 MR. MOSKIN: If I can also go back and clarify  
8 as to the '819 and '531 Patents, the stipulation is perhaps  
9 best read to say that the products listed satisfy at least  
10 one of the claims, not all of the claims. Some are, you  
11 know, with bounded ranges.

12 So not all of the products meet all of the  
13 ranges or all of the claims that are asserted.

14 JUDGE CHENEY: Okay. Let's talk about that some  
15 more.

16 The stipulation phrased that way is not so  
17 useful to me because then I'm going to have to go back and  
18 make findings about every claim, right, because I don't  
19 know which product is in which claim. And some products  
20 might infringe one claim, but not another, and I might find  
21 one claim valid, but another claim invalid.

22 So can we make some headway on that? It seems  
23 to me that the difference is the undisputed lumens per watt  
24 in each claim range for some of the claims, or in the  
25 unlimited range for some of the claims.

1           Is that the disputed limitation, Mr. Moskin?

2           MR. MOSKIN: Yes. As I think I understand your  
3 question, yes.

4           JUDGE CHENEY: Okay. So are you comfortable  
5 with me making my division among the claims based solely on  
6 that feature?

7           In other words, you're stipulating for a product  
8 that has an undisputed lumens per watt rate of 85 as not  
9 infringing, for example, the claims having a range of 60 to  
10 70; for example, as in Claims 25, 48, 57, and 65?

11           Am I understanding the stipulation correctly?

12           MR. MOSKIN: That is correct. And I think we --  
13 if it is further assistance to save Your Honor from having  
14 to make any further detailed findings, I think counsel can  
15 submit a more detailed list as to which products are in  
16 which range.

17           I think that's going to come into evidence  
18 anyway, so -- but we can simplify your work in that  
19 respect.

20           JUDGE CHENEY: Okay. So you have an exhibit  
21 that's going to come into evidence that -- that in effect  
22 is a stipulation about which products in which ranges?

23           MR. ERWINE: Your Honor, if I could interject.  
24 I believe that CX-697 through 699 actually include which  
25 products infringe which claims.

1           So that work is already part of that exhibit.

2           MR. MOSKIN: Okay. Thank you.

3           JUDGE CHENEY: So I am entitled to rely on the  
4 categorization of each product by each claim in those  
5 supporting exhibits to the stipulation; is that right,  
6 Mr. Erwine?

7           MR. ERWINE: Correct.

8           JUDGE CHENEY: Mr. Moskin.

9           MR. MOSKIN: Yes. That's correct.

10          JUDGE CHENEY: Okay. Then we need not do  
11 anything more. I will do that.

12          The same is true of the '531 Patent with  
13 CX-0699C; is that right, Mr. Erwine?

14          MR. ERWINE: That's correct.

15          JUDGE CHENEY: And Mr. Moskin?

16          MR. MOSKIN: That's correct.

17          MR. ERWINE: Just to clarify, Your Honor, I  
18 believe it's -- 697 and 698 are the '819 Patents, and 699  
19 is the '531 Patent.

20          JUDGE CHENEY: Right.

21          While we are talking about the '819 and '531  
22 Patents, Mr. Moskin, I understand you do not contest  
23 domestic industry technical prong for those two patents; is  
24 that right?

25          MR. MOSKIN: One of the final provisions -- I

1 think it's the -- it's either the final or the penultimate  
2 paragraph of the stipulation notes that similar to the  
3 discussion that we had on Friday that -- to the extent that  
4 Your Honor were to find that the unbounded ranges -- let's  
5 say anything above 100, just by way of example, is not  
6 supported -- is not enabled by the patent or it isn't in  
7 the written description or otherwise, that we then would  
8 have a question whether Cree has sufficiently documented  
9 its domestic industry products by product range, so there  
10 will not be an issue as to products that they included that  
11 are above the unbounded ranges -- that are above the  
12 bounded ranges. Excuse me.

13 JUDGE CHENEY: I see. Let me see if I  
14 understand. I'm going to say something. You tell me if  
15 you agree.

16 The economic prong numbers have not been divided  
17 by the lumens per watt rating of the domestic industry  
18 products; is that right, Mr. Moskin?

19 MR. MOSKIN: That's correct.

20 JUDGE CHENEY: Do you agree, Mr. Erwine?

21 MR. ERWINE: No, I do not, Your Honor.

22 For the economic prong, I believe our expert,  
23 Mr. Bakewell, was able to categorize the economic  
24 information into the specific ranges that are associated  
25 with each claim.

1           So, for example, if there was a claim that had a  
2 range between 85 and 113.5, his economic numbers would be  
3 within that claim range. I think that's Claim 26 of the  
4 '531 Patent. That's one example.

5           I think what Mr. Moskin is referring to is if  
6 there was an instance where a claim had -- it didn't  
7 specify an upper bound -- so, for example, Claim 1 of the  
8 '531 Patent recites at least 85 lumens per watt and  
9 higher -- I don't have that exact language in front me. I  
10 believe that RAB is suggesting that there could be some  
11 implied limit that Your Honor could rule on.

12           If that were the case, I still believe those  
13 numbers could be manipulated from the dependent ranges that  
14 Mr. Bakewell has calculated, but since we don't know what  
15 that number would be at this stage, we don't have it.

16           JUDGE CHENEY: Okay. I think I understand the  
17 reservation of dispute that Mr. Moskin is making for the  
18 domestic industry technical prong with respect to the '819  
19 and '531 Patents.

20           Let me turn now to the '449 Patent.

21           Mr. Moskin, you are contesting infringement, and  
22 the domestic industry technical prong with respect to that  
23 patent; is that right?

24           MR. MOSKIN: That is correct.

25           JUDGE CHENEY: And we talked about the



1 infringement dispute with respect to the '270 accused  
2 products.

3           Mr. Moskin, I understand that you are  
4 disputing -- I'm sorry. Try again.

5           Mr. Moskin, I understand your client does not  
6 dispute the domestic industry technical prong for the '270  
7 Patent; is that right?

8           MR. MOSKIN: That's correct.

9           JUDGE CHENEY: Okay. For the '570 Patent,  
10 Mr. Moskin, I understand your client, RAB Lighting,  
11 disputes infringement for all accused products; is that  
12 right?

13           MR. MOSKIN: That is correct.

14           JUDGE CHENEY: For the '570 Patent domestic  
15 industry technical prong, your client, Mr. Moskin, does not  
16 dispute the technical prong; is that correct?

17           MR. MOSKIN: I think that's correct, Your Honor.

18           JUDGE CHENEY: Okay. Thank you for that  
19 clarification.

20           Is there anything else anyone wants to say about  
21 patent claims and what's in dispute?

22           MR. ERWINE: Nothing from me, Your Honor.

23           JUDGE CHENEY: Okay.

24           MR. MOSKIN: Nor from me, Your Honor.

25           JUDGE CHENEY: Thank you.

1           Okay. So we're getting close to the time when  
2 we'll begin opening arguments, but let me check with the  
3 parties to see if there are any other housekeeping matters  
4 before we begin opening arguments.

5           We'll do admission of any undisputed exhibits  
6 after opening arguments before the presentation of  
7 witnesses.

8           Any issues that the Complainant wishes to raise?

9           MR. ERWINE: Your Honor, the only issue that I  
10 was going to raise, and it perhaps is left for after the  
11 opening, but I'll raise it anyway, is we did get  
12 confirmation back from LEDiL's counsel concerning, I  
13 believe, most of the demonstratives, and what could be used  
14 in the public realm, and I think there were 28  
15 demonstratives for which they agreed that 25 of the 28  
16 could be used in the public realm.

17           My colleagues will correct me if I got anything  
18 wrong.

19           JUDGE CHENEY: Thank you for making progress on  
20 that issue. I appreciate it very much.

21           Anything that counsel for RAB wishes to raise  
22 before we hear opening statements?

23           MR. MOSKIN: Nothing, Your Honor.

24           JUDGE CHENEY: Okay.

25           One thing that just occurred to me. I don't yet

1 have this motion to terminate claims on file; is that  
2 right, Mr. Erwine?

3 MR. ERWINE: I believe that's correct, Your  
4 Honor. I believe it's coming shortly.

5 JUDGE CHENEY: Okay. Just wanted to make sure I  
6 hadn't missed it.

7 We'll, now, let's begin with the opening  
8 statements of the parties beginning with the opening  
9 statement of the Complainant, Cree.

10 Mr. Erwine, the floor is yours.

11 C O M P L A I N A N T O P E N I N G

12 MR. ERWINE: Your Honor, first of all, I would  
13 like to reintroduce members of our team as an initial  
14 matter.

15 I mentioned some of my colleagues, so I'd like  
16 to reintroduce those individuals, particularly the ones  
17 that will have speaking roles throughout the trial.

18 Mr. Alex Lasher; my colleague, Mr. Hamstra;  
19 Mr. Robson; Mr. Kevin Jang, who I don't believe you have  
20 met before; Mr. Benson; Ms. Madeline Smedley; and our  
21 paralegal, Ms. Marie Bangoura.

22 Your Honor, I'd also like to introduce, again,  
23 the two participants from Cree Lighting.

24 Mr. Kurt Wilcox, whom you have met before. He's  
25 the vice president of research development and intellectual

1 property at Cree Lighting. Mr. Wilcox will be testifying  
2 today.

3 Also Mr. Joseph Flerlage, intellectual property  
4 counsel from Cree Lighting.

5 Your Honor, Cree Lighting, including its  
6 predecessors is a pioneering innovator of indoor, outdoor,  
7 and consumer bulb LED lighting products, and intelligent  
8 control solutions for commercial, industrial and consumer  
9 applications.

10 Cree Lighting was originally headquartered in  
11 Durham, North Carolina, but will be moving its headquarters  
12 to Racine, Wisconsin, very shortly.

13 I'd like to start with a very brief history of  
14 how Cree Lighting got to where it is today. That begins,  
15 Your Honor, with Cree Incorporated.

16 Cree Incorporated was founded in 1987, and at  
17 that time, it primarily designed and developed LED,  
18 light-emitting diode chips and packages based primarily on  
19 a silicon carbide substrate.

20 As the years progressed, Cree Incorporated began  
21 moving towards LED lighting products, and that, Your Honor,  
22 was premised on two key acquisitions. The first concerned  
23 a company by the name of LED Light Fixtures, Incorporated,  
24 also known as LLF, which you're going to be hearing a lot  
25 about in this hearing.

1           LLF was acquired by Cree Incorporated in 2008.  
2 LLF was created in September of 2005 by Neal Hunter, Gerry  
3 Negley, Tom Coleman and Tony Van de Ven.

4           Your Honor, Mr. Negley, Mr. Coleman and Mr. Van  
5 de Ven are named inventors on the two wall plug efficiently  
6 patents that are part of this investigation today. And  
7 Mr. Van de Ven is actually named on the '449 Patent, the  
8 third patent asserted in this investigation.

9           LLF was one of the first companies to launch  
10 commercially viable indoor LED lighting fixtures.

11           The second acquisition I'd like to speak about  
12 is the acquisition of the company Ruud Lighting  
13 Incorporated. Cree Incorporated acquired Ruud in 2011. In  
14 fact, Ruud was one of the first companies to launch  
15 commercially viable outdoor LED lighting fixtures. Your  
16 Honor, there are two patents that are asserted in this  
17 investigation, the '570, and '270 Patents, that are based  
18 on work that started at Ruud.

19           With the acquisition of LLF and Ruud, Cree  
20 Incorporated formed a lighting division called Cree LED  
21 Lighting in approximately 2012.

22           In 2019, Ideal Industries acquired the LED  
23 lighting business from Cree Incorporated and renamed the  
24 company Cree Lighting, a Company of Ideal Industries. As  
25 part of that acquisition, Ideal and Cree Lighting also

1 acquired Cree Incorporated's LED lighting patents, five of  
2 which are at issue in this investigation.

3 Cree Lighting's primary manufacturing facility  
4 is in Racine, Wisconsin, and Cree Lighting currently  
5 employs over 900 individuals with over 800 of those  
6 individuals in the United States. Cree Lighting's Racine  
7 facility has about 675 employees. Cree Lighting also  
8 performs research, development and engineering work in the  
9 United States at both its facility in Racine as well as in  
10 Durham, North Carolina.

11 Your Honor, Mr. Wilcox will speak in more detail  
12 to this slide, but it presents some of the history that we  
13 talked about, including the acquisitions of LLF in 2008,  
14 the acquisition of Ruud in 2011, as well as the  
15 introduction of the LED light bulb in 2013.

16 Your Honor, before we get to today's  
17 investigation, I'd like to briefly touch on an earlier ITC  
18 investigation, the 947 Investigation, in which Cree  
19 Incorporated asserted several patents and false advertising  
20 claims against respondents, Feit and Unity Opto. One of  
21 the patents asserted in that investigation, the '819  
22 Patent, is also asserted here. And, in fact, the ALJ in  
23 that investigation, as a result of her initial  
24 determination, found the '819 Patent to be both valid and  
25 infringed.

1           Your Honor, that case settled days before the  
2 final determination was due.

3           Turning to today's investigation, Cree Lighting  
4 is asserting five patents against the Respondent, RAB  
5 Lighting LLC. RAB Lighting is a competitor of Cree  
6 Lighting in the LED lighting space. RAB's accused products  
7 include numerous LED lighting products, such as outdoor  
8 area lights, flood lights, wall packs, roadway lights,  
9 indoor A-line bulbs and downlights.

10           RAB Lighting's products are primarily sold  
11 through lighting and electrical distributors. And RAB's  
12 products are generally manufactured overseas and imported  
13 into the United States.

14           As I mentioned, Your Honor, Cree Lighting is  
15 asserting five patents in this investigation, and I'd like  
16 to briefly touch on each.

17           Starting with the '570 Patent, this patent is  
18 entitled "Lens With Controlled Backlight Management," was  
19 filed in 2013 and issued in 2016, but, in fact, claims  
20 priority back to a 2008 provisional, and the work was  
21 started at Ruud Lighting prior to the acquisition by Cree  
22 Incorporated.

23           Mr. Wilcox is one of the two named inventors on  
24 the '570 Patent, and will testify today concerning the  
25 subject matter of that patent.

1           Let me tell you briefly about such subject  
2 matter.

3           The '570 Patent relates to optics design for  
4 achieving desired light distribution in LED lighting  
5 fixtures. An LED package typically consists of a single  
6 LED or small LED cluster on a base similar to what's shown  
7 here in Figure 2 and identified as number 1. Each such LED  
8 package may have one or more lenses, primary and secondary  
9 to direct light from the LED package as intended.

10           The '570 Patent is directed to improvements in  
11 that secondary lens. And, in fact, the '570 Patent offers  
12 an improved lens for directing light to a preferential side  
13 of the lens with respect to the emitter access.

14           In fact, Your Honor construed the term  
15 "preferential side" based on the parties' agreement, the  
16 construction being an off-axis direction with respect to  
17 the emitter access to which a majority of light is  
18 distributed.

19           Your Honor, Cree Lighting relies primarily on  
20 street lighting, roadway and area parking products for its  
21 technical domestic industry. Per the parties' stipulation,  
22 RAB does not contest that Cree Lighting's domestic industry  
23 products practice the '570 Patent.

24           Cree Lighting is accusing RAB's street lighting,  
25 roadway and parking lot products primarily within the



1 LOTBLASTER and TRIBORO family of products. If you look  
2 closely, you can see within the images of those products  
3 the lenses which are the subject of this patent assertion.

4           Your Honor, this trace, which is taken from  
5 Figure 12 of the '570 Patent, illustrates how the patent  
6 intended the use of the lens to direct light to the  
7 preferential side. What's shown, Your Honor, in yellow is  
8 the primary lens. What's shown in blue is the secondary  
9 lens. And what's shown in pink is the light that is  
10 distributed already to the preferential side. The light  
11 that's shown in bright orange is the light that's  
12 distributed to the preferential side as a result of the  
13 secondary lens.

14           During the hearing, Your Honor, Cree Lighting  
15 will rely on simulations to show that RAB's accused product  
16 directs light to the preferential side in the same manner.

17           Cree Lighting's expert, Dr. Michael Lebby, who  
18 Your Honor may recall from the 1168 Investigation, will  
19 testify concerning the '570 Patent, including RAB's  
20 infringement, and to rebut RAB's invalidity defenses.

21           Turning next, Your Honor, to the '819 and '531  
22 Patents, patents that we've referred to throughout the case  
23 as the wall plug efficiency patents, those patents are  
24 entitled "Lighting Device and Method of Lighting." The  
25 '819 was filed in 2007, the '531 in 2008, and both claim

1 priority back to provisionals filed in 2006 and 2007,  
2 respectively. The patents both issued in 2013. The '819  
3 names LLF founders Jerry Negley, Tom Coleman and Tony Van  
4 de Ven, and the '519 also names those three inventors along  
5 with Mark Edmond.

6 Your Honor, Mr. Negley and Mr. Edmond will  
7 testify concerning those patents, likely later today or  
8 tomorrow. And I'd like to tell you a little bit about the  
9 subject matter of those patents.

10 Again, it relates to the work performed by  
11 Mr. Negley, Mr. Edmond, and others at LLF in the 2005 to  
12 2008 time frame. That team worked on lighting devices with  
13 high efficacy -- high-luminous efficacy, or as the patent  
14 refers to it -- sorry, patents refer to it, wall plug  
15 efficiency and desirable color characteristics. The team  
16 worked to balance the electrical, mechanical, optical and  
17 thermal elements of a lighting device to achieve record  
18 wall plug efficiencies. As Mr. Negley referred to it, it  
19 was solving a whack-a-mole problem balancing those  
20 mechanical, optical, thermal and electrical factors.

21 The team achieved record wall plug efficiencies  
22 of 113.5 lumens per watt in 2007. Based on that work, they  
23 filed and obtained several patents, including the two that  
24 are asserted here. Your Honor has adopted the 947 Court's  
25 construction for wall plug efficiency.

1           In terms of Cree Lighting's domestic industry  
2 products, Cree Lighting's practicing products span several  
3 of Cree Lighting's product families, including lamps,  
4 downlights and troffers. Per the stipulation we discussed  
5 this morning, RAB does not contest that Cree Lighting's  
6 domestic industry products practice the '819 and '531  
7 Patents.

8           RAB's accused products also span several of  
9 RAB's product families, including panels and troffers,  
10 downlights, outdoor lighting and light bulbs. Again, per  
11 the stipulation, RAB does not contest that RAB's accused  
12 products infringe the '819 and '531 Patents.

13           Your Honor, I'd like to briefly touch on RAB's  
14 defenses concerning this patent, and they fall under the  
15 four primary subject matter of the patent Statute 35 USC  
16 101, 102, 103 and 112.

17           With respect to with 35 USC 101, Your Honor has  
18 already addressed RAB's 101 arguments via the motion for  
19 summary determination, which Your Honor recently ruled on.

20           With respect to 35 USC 102 and 103, the  
21 anticipation and obviousness defenses, the evidence will  
22 show that RAB's art is directed to LED packages only and  
23 not the fixtures that are at issue here, and their efficacy  
24 measurements that they rely on do not account for  
25 fixture-related losses described in the patent.

1                   With respect to 35 USC 112, Your Honor has  
2 already rejected RAB's indefiniteness arguments via claim  
3 construction, and the evidence will confirm that the  
4 asserted claims are both enabled and that the  
5 specification -- sorry, the specification contains a proper  
6 written description.

7                   Your Honor, this has previously been confirmed  
8 by both the United States Patent and Trademark Office  
9 pursuant to extensive prosecution histories, and by the ALJ  
10 in the 947 Investigation, at least with respect to the '819  
11 Patent.

12                   Contrary to RAB's arguments, it is Hornbook law  
13 that the scope of infringement at a later point in time is  
14 not necessarily limited by the degree of enablement at the  
15 time of the invention. And, in fact, Federal Circuit case  
16 law allows for after-arising technology to be captured  
17 within the literal scope of valid claims that are drafted  
18 broadly enough.

19                   Your Honor, Cree Lighting's expert,  
20 Dr. Christian Wetzel, will testify concerning the '819 and  
21 '531 Patents primarily to rebut RAB's invalidity defenses.

22                   Turning next, Your Honor, to the '449 Patent.  
23 This patent is entitled "Lighting Devices Comprising Solid  
24 State Light Emitters." The patent was filed in 2009 and  
25 issued in 2014. The named inventors include Tony Van de

1 Ven, previously from LLF, and Wai Kwan Chan and Ho Chin  
2 Wah.

3 I'd like to tell you a little bit about the  
4 subject matter of the '449 Patent.

5 It is directed towards improved lighting  
6 devices, primarily recessed downlights like the ones shown  
7 here in Figure 2 that use solid state emitters such as  
8 LEDs, and in particular, towards improvements in the weight  
9 and efficiency of those devices.

10 The focus, Your Honor, is on the flange portion  
11 of the downlight, which includes a trim element space  
12 containing the trim element and the driver. The '449  
13 Patent achieves high efficiency at a low-device rate.

14 Your Honor construed multiple terms for this  
15 patent, including trim element, trim element space and at  
16 least a first driver component.

17 Cree Lighting is primarily relying on recessed  
18 downlights for its domestic industry, and RAB's accused  
19 products are also -- or also fall within this recessed  
20 downlight classification, including recessed retrofit  
21 products and performance downlight products.

22 Cree Lighting's expert, Dr. Thomas Katona, who  
23 you also may recall from the 1168 Investigation, will  
24 testify concerning the '449 Patent, including RAB's  
25 infringement in Cree Lighting's DI practice and to rebut

1 RAB's invalidity defenses.

2                   Finally, Your Honor, I'd like to speak briefly  
3 on the '270 Patent.

4                   This patent is entitled "LED Lighting Fixture."  
5 It was filed in 2015, issued in 2016. Actually claims  
6 priority back to applications that go back as far as 2006,  
7 related to work that was performed at Ruud Lighting, and  
8 includes as named inventors Al Ruud, the founder of Ruud  
9 Lighting, Kurt Wilcox and two others.

10                   The '270 Patent is directed to LED light  
11 fixtures used in outdoor applications or other environments  
12 such as roadway lighting, factory lighting, parking lot  
13 lighting, and commercial building lighting.

14                   The '270 patent describes separating the LED  
15 module from the chamber in which the driver resides by an  
16 air gap that allows for air and water flow.

17                   Your Honor, also construed multiple terms for  
18 this patent, including finding the preamble with the  
19 phrase, "a light fixture limiting," and also construing the  
20 term "air water flow."

21                   Cree Lighting relies on multiple outdoor light  
22 products for its technical domestic industry, including the  
23 XSP, EDGE High Output and EDGE Series area/flood  
24 products.

25                   Per the stipulation, RAB does not contest

1 technical DI for the '270 Patent.

2 Cree Lighting accuses mostly outdoor flood  
3 lighting products that are provided by RAB that -- one  
4 exception being the FALCOR, which is an indoor product, and  
5 is an example of the infringement.

6 The accused FALCOR product and others included  
7 an air gap, which you can see here highlighted in arrows,  
8 which I will call it turquoise for -- that's the best color  
9 I can come up with.

10 The LED module is highlighted in these two  
11 images with the gold or yellow arrow, and the chamber that  
12 contains the driver is highlighted with the blue arrow.

13 Your Honor, per the parties' stipulation, RAB  
14 does not contest infringement for the PIP or PIP XL family  
15 of products, and Mr. -- I'm sorry, Dr. Katona will speak to  
16 the '270 Patent as well.

17 Finally, Your Honor, with respect to economic  
18 domestic industry, neither RAB nor its expert challenges  
19 the accuracy of the calculation of Cree Lighting's economic  
20 prong investments.

21 Cree Lighting will demonstrate at the hearing  
22 that it plainly satisfies the economic prong for each of  
23 the asserted patents, and Cree Lighting's expert, Mr. Chris  
24 Bakewell, will testify today concerning Cree Lighting's  
25 economic domestic industry.

1 Thank you very much, Your Honor.

2 JUDGE CHENEY: Thank you, Mr. Erwine. I have a  
3 follow-up question about what happened in the 947  
4 investigation.

5 Was there an enablement argument presented in  
6 that investigation?

7 MR. ERWINE: Yes, there was, Your Honor.

8 JUDGE CHENEY: Did it concern the no upper limit  
9 claims for the '819 Patent?

10 MR. ERWINE: Yes, it did, Your Honor.

11 JUDGE CHENEY: Okay. Was -- you also mentioned  
12 that the '819 Patent was confirmed at the PTAB, but I'm not  
13 aware of the PTAB being able to adjudicate enablement  
14 defenses.

15 MR. ERWINE: My apologies. Sorry, Your Honor.  
16 My apologies.

17 I did not -- I don't think I said the PTAB. I  
18 think I said the Patent and Trademark Office. If I said  
19 the PTAB, that was my mistake. I was referring to the fact  
20 that through an extensive prosecution history, when the  
21 patent was filed, enablement was one of the things that the  
22 examiner considered and found the patent to be valid.

23 JUDGE CHENEY: Okay. Thank you.

24 MR. ERWINE: Thank you, Your Honor.

25 JUDGE CHENEY: Mr. Moskin, did you have an



1 opening statement you wish to make on behalf of your  
2 client, RAB Lighting?

3 R E S P O N D E N T O P E N I N G

4 MR. MOSKIN: Your Honor, I do, and just --  
5 there we go. The video is back up and running.

6 So good morning, and thank you.

7 I'd like to -- we'll further introduce some  
8 background information about RAB Lighting during the trial  
9 itself, but I wanted to begin with just a general note that  
10 RAB is a 75-year-old family-owned lighting company based in  
11 New Jersey, and representing four generations of the Barna  
12 family that has owned RAB for the 75-year history.

13 The current CEO, Ross Barna, will be RAB's first  
14 witness.

15 RAB employs roughly 400 people in the United  
16 States, and has grown in the LED space by innovating to  
17 meet the needs of its customers, mostly electrical  
18 distributors in the commercial space. Such distributors  
19 support electricians working in commercial, industrial,  
20 residential applications across the entire country.

21 RAB's products use a widely practiced phosphor  
22 conversion technology using blue LEDs and a phosphor that  
23 converts the blue light into white.

24 As with most of the LED industry, RAB has been  
25 able to deliver more efficient lighting devices because of

1 advances in chip technology and phosphor technologies that  
2 has increased dramatically this past decade.

3           This in turn has benefitted consumers with lower  
4 cost. Such growth has been fueled by utility rebates,  
5 pushing the LED industry to make more efficient,  
6 energy-saving devices such that most of the LED industry  
7 now has achieved efficiencies well above those claimed in  
8 Cree Lighting's Patents-In-Suit exactly as the Department  
9 of Energy mapped out in a roadmap in 2002, part of a vital  
10 Department of Energy policy.

11           In 2006 to 2007, Cree's predecessor, LED  
12 Lighting Fixtures, or LLF, was a small company trying to  
13 make a name for itself. They published several press  
14 releases touting improved efficiency for LED lighting  
15 devices, having warm white colors comparable to  
16 incandescent bulbs.

17           They achieved that claimed improvement in lumens  
18 per watt by using what it considered a different approach  
19 from the prior art using a blue dye together with a  
20 phosphor to shift -- the phosphor to shift blue light into  
21 greenish yellow chromaticity range, and adding a second red  
22 LED dye to make warm white light.

23           We thus come up with the initialism or acronym,  
24 BSY+R, blue-shifted yellow plus red, which minimally, of  
25 course, requires at least two LEDs, a blue and a red,

1 together with the phosphor.

2                   Now, I have shown you here, which is a fairly  
3 simple slide taken from Figure 5 of the '819 Patent, which  
4 at a very high level illustrates the point that prior  
5 approaches used first on the left, a so-called RGB  
6 technology or approach, a mixture of green, red, and blue  
7 LEDs.

8                   The current technology such as that RAB uses is  
9 this phosphor-conversion technology, and you don't see the  
10 colors of the blue LEDs here because what is emitted from  
11 the lighting device is a white light because of the  
12 phosphor that covers the LED.

13                   Then, finally, on the right is a very high-level  
14 depiction of the BSY+R approach that form the basis of  
15 LLF's claimed advances in efficiency in which blue LEDs are  
16 converted with a greenish yellow phosphor to emit greenish  
17 yellow light and then combined with red light yields white  
18 light.

19                   Now, this is all basic, simple high school-level  
20 physics that white light, of course, is composed of the  
21 principle colors of the visible spectrum.

22                   Now, on November 28, 2007, when LLF filed its  
23 provisional application, which I will refer to as the '435  
24 application, that eventually matured into the '531 Patent,  
25 it confirmed to the PTO its view why the prior approaches

1 that I just described, namely, the phosphor conversion and  
2 the mixing of RGB dyes, were undesirably inefficient.

3           This is taken right out of their patent  
4 application, which was also a public presentation that LLF  
5 made at the time.

6           And then it goes on to describe a different  
7 approach that formed the basis of the claimed invention.

8           The first -- the phosphor conversion approach as  
9 described in the '435 application defines the one old  
10 approach as blue dyes with phosphor conversion, similar to  
11 what RAB now uses, in which red and green phosphor is  
12 converted blue LED light into warm light, but has a low  
13 efficacy of only 15 to 35 lumens per watt due to phosphor  
14 quantum efficiency and Stokes' losses that are losses  
15 caused by the presence of the phosphors.

16           The second is the RGB approach, which the '435  
17 application describes as another long-established approach  
18 combining red, green and blue LEDs to make white light.  
19 And is also citing difficulties in the RGB approach having  
20 efficacy levels of only 40 lumens per watt due to  
21 principally the low efficacy of green LEDs.

22           And then in turn, LLF described its own  
23 different approach, the BSY+R technology that I described a  
24 moment ago.

25           While disparaging the inefficiency of prior

1 technologies as shown in the '435 provisionally  
2 application, and ultimately in the specifications of the  
3 '819 and '531 Patents, LLF, even with its achievements in  
4 its new BSY+R approach at the time had filed the  
5 applications, was struggling to meet the efficiency ranges  
6 it claimed.

7               This slide briefly summarizes, it managed -- in  
8 tests from 2006, it got no higher than 53.5 lumens per  
9 watt, which it quickly pronounced a world record.

10              It managed to get a little under 80 lumens per  
11 watt a little later in 2006, but while there are questions  
12 surrounding the initial tests -- some of which we'll bring  
13 up during the trial -- tests that were conducted using  
14 prototypes before there were relevant testing standards,  
15 when it submitted actual products to the Department of  
16 Energy for testing in September 2007, the best it could  
17 achieve was roughly 59 lumens per watt, 62-and-a-half  
18 lumens per watt.

19              So whatever invention LLF possessed at the time,  
20 we submit its grasp on that invention was somewhat tenuous.

21              LLF did manage -- as Mr. Erwine noted in his  
22 opening, did manage to achieve 113.5 lumens per watt in a  
23 private test using a different prototype in November of  
24 2007, but even if we have questions about how that  
25 prototype was tested, the reality was that LLF, as shown by

1 this timeline, had been struggling -- and this will also be  
2 shown by other evidence submitted at trial -- was  
3 struggling.

4           It was struggling at the time to achieve numbers  
5 much above the 60 lumens per watt range much less any of  
6 the higher ranges claimed in its patents.

7           And what LLF did to achieve the 113.5 lumens per  
8 watt efficiency level remains a bit of a mystery not  
9 adequately disclosed in the '531 Patent.

10           Stripping away the mystery, the reality is that  
11 it took development of better, and more thermally and  
12 optically efficient LEDs or the ensuing decade to improve  
13 phosphors for efficiency, and yet, improved LED design  
14 designs and improved phosphor designs are not part of the  
15 claimed inventions.

16           These disparate test results also call attention  
17 to the fact that the two patents failed to provide a  
18 meaningful disclosure what components were used to achieve  
19 any of the stated results or enable any of the stated  
20 ranges of efficiency.

21           In particular, the '531 Patent doesn't even  
22 identify the specific LEDs or associated performance levels  
23 used in the prototype that supposedly reached 113.5 lumens  
24 per watt.

25           Meanwhile, even before LLF was doing its

1 experimentation, other lighting engineers were using  
2 different methods to achieve similar or higher efficacies.  
3 We will introduce at trial evidence of such prior art,  
4 including work by the Nobel laureate Shuji Nakamura. The  
5 patents not only fail to describe how few embodiments  
6 described in them achieve the claimed efficacy numbers, the  
7 patents do not explain how to reach claimed efficacy levels  
8 above those numbers.

9           Perhaps recognizing this problem, LLF added to  
10 the patents during prosecution specific claim ranges, for  
11 example, 60 to 70 lumens per watt or 70 to 80, and so on,  
12 in dependent Claims 24 to 26 of '819 Patent. These ranges  
13 are not tied to any specific embodiments and seem largely  
14 artificial, perhaps even arbitrary given the  
15 specifications.

16           The only partial exception again concerns Claims  
17 10 and 12 of the '531 Patent, reflecting the one 2007 test  
18 that reportedly reached 113.5 lumens per watt, but even  
19 here, there is, again, no meaningful disclosure concerning  
20 the LEDs that were used despite the fact that LEDs  
21 themselves had been the biggest driver of improved  
22 efficiency in the industry since then.

23           Nothing in either patent teaches what specific  
24 combination of red LEDs and blue-shifted yellow phosphors  
25 would allow a person of ordinary skill to reach any

1 specific limit, only general disclosures that some efficacy  
2 advances could be made using their new BSY+R approach.

3           Despite this, the patent claims are not even  
4 limited to the BSY+R approach. More recently still, Cree  
5 Lighting's expert, Dr. Wetzel, proposed new specific limits,  
6 seemingly made -- because we can't find anything else to  
7 support them, seemingly made from whole cloth admitting at  
8 his deposition that there is an implied limit on the  
9 '819 Patent of 99 lumens per watt. He could point to  
10 nothing specific to justify that limit, but clearly  
11 recognizes that, as written, the unbounded ranges of the  
12 '819 Patent render it invalid.

13           Even though the '513 Patent claims priority from  
14 the '819, he also speculated that this seemingly unbound  
15 ranges from 85 lumens per watt to infinity have an implied  
16 upper limit of 250 to 300 lumens per watt that a person of  
17 ordinary skill would have recognized based on accepted  
18 theoretical efficiency limits at the time. But remarkably,  
19 14 years later, those ranges still aren't enabled today.  
20 The broader point is that Cree evidently recognizes that  
21 its patents are invalid if there are no actual limits.

22           Turning to a further problem with the enablement  
23 of the '819 and the '531 Patents is that the BSY approach  
24 does not enable the full range of the claimed invention, or  
25 even particular ranges of the claims. They are further



1 invalid because the specification makes clear, the only  
2 invention, however incompletely disclosed, was BSFY+R, this  
3 has proven to be an invention that is at most a footnote to  
4 history, as the prior approaches I mentioned earlier have  
5 carried the day with improved LED designs and better  
6 phosphors.

7           The BSY+R approach gained no traction in the  
8 market, and instead, efficiencies continued to climb  
9 because the LEDs themselves became vastly more efficient.  
10 Even though the inventors disparaged these prior methods,  
11 such as phosphor conversion used by RAB, Cree Lighting is  
12 nonetheless suing RAB for something it did not invent.

13           The '819 or '531 Patents simply do not teach or  
14 suggest how to achieve improved lighting efficiency using  
15 the phosphor conversion or RGB approaches; to the contrary,  
16 they teach away from these methods.

17           I'm drawing to an analogy that -- I was reminded  
18 of the considerable excitement some 40 years ago that  
19 surrounded Mazda's marketing of its new cars built on the  
20 Wankel rotary engine that promised greatly enhanced fuel  
21 efficiency during the energy crisis some 40 years ago, and  
22 all of the cars turned out not to deliver on their promised  
23 fuel efficiencies gains. If we can draw a parallel to this  
24 case, it would be as if Mazda, relying on that one engine  
25 design, claimed all methods of improved fuel efficiency for

1 automobiles, even improvements to older internal combustion  
2 engine designs or maybe even hybrid or electric cars.

3 I will also mention before I move on that the  
4 patents, both independent claims specify there must be at  
5 least one LED, and the '819 and '531 Patents are simply  
6 inconsistent in that respect with the BSY+R approach which  
7 requires, as I noted at the beginning, at least two LEDs.

8 Finally, most of RAB's products are now in the  
9 range of up to 160 lumens per watt, and substantially all  
10 of the industry is now above the 60 or 85 lumen per watt  
11 range, and is deciding products in the hundred -- as we  
12 will show at trial, the range of 140 lumens per watt or  
13 higher. Again, as the DOE foresaw in 2002 and nobody is  
14 practicing LED lighting devices having lumens per watt  
15 efficiency ranges in the 300 range.

16 Now, I have said little about the three other  
17 patents, so let me touch on them briefly.

18 Regarding the '570 Patent, the lens patent, for  
19 over 50 years, lens designers have known how to create  
20 asymmetric lenses to direct light where it is needed; for  
21 instance, to illuminate roadways, but not the homes and  
22 structures that abut the roadways.

23 In the old days, designers applied laws of  
24 optics manually to design their lenses; whereas, the Cree  
25 lens was designed using a ray trace software program that

1 has long been standard in the industry.

2           Regardless, there is really nothing new here  
3 other than perhaps the specific shape that the RAB lenses  
4 don't use; that is, the shape of the Cree lens. The one  
5 embodiment shown in the patent.

6           The way this invention is actually claimed we  
7 believe precludes a finding of infringement because RAB's  
8 lenses do not satisfy all of the limitation of the claims  
9 in issue.

10           Regarding the air flow '270 Patent, the  
11 mechanical need to dissipate heat in LED and other lighting  
12 devices was nothing new, even as of 2006 when the earliest  
13 application in this family was filed.

14           Specific prior art we will show at trial reveals  
15 that the precise structure disclosed in the '270 Patent was  
16 already known. One of the references, one published more  
17 than a year earlier, disclosed all of the claimed elements  
18 in the invention.

19           Regarding the '449 downlight patent, Your Honor  
20 has already construed the term "trim element space" in a  
21 manner that we believe precludes infringement. RAB's  
22 accused products plainly place the driver for their devices  
23 outside the trim element space. Indeed, Cree specifically  
24 added to the limitation of trim element space to avoid  
25 prior art cited against it in the prosecution of the '449

1 Patent.

2           It is inconsistent not only with Your Honor's  
3 claim construction ruling, and Cree's prior arguments to  
4 PTO to contend that the claim is so broad as to include  
5 lighting devices where the driver is outside of the trim  
6 element space.

7           Before I close, I just want to touch briefly on  
8 the domestic industry prong, and note that I won't go into  
9 detail here because we're on the public record, but we do  
10 not believe Cree Lighting will be able to satisfy its  
11 burden regarding the two lumens per watt patents, Cree  
12 Lighting has not provided sufficient data or analysis to  
13 limit its claimed domestic investments so the products that  
14 exceed its own newly proposed upper bound limits on the  
15 lumen per watt ratings.

16           With respect to the '449 Patent, Your Honor will  
17 hear that those products are manufactured -- Cree's  
18 products that is are manufactured overseas, imported into  
19 the United States as finished products, and have no  
20 production-related expenses or investments in labor, plant  
21 or equipment in the United States, and all of Cree  
22 Lighting's domestic industry products contain components  
23 that are manufactured overseas.

24           In closing, I simply want to note, although it  
25 perhaps does not need to be said, but simply because

1 Mr. Erwine raised it, we believe the facts and the  
2 arguments that will be presented at this trial  
3 substantially distinguish this case from the 947  
4 Investigation. Thank you.

5 JUDGE CHENEY: Thank you, Mr. Moskin.

6 I do have a follow-up question. It is similar  
7 to the one I asked Mr. Erwine. It is your last point.

8 What is your take on what the 947 ID said about  
9 enablement of the '819 Patent?

10 MR. MOSKIN: My understanding is that the  
11 Commission staff recommended reconsideration of Judge  
12 McNamara's rulings, but we were never further enlightened  
13 as to what the full Commission's views might have been on  
14 those.

15 JUDGE CHENEY: Was the issue of the claims that  
16 had no upper boundary squarely addressed?

17 MR. MOSKIN: I believe that was the principal  
18 focus of the Commission staff's stated concerns in  
19 recommending overturning Judge McNamara's decision.

20 JUDGE CHENEY: Okay. Thank you.

21 I do have a question for Mr. Erwine in light of  
22 what I have heard from Mr. Moskin in the opening.

23 Mr. Erwine, I've heard from Mr. Moskin that  
24 there may be evidence of some implied limit on the '819 and  
25 '531 Patent claims that have no upper boundary in their

1 lumens per watt range. I would really like to know what it  
2 is I'm trying today.

3 So are you contending that there is some kind of  
4 implied limit in those claims or not?

5 MR. ERWINE: Absolutely not, Your Honor.

6 JUDGE CHENEY: Okay. Thank you.

7 Thank you all for the opening statements. They  
8 were very helpful. Let me tell you a little bit about how  
9 we'll run breaks during this investigation.

10 In general, every day, we will take a break for  
11 15 minutes at 10:45 a.m. We will take another break for  
12 one hour at 12:30. We will take another break for 15  
13 minutes at 3:00. Then we will take -- we'll finish the  
14 hearing day at 4:30. These are -- I hope I have gone  
15 through those breaks with you in the past.

16 So that means we have about 30 minutes before  
17 our first morning break, and we're ready for Cree to  
18 present its first witness. The floor is yours, Mr. Erwine.

19 MR. ERWINE: Thank you, Your Honor.

20 Cree Lighting calls as its first witness,  
21 Mr. Kurt Wilcox.

22 THE WITNESS: Good morning.

23 JUDGE CHENEY: Good morning.

24 MR. ERWINE: Sorry, Your Honor. Sorry to  
25 interrupt.

1                   JUDGE CHENEY: No problem. So when you call  
2 your witness. I will put them under oath, and then you can  
3 proceed.

4                   KURT WILCOX,  
5 a witness, having been first duly sworn, was examined and  
6 testified as follows:

7                   JUDGE CHENEY: Thank you.

8                   Please proceed, Mr. Erwine.

9                   MR. ERWINE: Thank you, Your Honor.

10                   DIRECT EXAMINATION

11 BY MR. ERWINE:

12           Q.     Good morning, Mr. Wilcox, and thank you for  
13 being here today.

14                   Could you please briefly introduce yourself to  
15 the Court.

16           A.     Good morning, Your Honor. My name is Kurt  
17 Wilcox.

18           Q.     Mr. Wilcox, where are you currently employed?

19           A.     At Cree Lighting.

20           Q.     What is your current position at Cree Lighting?

21           A.     Vice president of research and development and  
22 intellectual property.

23           Q.     How long have you been employed by Cree  
24 Lighting?

25           A.     That's a bit of a complicated answer to that

1 question, but I started working at Ruud Lighting in 1999.

2 In 2011, Ruud Lighting was acquired by Cree  
3 Incorporated, which combined that acquisition plus  
4 previously acquired LED Lighting Fixtures, Inc., or LLF,  
5 into a new division called Cree LED Lighting Systems.

6 Then in 2019, that division was acquired by  
7 Ideal Industries.

8 Q. Mr. Wilcox, can you please provide a high-level  
9 summary of your work over the past 20 years leading up to  
10 your current position at Cree Lighting.

11 A. Yes, I've worked in most facets of product  
12 development from specifically designing and engineering  
13 lighting and LED lighting products.

14 I've also done research and development into  
15 those core technologies. More recently, I've been  
16 supporting kind of the corporate strategic decision-making  
17 as well as enforcing our intellectual property.

18 Q. You mentioned intellectual property.

19 Do you know approximately how many patents are  
20 in Cree Lighting's patent portfolio?

21 A. Approximately 1100 US patents.

22 Q. Are you a named inventor on any of those  
23 patents?

24 A. Approximately 200.

25 Q. Are you familiar with Cree Lighting's product



1 portfolio?

2 A. Absolutely, yes, I am.

3 Q. I believe you have some documents available to  
4 you. Our technician, Mr. Jay, will help as well.

5 Could you please take a look at the document  
6 marked CX-315, and let us know if you recognize that  
7 document?

8 A. Yes. This is from January 2016 presentation by  
9 Cree to the Illinois Green Economy Network to discuss  
10 sustainability in that state.

11 Q. Next, Mr. Wilcox, could you please turn to  
12 CX-315.3, page 3 of that document, and tell us what's shown  
13 here.

14 A. Yes, it is a highlight of several important  
15 events throughout the history of Cree Lighting.

16 Q. All right. Can you walk through those for us,  
17 Mr. Wilcox?

18 A. Yes.

19 In 2007, both LLF released the first  
20 commercially viable indoor lighting product, and Ruud  
21 Lighting released the first commercially viable outdoor  
22 lighting product.

23 In 2008, LLF was acquired by Cree. In the time  
24 period of 2009, 2010, both those companies continued to  
25 push the performance limits and the innovations and open up

1 new markets for LED lighting, including downlights,  
2 troffers, and parking structures, for example.

3 In 2011, that's when Ruud Lighting was acquired  
4 by Cree, and 2012 highlights the XSP products when really  
5 the first significant price point of \$200 was achieved with  
6 an outdoor street lighting product.

7 2013 represented a major milestone when the LED  
8 light bulb was launched, really helping break open that  
9 market and continued development includes 2014 when the OSQ  
10 product line was launched it really benchmarking the  
11 optical and thermal performance again.

12 Q. Thank you, Mr. Wilcox.

13 Earlier you mentioned the acquisition by Ideal  
14 Industries in 2019.

15 Could you look at JX-62C, and let us know if you  
16 recognize that document.

17 A. I do. It is the purchase agreement between  
18 Ideal Industries as the buyer and Cree Incorporated as the  
19 seller, dated March 14, 2019?

20 Q. Could you also take a look at JX-126C, and let  
21 us know if you recognize that document?

22 A. I do. It's the intellectual property  
23 assignment, and license agreements portion of that previous  
24 sale agreement.

25 Q. Thank you, Mr. Wilcox.

1           Putting that document aside for a moment, could  
2 you please take a look at JX-1, JX-2, JX-3, JX-4 and JX-5.

3           Once you've looked at those, can you let us know  
4 if you recognize those documents?

5           A.     I see JX-1. I recognize that one. I recognize  
6 JX-2. I recognize JX-3. I recognize JX-4. And I  
7 recognize JX-5. These are the patents-at-suit in this  
8 case.

9           Q.     Do you know whether those patents, JX-1, JX-2,  
10 JX-3, JX-4, and JX-5 are subject to the intellectual  
11 property license and alignment agreement we just discussed?

12          A.     Yes, they are.

13          Q.     Mr. Wilcox, are you a named inventor on any of  
14 the patents at issue here?

15          A.     Yes, I am; the '270 and '570 patents.

16          Q.     Lets start with the '270 Patent, which is JX-4.

17                 Can you tell the Court, in general terms, what  
18 is the invention or the inventions set forth in the  
19 '270 Patent?

20          A.     Yes, I can. Thermals have always been some of  
21 the most difficult challenges in LED lighting products, in  
22 particular, the thermal cross-talk between the driver, and  
23 the LEDs, which both produce heat and are sensitive to it.

24                 So this invention involved separating the LEDs,  
25 and the driver into a chamber via airspace, which allowed

1 air and water flow.

2 Q. Thanks, Mr. Wilcox.

3 Can you tell us a little bit more about the  
4 problem that the '270 Patent was trying to solve?

5 A. Yes, it's general actual of thumb for  
6 electronics that 10 degrees heat reduction in temperature  
7 will double the lifetime of the product, so it really is a  
8 key thing that we work on.

9 So the -- keeping the two items separate so you  
10 can design the correct amount of heat sync for each one of  
11 those two components, and then allowing the airflow to  
12 really separate those two areas, and sources of heat as  
13 well as allowing the water to flow through for cleaning,  
14 and separation was key issues being examined.

15 Q. Would increased temperature have any negative  
16 effects on the LED or LEDs within the device?

17 A. Yes, it would. Increased temperature is the  
18 primary cause for reduction in lumen maintenance over time  
19 for LEDs.

20 Q. What was your solution in the '270 Patent?

21 A. That separating those two spaces allowed us  
22 to -- or the two sources of heat, and eliminating the  
23 thermal cross-talk aloud us to design the exact right  
24 amount of heat syncing.

25 And the testing of all of our original

1 simulations and predictions really turned out that this was  
2 working quite effectively. In fact, we were really able to  
3 optimize the system, in particular, utilizing natural  
4 convection to minimize the total amount of aluminum use in  
5 the heat syncs as well as provide water drainage paths that  
6 met the UL requirements for weep holes and drain holes.

7 Q. What sort of LED light source would this concept  
8 improve?

9 A. This would work for any LED light source.

10 Q. How did your design perform thermally?

11 A. It performed very well. We were able to achieve  
12 our results and minimize the total amount of material used  
13 in that system.

14 Q. Did you initially implement this concept in any  
15 particular product families?

16 A. Yes, we did. The first product we launched were  
17 THE EDGE« Series, both the square and the round family.

18 Q. And to your understanding, Mr. Wilcox, how did  
19 the marketplace respond to THE EDGE« products?

20 A. They were very well received. These were our  
21 first products in the LED lighting space, and they were  
22 very well accepted, and sold very, very well.

23 In fact, within the first year of their launch,  
24 Ruud stopped all development of non-LED light fixtures, and  
25 put all resources into working on LED light fixtures only.

1 Q. Thank you, Mr. Wilcox.

2 Let's turn to the '570 Patent, which is JX-5,  
3 and once again, in general terms, can you describe what is  
4 the invention or inventions that are set forth in the '570  
5 Patent?

6 A. Yes, that is a lens for an LED product, which  
7 works to improve the asymmetric targeting of the  
8 distribution using an internal structure for total internal  
9 reflection.

10 Q. At a high level, can you describe the problem  
11 that the invention of the '570 Patent was trying to solve?

12 A. Yes. One of the most difficult lighting  
13 applications that we work are on asymmetric lighting.

14 So if you think about a multi-lane roadway where  
15 you have a light on a pole on one side of the road, and  
16 you're trying to push the light all the way forward as well  
17 as a really far distance down the road, and the poles can  
18 be spaced over 100 feet apart. There are very stringent  
19 performance criteria required to meet the lighting layouts  
20 in that application.

21 Q. Were there shortcomings with your existing  
22 solutions to asymmetric area lighting at that time?

23 A. While we were able to meet the amount of light  
24 in the targets on the roadway application, we ended up  
25 wasting a lot of light that, you know, basically we didn't

1 get credit for. The customer didn't need or want, behind  
2 the pole, but -- because we weren't able to shift all of  
3 the light over to the preferential side.

4 Q. Mr. Wilcox, did you prepare some demonstratives  
5 to assist with your testimony today?

6 A. Yes, I did.

7 Q. If we could pull up CDX-8.2.

8 Is this one of those demonstratives?

9 A. Yes, it is. This is a representation of a  
10 cross-section of our first generation of LED lighting  
11 optics, or Gen A product.

12 Q. Did this optic allow for asymmetric light  
13 distribution?

14 A. Yes, it.

15 Q. How so?

16 A. The light was emitted out of the LED, which is  
17 represented in yellow in this graph, and the blue device is  
18 the optic.

19 The outer surface of the optic is the only one  
20 that was doing any redirection or control of that light.

21 So any light going to the right, which would be  
22 the preferential side in this view, you know, was going the  
23 right direction.

24 Any light that was going to the left, we could  
25 only redirect with one bounce or one control of that light

1 ray.

2                   And based on the materials, the systems, and the  
3 tolerances, you know, about 35 degrees was all that we  
4 could redirect a ray.

5                   So the light that was aimed to the left, we  
6 couldn't redirect it all the way over to the preferential  
7 side. It would end up being still predominantly behind or  
8 below the light fixture, not in the target area.

9           Q.       So at that time, did you attempt to create an  
10 optic with a better a asymmetric distribution?

11          A.       Yes, I did.

12          Q.       Can you tell us how so?

13          A.       Sure.

14                   I considered a couple of solutions. The root of  
15 the problem, in my mind, was I had to redirect the light  
16 going the non-preferential way over to where I needed it.  
17 So the first thing I considered was inserting actually a  
18 metal reflector in there to directly bounce the light the  
19 right direction. I did some simulations of that, and that  
20 seemed to work well.

21                   I did recall work I had done on an earlier  
22 project to get asymmetric angling of light with a TIR wall.  
23 So I did some modeling to add in an airspace which would  
24 create a TIR wall in the back of the optic and redirect the  
25 light towards that preferential side.



1 Q. You mentioned a couple of approaches. Which one  
2 did you ultimately pursue?

3 A. I pursued the second approach.

4 Q. I believe you have another demonstrative to  
5 describe that. Can you pull up CDX-8.3?

6 A. I see it.

7 Q. Is it this?

8 A. Yes. This is a cross-section actually from the  
9 patent of one of the early commercial embodiments of the  
10 optic practicing the practice that we're discussing.

11 Q. How does this model relate to the '570 Patent?

12 A. This shows the air gap discussed, highlighted in  
13 Section 41, and the TIR wall directly to the right of that  
14 showing some of those key features in this invention.

15 Q. I think you mentioned Gen C. Did the Gen C  
16 product have any feature that Gen A did not?

17 A. I'm sorry. Yes, this is the Gen C  
18 cross-section -- or optic from the -- that we discussed  
19 that utilizes this invention, and that the two most  
20 important features were the air gap and the TIR wall which  
21 I had identified.

22 Q. Could you remind us again what TIR stands for?

23 A. Total internal reflection.

24 Q. What was the significance of the TIR wall?

25 A. The significant benefit was it allowed a very

1 highly efficient redirection of that light that was aimed  
2 to the non-preferential side. It would redirect it  
3 starting to go towards the preferential side. That in  
4 combination with still being able to utilize the outer  
5 surface of the optic for an additional 35 degree  
6 redirection meant that we could now move a significant  
7 portion of that light that was to the non-preferential side  
8 to the preferential side, significantly increasing  
9 basically our target efficiency or the amount of light  
10 which was hitting the desired asymmetric target.

11 Q. Mr. Wilcox, how did you go about creating this  
12 design?

13 A. I personally modeled all of these optics in  
14 SOLIDWORKS, which is our 3D solid modeling tool at the  
15 time, generating all the features inside of that.

16 I would export that solid model into our  
17 photometric simulation software, and that simulation  
18 software would basically run a ray trace through the model  
19 predicting how all of the light, light rays specifically,  
20 interacted with that optical system, and would give you a  
21 prediction on the outcome of exactly what that light  
22 pattern exiting the optic would look like. It generally  
23 was an IES file, is the specific name that was used in the  
24 industry, that would have information such as efficiency  
25 and some, you know, key distribution information.

1           I would then take that file, and I would put it  
2 into another piece of software called AGi32, which was a  
3 application simulation software. So you would take an IES  
4 file, whether it be from prediction or from a real test,  
5 put it in there, and it would simulate how the light  
6 actually interacted on your surfaces of interest, such as a  
7 roadway target or indoor application, and you'd get the  
8 performance there.

9           I'd take the information from how the optic  
10 worked in the application, and then decide what I needed to  
11 do in the optic to change -- moving light from one  
12 direction to another, change the solid model, re-export it  
13 and, you know, kind of continue that simulation loop, and  
14 iterate until I got the results I desired.

15         Q.     You referenced a photometric simulation  
16 software. Do you recall what specific software you used?

17         A.     I don't remember exactly the version of the  
18 software. We changed the simulation software three or four  
19 times through the years.

20         Q.     How did you use the information from the tools  
21 you just discussed?

22         A.     It was very helpful for me to evaluate were we  
23 actually meeting the specific layout metrics, you know,  
24 things like maximums, minimums, you know, ratios, that sort  
25 of thing.

1 I'd also review the main beam, was it where  
2 expected, you know, the uniformity of the light, and try to  
3 help decide where there was too much light versus where  
4 there was not enough, and adapt the design of the optic and  
5 go adjust the solid model to make those changes, and then  
6 re-export that data and do the simulations again.

7 Q. How many times would you go through this process  
8 of creating a model and simulating?

9 A. You know, typically, dozens on a new design, it  
10 could easily be, you know, around 100.

11 Q. Thank you, Mr. Wilcox.

12 MR. ERWINE: Your Honor, we'd like to go briefly  
13 on the Cree Lighting CBI record. Mr. Wilcox is going to  
14 testify about some of the specific details about the  
15 modeling he did for one of Cree Lighting's products.

16 JUDGE CHENEY: Okay. We're now on the Cree  
17 confidential record. If you're not subscribed to the  
18 protective order, you will need to go to the breakout  
19 session that my attorney adviser is going to be initiating  
20 here shortly. Watch for the notice to appear on your  
21 screen.

22 Are we ready to proceed, counsel?

23 MR. ERWINE: Yes. I was waiting for your cue,  
24 but I'm happy to proceed.

25 (Whereupon, the trial proceeded in confidential

1 session.)  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

1 O P E N S E S S I O N

2 JUDGE CHENEY: Let me just mention to counsel  
3 that when we go back on the public record, you might want  
4 to communicate with your folks offline to make sure that  
5 they can find their way back into the hearing room.

6 Please proceed with your direct examination,  
7 Mr. Erwine.

8 MR. ERWINE: Thank you very much, Your Honor.

9 BY MR. ERWINE:

10 Q. Mr. Wilcox, did the photometric software itself  
11 play a role in modifying the model between iterations?

12 A. It did not. I personally would review the data  
13 and the output of the simulations, and decide exactly how  
14 to modify the solid model myself, make those changes,  
15 export, and re-repeat that simulation to understand the  
16 results.

17 Q. At that time, to the extent you recall, did the  
18 photometric simulation software have functionality that  
19 could automatically design a lens to achieve a desired  
20 light output?

21 A. The only thing that I knew of at the time was  
22 there was a module from Photopia that would allow for  
23 optimizing a single plane of a reflector. I was using  
24 refraction for all of these optics, so that module was not  
25 helpful. So I certainly never used that module, ever.

1 Q. To your knowledge, Mr. Wilcox, what was the  
2 customer reaction to products incorporating your Gen C  
3 optics?

4 A. It was tremendous success. In fact, our first  
5 customer that we serviced with that optic, it helped us win  
6 the City of Los Angeles job, which was over 150,000 street  
7 lights. We were one of the two approved suppliers, and we  
8 won the vast majority of that install base for that  
9 application.

10 Q. What role did the optical design have in driving  
11 that success?

12 A. It was critical. By having an improved target  
13 efficiency, we could use overall less amount of light and  
14 lower wattage for the fixture to make our product more  
15 competitive especially when the fixtures were very  
16 expensive at that point in time.

17 Additionally, it had a tremendous benefit to the  
18 City of L.A. in that we had significantly less wasted  
19 light, and it overall reduced the amount of light pollution  
20 in the area.

21 In fact, if you have flown into Los Angeles in  
22 the last few years, it's a completely different experience  
23 versus what it was 15 years ago.

24 Q. Do you know which specific product was sold to  
25 the City of Los Angeles?

1 A. All of the initial sales were of the LEDway.

2 Q. Is the LEDway one of the '570 Patent domestic  
3 industry products?

4 A. Yes, it is.

5 Q. Thank you, Mr. Wilcox.

6 I'd like to turn now to some of Cree Lighting's  
7 current products.

8 Are you familiar with the LED lighting products  
9 that Cree Lighting currently sells?

10 A. Yes, I am.

11 Q. I believe you've prepared another demonstrative,  
12 CDX-8.4, if Mr. Jay could pull that up.

13 Mr. Wilcox, can you tell us what you have  
14 included in this slide?

15 A. Yes. This is all of the domestic industry  
16 products in this case listed down the center, and there are  
17 photographs of several of those products around that.

18 Q. Can you describe in a little more detail what's  
19 shown here?

20 A. Sure. I can talk at a high level and describe  
21 the different applications which are serviced.

22 We service the -- nearly all of the commercial  
23 lighting markets with these domestic industry products,  
24 including things like parking structures, and patrolling  
25 stations, high-vibration applications such as bridge and



1 tunnel applications.

2           We do commercial in -- spaces, interior such as  
3 troffers or new construction retrofits or new construction  
4 recessed cans as well as retrofit products for those  
5 recessed cans, both commercial and residential.

6           We have street lighting products specifically.  
7 We have area lighting products. Things used for parking  
8 lots or, you know, campuses, corporate or, you know,  
9 educational campuses.

10           We have flood lighting products, which are used  
11 for things like lighting signs or flags, building facades,  
12 or even large ones such as airport tarmacs.

13           We have high-performance lamps which are used  
14 for architectural grade, you know, retrofit lighting with  
15 all of those great color quality and beam control  
16 applications.

17           We have linear products which are used for  
18 spaces like hallways or back offices or even low bay  
19 applications.

20           Additionally, we have a new skylight product,  
21 retrofit product, which is really leading the front and  
22 kind of the new area of human-centric lighting.

23           JUDGE CHENEY: Thank you. This seems to be a  
24 good point for to us take our morning break.

25           Let me just give some advice to Mr. Wilcox.

1           Mr. Wilcox, you're not to discuss the testimony  
2 that you're giving today with anyone during this break,  
3 including your attorneys.

4           Do you understand?

5           THE WITNESS: I understand.

6           JUDGE CHENEY: Counsel, we have not talked on  
7 the record today about invoking the rule about exclusion or  
8 sequestering witnesses.

9           Is there anything that you would like to say?

10          Mr. Erwine, you first.

11          MR. ERWINE: I believe that we have discussed  
12 this with respect to Mr. Barna with RAB's counsel. They  
13 requested the opportunity for Mr. Barna to participate, and  
14 we said that was fine.

15          JUDGE CHENEY: Okay. So from your perspective,  
16 for Complainant, Cree, there's no need to sequester  
17 witnesses in this investigation?

18          MR. ERWINE: That's correct, Your Honor.

19          JUDGE CHENEY: Okay. Does RAB have a view they  
20 wish to put on the record?

21          MR. MOSKIN: We have nothing further to add to  
22 that.

23          JUDGE CHENEY: Okay. So RAB also does not seek  
24 to sequester witnesses during the hearing?

25          MR. MOSKIN: Yes. I do want to note one little

1 technical issue that my clients did point out that -- I  
2 don't know if the technical staff on your end -- on the ITC  
3 end can look into this.

4           There was apparently, or at least there was at  
5 first time we went into private or CBI mode, it was about a  
6 minute lag before -- once we went back on the public record  
7 that they were brought back into the hearing.

8           I don't know if there's something they need to  
9 do, or that can be done on the ITC end to facilitate  
10 bringing them back sooner.

11           JUDGE CHENEY: Okay. We'll look into that.

12           MR. MOSKIN: Thank you.

13           JUDGE CHENEY: Mr. Moskin, I am -- my  
14 understanding is that they can move themselves. So the  
15 problem is they don't know that they can move themselves.

16           MR. MOSKIN: Yes.

17           JUDGE CHENEY: So one thing that could help is  
18 if you communicate with them using some offline mechanism  
19 to let them know that they can move themselves.

20           MR. MOSKIN: Very well. That may solve the  
21 problem. I can't speak to that. So thank you.

22           JUDGE CHENEY: I will look into it on my end to  
23 make sure I'm not giving you any inaccurate information.

24           With that, we will take our morning break. I  
25 will see you all at 11:00. We are off the record.

1                   (Whereupon, there was a break in the  
2 proceedings, 10:48 a.m. - 11:01 a.m.)

3                   JUDGE CHENEY: Okay. Let's get back on the  
4 record.

5                   I've looked into the breakout session features.  
6 My staff has shortened the amount of time that the  
7 countdown provides to 10 seconds. I cannot shorten it  
8 below that.

9                   But I understand during the practice session,  
10 you were alerted to how you can bring yourself back into  
11 the breakout room using a button. I think it's in the  
12 lower right as soon as you get that alert.

13                   Anyone have any questions that I can help out  
14 with further about breakout sessions? Mr. Erwine?

15                   MR. ERWINE: No, Your Honor.

16                   JUDGE CHENEY: Anyone from RAB?

17                   MR. HICKERSON: No, Your Honor.

18                   JUDGE CHENEY: Okay. Let's proceed now with the  
19 continued direct examination of Cree's first witness,  
20 Mr. Kurt Wilcox.

21                   MR. ERWINE: Thank you, Your Honor.

22                   Mr. Jay, if could you pull back up CDX-8.4.

23 BY MR. ERWINE:

24                   Q. Mr. Wilcox, you were previously testifying about  
25 this slide.

1           Can you tell us what role, if any, these DI  
2 products play in Cree Lighting's overall business?

3           A.     They're foundational to our business. The vast  
4 majority of these products are the support and the reason  
5 that we can provide the solutions that our customers need,  
6 which often have, you know, very varying SKUs required,  
7 different versions of the products so we can support them  
8 with the lead times and the variations that they require.

9           Q.     Thank you.

10           Where are the products shown in CDX-8.4  
11 manufactured?

12           A.     The vast majority of these are manufactured in  
13 our Racine, Wisconsin, facility.

14           Q.     Do you work in Cree Lighting's Racine,  
15 Wisconsin, facility?

16           A.     I do.

17           Q.     How large is Cree's Racine, Wisconsin, facility?

18           A.     We have a substantial building up there. It's  
19 approximately 650,000 square feet.

20           MR. ERWINE: Next, Your Honor, we'd like to go  
21 back to the Cree Lighting CBI record.

22           Mr. Wilcox is going to speak to some of the  
23 details of that facility.

24           JUDGE CHENEY: We're back on the Cree  
25 confidential record.

1                   If you're not authorized to view Cree  
2 confidential information, please remove yourself to the  
3 breakout room.

4                   (Whereupon, the trial proceeded in confidential  
5 session.)

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 O P E N S E S S I O N

2 BY MR. ERWINE:

3 Q. Mr. Wilcox, what type of employees work out of  
4 the Racine, Wisconsin, facility?

5 A. There are many types. There's absolutely  
6 assembly line workers and supervisors, and production,  
7 engineering technical people who help support the equipment  
8 and the testing equipment used to build those products.

9 There are purchasing people. People who work in  
10 quality and receiving to make sure we can get the products  
11 in the door to build the fixtures.

12 There are customer service people who help take  
13 the orders and help support our customers by doing things  
14 like application-level layouts or tech support calls if  
15 there's a problem.

16 We have engineers who help design and, you know,  
17 architect, build, test, get the products listed.

18 Many, many of these people have, you know,  
19 significant training and expertise developed through the  
20 years in these applications.

21 Q. How about at the executive level?

22 A. All of the executives are in the United States.

23 Q. Thanks, Mr. Wilcox.

24 Could you next please take a look at CX-324?

25 A. Yes. I recognize this. This is a photograph

1 from inside of the Racine manufacturing facility. This  
2 shows -- it's one of the main aisles down the center of the  
3 plant, and to the right are multiple assembly lines going  
4 to the right, linear lines.

5           If you look at the signs, the blue and white  
6 signs kind of in the background there, they're labeled XSP2  
7 and 3. Those are two of the assembly lines used to build  
8 the XSP products.

9           Q.     Could you next take a look at CX-326, and let us  
10 know what you see there?

11           A.     Apologies. We'll hopefully have that photo  
12 shortly.

13           A.     Yes, I recognize this. This is a photograph  
14 from inside of our finishing facility. The light-colored  
15 aluminum castings in the front are OSQ housings. Those are  
16 racked up, getting ready to go into our paint line.

17           A.     And then to -- in the back, sort of in the  
18 middle right of the view are the black rectangular objects.  
19 Those are actually door frames for the OSQ housing that  
20 have come out of our E-coat line, and are getting ready to  
21 go into the powder coat.

22           Q.     Does Cree Lighting manufacture LED products in  
23 locations other than in Racine?

24           A.     We do have a factory assembly location in  
25 Florence, Italy, to support our European market, and we



1 also do import some products from contract manufacturers.

2 Q. What types of products are manufactured by those  
3 contract manufacturers?

4 A. The few products that we bring in from contract  
5 manufacturers usually are the most commoditized product  
6 lines that have the least amount of material in them, and  
7 usually have the least product variation. So, you know,  
8 there's not much content and, you know, we can service  
9 those products acceptably through that means.

10 Most of the products that have any large amount  
11 of material or variation, we end up supporting best by  
12 building that locally.

13 Q. What is Cree Lighting's current strategy for  
14 production location or locations?

15 A. We certainly have recognized that the bulk  
16 driver for the cost for products is the direct material  
17 cost and -- you know, including the procurement costs of  
18 that, including shipping and receiving. So in many cases,  
19 it makes sense, most cases, to build those products locally  
20 where we need them.

21 You know, additionally, you know, I think we've  
22 all seen during the pandemic time that, you know, the  
23 supply chain considerations of having products made all  
24 over the world helps further support bringing in the  
25 localized support, localized sourcing of those products,

1 and building and assembly.

2           Additionally, we have a large staff of trained  
3 workers here in the US building the products and, you know,  
4 we've seen that during the pandemic times, again, you know,  
5 we invested a lot of time, money and effort to allow them  
6 to continue to build products as we were identified as a  
7 key industry supporting infrastructure.

8           So we have been building the entire time. And,  
9 you know, they responded very well, and we want to continue  
10 to provide them opportunities that they've earned to keep  
11 supporting their families.

12           Q.     Now, with respect to component sourcing and  
13 costs, are the components used to manufacture LED products  
14 in Racine sourced domestically or abroad?

15           A.     They are sourced in both locations, but the  
16 significant portion of those materials are domestic, in  
17 particular, you know, heavy outdoor products or a lot of  
18 industrial products indoors have a substantial amount of  
19 metal, things like castings and extrusions and stampings,  
20 and those make sense to source more local as we have a  
21 decades-long history with many, many suppliers in this  
22 area.

23           Q.     Thank you, Mr. Wilcox.

24           MR. ERWINE: Your Honor, if we could once again  
25 go on the Cree Lighting CBI record. We're going to look at

1 spreadsheets that were prepared by Mr. Wilcox concerning  
2 builds and material cost.

3 JUDGE CHENEY: We now on the Cree confidential  
4 record.

5 (Whereupon, the trial proceeded in confidential  
6 session.)

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 O P E N S E S S I O N

2 BY MR. ERWINE:

3 Q. Mr. Wilcox, does Cree Lighting keep records  
4 about the products it manufactures in Racine?

5 A. Yes, we do. We keep records in the course of --  
6 ordinary course of business at the SKU level for every  
7 variation of product that we manufacture.

8 Q. You mentioned SKU level. I assume you mean SKU?

9 A. That is correct.

10 Q. What do you mean by SKU level?

11 A. We refer to SKU level or a SKU as the -- every  
12 particular combination of product that could be  
13 manufactured. Looking at any of our spec sheets, there's  
14 usually, you know, ranging from a few dozen to sometimes  
15 thousands or tens of thousands of particular variations of  
16 the product.

17 Things that would contribute to those variations  
18 would be, for example, paint color, LED color, particular  
19 power levels used in those product or different optics.

20 Those are all examples of things driving those  
21 different SKU variations.

22 Q. Thank you, Mr. Wilcox.

23 MR. ERWINE: Your Honor, we'd like to once again  
24 go on the Cree Lighting CBI record.

25 We're going to look at some spreadsheets that

1 show various numbers for particular SKUs.

2 JUDGE CHENEY: Okay. We're back on the Cree  
3 confidential record.

4 (Whereupon, the trial proceeded in confidential  
5 session.)

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 O P E N S E S S I O N

2 BY MR. ERWINE:

3 Q. Mr. Wilcox, can you tell us, again, what  
4 information you used to run the calculations for that  
5 column G and the lumens per watt?

6 A. Yes. The data for making the calculations on  
7 lumens per watt is all contained directly on the public  
8 spec sheets for each of the products.

9 All you need to have is the initial delivered  
10 lumens, and the wattage of that product, to make the  
11 division of the lumens per watt to get that.

12 I did the demonstrative to help walk through  
13 that process.

14 Q. Before we get there, let's take a look at one of  
15 those spec sheets that you mentioned.

16 MR. ERWINE: Mr. Jay, could you pull up CX-471.

17 Q. Mr. Wilcox, do you recognize this document?

18 A. I do. It's the spec sheet for THE EDGE« Series  
19 round product line.

20 Q. Thank you, Mr. Wilcox.

21 Now, I think you mentioned that you had some  
22 demonstratives you had prepared for showing how you  
23 performed the lumens per watt analysis.

24 Mr. Jay, if you could pull up CDX-8.5.

25 And, Mr. Wilcox, if you could walk us through

1 that?

2 A. Absolutely.

3 So the image on the left is that same spec sheet  
4 that we just reviewed. The highlighted, and then enlarged  
5 image on the right, CX-471.1 is the ordering table to help  
6 identify all of those different items in the SKU, all of  
7 the various bits and pieces to translate that into all of  
8 the product-level information that could be -- those  
9 options for the product.

10 Go to the next slide.

11 The image on the left has been replaced by  
12 CX-471.7. On the spec sheet, there are multiple tables  
13 with lumen values. Those tables of lumen values are --  
14 have a title highlighted in the upper left with the green  
15 box.

16 This one says type 3 medium distribution with  
17 backlight shield. If you go to the ordering information  
18 tab, you can see that the type 3 medium with backlight  
19 shield is one of the options for the optic, which then  
20 correlates with the box highlighted in the SKU so that you  
21 know that you are using the correct lumen table for this  
22 SKU.

23 If we go to the next page, please.

24 Further detail in the label on the left  
25 highlighted are the three variables that you need to

1 identify in order to select the correct lumen value.

2           The three variables -- dark blue is LED count,  
3 which correlates with the LED count table in the right, and  
4 up to the SKU level above to see that 40 is the correct  
5 number.

6           In red is the drive current, which is -- also  
7 then correlates back to the table on the right and SKU at  
8 the top, and then the light blue is the color temperature.

9           In this case, color temperature is listed as 40K  
10 as an option, which only gets added in if it's there, but  
11 the default is 5700K, which is explained elsewhere on the  
12 spreadsheet.

13           Taking that information -- if you go to the next  
14 slide -- that helps you identify the proper light output  
15 for this SKU is 5,596 lumens.

16           Go to the next table -- slide. Thank you.

17           The table on the left has been replaced by  
18 CX-471.2. There is only one table on this spec sheet with  
19 wattage information. That table has two variables, which  
20 we have already talked about, the LED count and the drive  
21 current.

22           Downselecting with that information, if you go  
23 to the next slide, it shows that the proper input power to  
24 select is 93 watts.

25           So if we go to the next table, doing that



1 division of 5,996 lumens divided by 93 watts is 64.47  
2 lumens per watt. The image at the bottom is highlighted  
3 from JPX-118C, which shows that the lumens in the right  
4 column regarding that same SKU that was provided is 64.47  
5 lumens per watt.

6 Q. And did you use this same methodology for the  
7 other lumens per watt values that are shown in JPX-117C,  
8 118C, and 119C?

9 A. That is correct. We used the same.

10 Q. Thanks, Mr. Wilcox.

11 I think you had one more demonstrative on this  
12 topic.

13 A. Yes. Let's change the slide.

14 These tables show all of the domestic industry  
15 products, and then the corresponding number for each of the  
16 data sheets that's required to do all of the watt  
17 calculations for everything in those three spreadsheets.

18 This is CDX-8.12.

19 MR. ERWINE: Your Honor, for purposes of the  
20 record, would you like the witness to read in the CX  
21 numbers for each of the data sheets?

22 JUDGE CHENEY: No. That's fine.

23 MR. ERWINE: Okay. Thank you, Your Honor.

24 BY MR. ERWINE:

25 Q. Mr. Wilcox, which products can you run

1 calculations for?

2 A. All of the products that were domestic industry  
3 in this litigation.

4 Q. How would one calculate production costs  
5 associated with products practicing the '819 and '531  
6 Patents?

7 A. Those three spreadsheets of information, one  
8 could filter on the lumen per watt value in those columns  
9 on the right and get that information.

10 Q. What does a zero value in the lumen per watt  
11 column indicate?

12 A. Those were not domestic industry products, so we  
13 did not calculate those numbers for this case.

14 Q. Now, switching gears slightly, Mr. Wilcox, you  
15 said earlier that you're one of the named inventors of the  
16 '570 Patent; is that right?

17 A. That is correct.

18 Q. Remind us again what part of the lighting device  
19 that the '570 Patent is directed to?

20 A. That's the optic or the lens.

21 Q. Is there a way to pull up all the SKUs in  
22 JPX-117C, 118C and 119C that contain a particular lens?

23 A. Yes. I made a demonstrative to assist with that  
24 as well.

25 Q. Okay. I believe that's CDX-8.13, if Mr. Jay

1 could pull that up.

2 And can you walk us through, Mr. Wilcox?

3 A. Yeah. So this table contains the product  
4 families in the left column. And then if you were to  
5 filter that initial left column in those other three  
6 spreadsheets by the product codes listed in the center  
7 column, with the addition of if there is a lens listed in  
8 the column on the right, that data will filter the economic  
9 information for exactly the practicing products of the  
10 '570.

11 Q. So is it possible to determine production costs  
12 for SKUs practicing the '570 Patent using this process?

13 A. Yes.

14 Q. Thank you, Mr. Wilcox.

15 Is it possible to determine production costs for  
16 SKUs practicing the '270 Patent using this filtering  
17 process?

18 A. Yes. That's -- there's another demonstrative to  
19 assist with that.

20 Q. Thanks.

21 I believe that's CDX-8.14. Looks like we've got  
22 that there.

23 Can you tell us what's shown here?

24 A. Correct. This is the table, which lists the  
25 products practicing the '270 in the left column. And then

1 once again, if you were to filter the left columns in those  
2 three spreadsheets by the product codes in the right column  
3 of this table, you could get all of the production costs.

4           The one thing to be careful of is when filtering  
5 for the XSP, you need to make sure to exclude XSPR, XSPSM  
6 and XSPW from those costs.

7           Q.     Thank you, Mr. Wilcox.

8           If we could turn back to one of your previous  
9 demonstratives, CDX-8.4, are you familiar with the research  
10 and development work that Cree Lighting has performed on  
11 the product families shown here that we have been  
12 discussing today?

13          A.     Yes, I am.

14          Q.     Do you know where the research and development  
15 work on those products was performed?

16          A.     In the United States, in North Carolina and  
17 Racine, Wisconsin.

18          Q.     Thank you, Mr. Wilcox.

19                 Do you know where the Cree Lighting personnel  
20 who make strategic decisions about which research and  
21 development products to pursue are located?

22          A.     All in the United States.

23          Q.     Was any of the research and development work on  
24 any of these products performed overseas?

25          A.     There was an advanced research activity going on

1 in Hong Kong as one of the founders for LLF live there.  
2 The work that resulted in the patent application was done  
3 by that team. After they had done that work, they moved  
4 off to other projects.

5 All the detailed work involved in the  
6 engineering details for -- and the rest of the R&D  
7 realization for all of those '449 products over multiple  
8 generations was done by the team in Durham, North Carolina.

9 Q. For the '449 DI products in particular, were you  
10 involved with the R&D activities that went into those  
11 products?

12 A. I was involved in some of those activities. Not  
13 long after the acquisition of Ruud by Cree, I had multiple  
14 teams of engineers and R&D people reporting to me who were  
15 in the North Carolina facility, and I personally had  
16 several people who were allocated to projects involving the  
17 '449 products for multiple years. And know of other teams  
18 that were -- people on other teams that were involved in  
19 those activities.

20 Q. Do you know why Cree Lighting used its team in  
21 Durham to engineer, develop and commercialize those  
22 products?

23 A. We found through the years that having the  
24 expertise of all the different aspects of, you know, LED,  
25 optical and system design that we developed in the States

1 led to the best results, even if we ended up manufacturing  
2 a few of the more commoditized products overseas, that we  
3 got the best results with those teams doing the work on  
4 those products.

5 Q. For the domestic industry products in general,  
6 over what time frame was the research and development work  
7 conducted?

8 A. Some of the early products, like THE EDGE, were  
9 launched in 2007, so the R&D work was -- involved a couple  
10 of years before that time period.

11 You know, a product like the Cadiant, which was  
12 just released very recently, it's been the last few years.

13 So looking at all of those products spanning all  
14 that time period, we're talking about a dedicated, you  
15 know, more than decade-long project involving all of these  
16 products.

17 Q. For the older products you mentioned, has the  
18 research and development stopped?

19 A. It does not. We -- to service the needs of our  
20 customers, we continually have to make generational updates  
21 to the products. So we continue to work and develop and  
22 make new versions of them. Obviously, each new version is  
23 building upon the work that was done previously as well.

24 Q. Generally speaking, what type of work is  
25 involved in research and developing these types of lighting

1 products?

2           A.     There's the specific design of components and  
3 systems, you know, making drawings, doing engineering work.  
4 There is the prototyping and building of early samples.  
5 There's the testing of all of those samples to make sure  
6 that we can meet compliance or other regulatory needs of  
7 the system as well as reliability targets.

8                     We also, then, tool the products, actually  
9 hard-tool things to get production parts in.

10                    We'll also then build the assembly lines for  
11 those products, to make sure that we can manufacture and  
12 test and validate all of those products.

13                    You know, all of this is -- it involves a lot of  
14 people who, you know, have expertise and experience over  
15 many years.

16           Q.     Are these same types of activities done for all  
17 the DI product families?

18           A.     Yes, they are.

19           Q.     Mr. Wilcox, more specifically, could you  
20 describe one or two of the research and development  
21 programs for the product families at issue in this  
22 investigation?

23           A.     Yes.

24                    One example would be the XSP product line, which  
25 was a street light. We built that product. It was our

1 third generation street light, but we really started once  
2 again with a clean sheet approach, and optimized the LEDs,  
3 the optics and the electronics altogether in order to  
4 deliver what was, you know, that \$200 price point to really  
5 help enable breaking open that street lighting market.

6 Another product was the Cadiant Dynamic  
7 Skylight, which was, in some regards, an even more  
8 difficult problem to solve. We were trying to make  
9 something which invoked the experience of a skylight, which  
10 is generally designed to be -- or accepted to be a  
11 preferential way to get natural lighting into a space. In  
12 particular, if you think about things like a nurse's  
13 station, which is nowhere near windows and you want people  
14 to be alert all day.

15 So we first had to figure out, what are the  
16 specific attributes and behaviors which invoke those  
17 responses from people. We then had to translate that into  
18 controllable specific elements inside the fixture to build.  
19 And then probably the hardest part was building the control  
20 system around that so that it behaved in the way,  
21 particularly over time, that elicited those responses from  
22 people.

23 Q. Do you view these projects as successful?

24 A. Absolutely. The XSP really broke open that LED  
25 street lighting market, and from that point forward, you



1 know, LEDs have been the standard only thing sold for most  
2 street lighting applications. We've also sold over a  
3 million of those units.

4           The Cadiant Dynamic Skylight is a new product,  
5 so we haven't sold anywhere near that many yet, but it has  
6 still been well received by the market. It's received  
7 multiple industry awards, and is considered, you know, one  
8 of the benchmark fixtures for the new emerging application  
9 of human-centric lighting.

10       Q.     Thanks, Mr. Wilcox.

11           Are you familiar with how Cree Lighting tracks  
12 the costs associated with its research and development  
13 programs?

14       A.     I am. One thing to realize that we're talking  
15 about a very long period of time with multiple mergers and  
16 acquisitions, so there isn't one specific method that works  
17 for all of that time, but there were several primary  
18 methods.

19       Q.     Can you describe one of those primary methods?

20       A.     Yes.

21           Around 2013, Cree started using project codes to  
22 track many of the expenses involved with R&D activities.

23       Q.     Would that accounting capture all of the  
24 expenses related to a particular project?

25       A.     It was -- the expenses captured were definitely

1 accurate, meaning that they were expenses that were  
2 allocated to that project, but it by no means captured all  
3 of the expenses. People weren't always routinely expected  
4 by any stretch to allocate everything they purchased to a  
5 particular project. So there's a significant portion of  
6 the expenses on our general ledger which are not allocated  
7 to any project.

8                   So I don't under-count any expenditure.

9           Q.       Thanks, Mr. Wilcox. Apologies for interrupting.

10                   MR. ERWINE: Your Honor, I would like to go on  
11 the Cree Lighting CBI record. We're going to talk about  
12 some of those specific ledgers.

13                   JUDGE CHENEY: We're now on the Cree  
14 confidential record.

15                   (Whereupon, the trial proceeded in confidential  
16 session.)

17

18

19

20

21

22

23

24

25

1 O P E N S E S S I O N

2 BY MR. ERWINE:

3 Q. Mr. Wilcox, you testified earlier that your  
4 current role with Cree Lighting involves work related to  
5 enforcement of intellectual property; is that right?

6 A. That is correct.

7 Q. Has Cree Lighting licensed any of the patents at  
8 issue in this investigation previously?

9 A. Yes. As a result of litigation, we have a  
10 license with Feit.

11 Q. And do you know which of the patents in this  
12 investigation was asserted against Feit?

13 A. The '819.

14 Q. And have you reviewed the license that that  
15 patent went to?

16 A. Yes, I have.

17 MR. ERWINE: Thank you.

18 Your Honor, I believe this is the last time  
19 we're going to move back to the Cree Lighting CBI record.

20 JUDGE CHENEY: Okay. We're back on the  
21 confidential Cree record.

22 (Whereupon, the trial proceeded in confidential  
23 session.)

24

25

1 O P E N S E S S I O N

2 JUDGE CHENEY: We have just completed the direct  
3 examination of Mr. Wilcox on the confidential record.

4 Is there any cross-examination for this witness?

5 MR. HICKERSON: Yes, Your Honor, we have some  
6 brief cross-examination.

7 This is David Hickerson, representing RAB.

8 JUDGE CHENEY: Please proceed when you are  
9 ready, Mr. Hickerson.

10 MR. HICKERSON: Thank you, Your Honor.

11 CROSS-EXAMINATION

12 BY MR. HICKERSON:

13 Q. Good morning, Mr. Wilcox. As I just told Judge  
14 Cheney, my name is David Hickerson. I'm an attorney for  
15 RAB.

16 I have a few questions to follow up on some of  
17 the questions that Mr. Erwine asked you.

18 MR. HICKERSON: Mr. Hall, could you call up  
19 CDX-8, page 4.

20 Q. This was from your demonstrative, the list of  
21 domestic industry products that Cree is asserting in this  
22 case.

23 Before I show you a very similar exhibit -- it's  
24 RDX-11C.

25 MR. HICKERSON: Mr. Hall, please don't bring it

1 up yet.

2 I just want to confirm with Mr. Erwine that Cree  
3 is not asserting that that document is CBI.

4 We have served this document just before --  
5 well, earlier this morning.

6 MR. ERWINE: Your question is directed to  
7 RDX-11C?

8 MR. HICKERSON: Yes. It's the one-page  
9 demonstrative that we served for Mr. Wilcox's  
10 cross-examination.

11 MR. ERWINE: This was something that you served  
12 last night?

13 MR. HICKERSON: This morning.

14 MR. ERWINE: Okay. I don't know that we've had  
15 an opportunity to review it. Do you know what time it was  
16 served?

17 MR. HICKERSON: Well, why don't we just do this:  
18 Let's go on the confidential record, and we can just take a  
19 look at it and then --

20 JUDGE CHENEY: It's in Box if you need to look  
21 at it.

22 MR. ERWINE: Okay.

23 JUDGE CHENEY: I don't know if you have active  
24 access to Box right now, but I'm looking at it in Box.

25 MR. ERWINE: Okay.

1                   JUDGE CHENEY: It's a summary of DI products by  
2 patent, and product number with check marks.

3                   MR. ERWINE: I think that's probably fine, Your  
4 Honor.

5                   MR. HICKERSON: Okay. It is literally an  
6 excerpt from Mr. Bakewell's expert report. The entirety of  
7 which was designated as CBI, so I did not want to breach  
8 any CBI applications here.

9                   So, Mr. Hall, can you please call up RDX-11C?  
10 Okay.

11 BY MR. HICKERSON:

12                  Q.     So, Mr. Wilcox, this is a list of the same DI  
13 products, I believe, as you had on your page, right, the  
14 difference is that it breaks out by patent, and lists with  
15 a check mark each of the patents for each of products that  
16 Cree has asserted are domestic industry products in this  
17 case.

18                         Are you familiar with that information?

19                  A.     I am.

20                  Q.     Okay. Have you seen this document as it was  
21 contained in Mr. Bakewell's report before?

22                  A.     I do not recall seeing it.

23                  Q.     Okay. That's fine.

24                         Now, you testified that virtually all of the  
25 domestic industry products are manufactured in the United

1 States; is that right?

2 A. That's not precisely what I said.

3 Q. Okay. Well, how would you characterize it?

4 A. I said the majority.

5 Q. So let's look at the list here, and see if you  
6 can tell me which of these series of products are not  
7 manufactured in the United States.

8 A. The CR Series downlight is, the CRT Series, the  
9 DDS Series, the LM Series and the LS -- wait, not the LS,  
10 the UR Series. I apologize.

11 Q. Okay. All right. So --

12 A. I also said CRT Series.

13 Q. That's one, two, three, four, five. Five of the  
14 product families that are manufactured entirely outside of  
15 the United States and imported as finished products; is  
16 that correct?

17 A. Those five products are imported, yes.

18 Q. Right. And that includes all of the products  
19 that Cree asserts practiced the '449 Patent; isn't that  
20 correct?

21 A. That is correct.

22 Q. All right. So the CR Series downlight, the CRT  
23 Series and the DDS Series are the products that Cree  
24 asserts practiced the '449 Patent; is that right?

25 A. That is correct.

1 Q. And some of these products that are manufactured  
2 outside of the United States are asserted by Cree to  
3 practice more than one of the patents in this case; is that  
4 right?

5 A. That is correct.

6 Q. All right. For example, the CRT Series is  
7 asserted to practice three of patents in this case; is that  
8 right?

9 A. That is correct.

10 Q. All right. So let's take a look at the '449  
11 Patent. I think you testified a little bit, that's JX-3.  
12 Yeah. Just that one page.

13 I believe you testified that the inventors in  
14 that patent were not located in the United States; is that  
15 right?

16 A. That is correct.

17 Q. All right. In fact, on the face of the patent,  
18 it indicates Mr. Antony Paul Van de Ven, Wai Kwan Chan and  
19 Ho Chin Wah all listed as being residents of Hong Kong; is  
20 that correct?

21 A. That's what I see on the page.

22 Q. Right. Do you know that those three inventors  
23 were all employees of LLF?

24 A. I believe they were.

25 Q. All right. And --



1 A. They --

2 Q. Sorry. Go ahead.

3 A. I believe they -- when I met these individuals,  
4 they worked for Cree. So that's where I knew them from.

5 Q. Right. And Cree bought LLF in 2008; right?

6 A. Right.

7 Q. That was Cree Inc. bought LLF in 2008, just to  
8 be clear?

9 A. That's correct.

10 Q. LLF was a company that was started to make LED  
11 downlights; is that right?

12 A. I'm familiar that that was at least one of their  
13 early products.

14 Q. All right. The '449 Patent came out of their  
15 design and commercialization of an LED downlight product;  
16 isn't that right?

17 A. That's my understanding of the subject matter  
18 for the patent.

19 Q. All right. So let me talk about the other DI  
20 products that Cree's asserting.

21 In fact, all of the products, all of the  
22 domestic industry products for all of the patents in this  
23 case that Cree is asserting have some level of foreign-made  
24 components; is that right?

25 A. That is correct, to my knowledge, after

1 reviewing the bills of materials, there was some foreign  
2 content.

3 Q. Right. You testified in response to questions  
4 Mr. Erwine asked you that you did an examination of some  
5 bills of materials for some SKUs with respect to the DI  
6 product families in this case; is that right?

7 A. That is correct.

8 Q. You did that to do some sort of analysis to  
9 determine the amount of foreign content that was contained  
10 in those product families; is that right?

11 A. I did.

12 Q. And you sampled, I think, correct me if I'm  
13 wrong, but a total of 36 SKUs?

14 A. I don't -- I believe it was more than that. I  
15 know I did at least two SKUs for each of the 18  
16 Racine-manufactured products, and I thought there was more  
17 than two for a couple of them.

18 Q. Okay. But you did two for each of the 18  
19 product families, that would be 36, and maybe you did a  
20 couple more, so maybe 38, something like that?

21 A. That's the right ballpark, correct.

22 Q. Okay. Now, each of these product families has  
23 thousands of SKUs; correct?

24 A. That is correct. Well, not all of them have  
25 thousands, but most of them have many thousands.

1 Q. Maybe tens of thousands?

2 A. Some of them, Yes.

3 Q. All right.

4 With respect to just the DI products, the total  
5 would probably be several thousand SKUs for each of those  
6 products; right?

7 A. Some of them have just a few variants, for  
8 example, the Cadiants, but others have many thousands.

9 Q. Now, it would have been possible, wouldn't it,  
10 to do an analysis for all of the DI products examining all  
11 of those SKUs?

12 A. If you're asking if it was technically feasible,  
13 it would be possible to use the same technique that I did  
14 for those, you know, approximately 40 SKUs for all of the  
15 families, yes.

16 Q. Right. That might have taken you several weeks  
17 or more?

18 A. Probably months.

19 Q. Do you recall at your deposition saying it would  
20 take you several weeks or more?

21 A. I recall some period of time, yes, there was  
22 multiple -- it sounds about right. I don't remember  
23 precisely.

24 Q. Now, I think you also, in response to a question  
25 that Mr. Erwine asked you, said that, with respect to the

1 US-sourced components -- well, let me ask this: With  
2 respect to the US-sourced components, were the most  
3 expensive components large metal pieces?

4 A. In my analysis -- well, it really depends on  
5 which product type. But certainly, some of the large metal  
6 parts are some of the highest cost items on many of the  
7 bulbs.

8 Q. You also testified about Cree employees who  
9 perform R&D. So let me ask you this:

10 Would you say those are highly skilled engineers  
11 and technicians?

12 A. The majority of them, yes, are engineers and  
13 techs with much experience, yes.

14 Q. Right. So can you give me a ballpark of the  
15 annual salary for one of those highly skilled engineers or  
16 technicians?

17 A. I don't have a precise number off the top of my  
18 head for that.

19 Q. Do you think it's more than \$100,000 a year  
20 annual salary?

21 A. That definitely sounds reasonable, yes.

22 Q. Do you think it's more than \$150,000?

23 A. It depends on -- there certainly are some who  
24 are paid more than that.

25 Q. Right. So can you just -- well, that's fine.

1                   Now, you also -- let me refer you to a page in  
2 your demonstrative. That's CDX-8, page 12. You talked  
3 about the domestic industry products for the '819 and the  
4 '531 Patents; is that right? Do you remember testifying  
5 about that?

6           A.     Yes.

7           Q.     For the '819 Patent, did you select all of  
8 Cree's products that have an LPW rating of 60 or greater?

9           A.     It's my understanding that as long as they had  
10 some of the SKUs that fell into any of the ranges in those  
11 patents, that they were provided.

12          Q.     Right. So --

13          A.     And this is --

14          Q.     Go ahead.

15          A.     This is the data sheets to point to that  
16 information. It's instructed how to do that filtering.  
17 That was my testimony.

18          Q.     Right. So do you know when -- well, did you  
19 work with Mr. Bakewell in selecting the DI products where  
20 the patents asserted in this case?

21          A.     I did have discussions with Mr. Bakewell, but I  
22 don't recall being the person to explain -- to make the  
23 exact selections.

24          Q.     All right. So is it your understanding that for  
25 the '819 Patent, that Cree included all of the Cree

1 Lighting products that had an LPW of 60 or greater?

2 A. I provided the lumen per watt data for all of  
3 the SKUs, and I believe Mr. Bakewell processed that as  
4 appropriate.

5 Q. For the '531 Patent, is it your understanding  
6 that Cree has said that said that all of its LED products  
7 with an LPW of 58 or greater are products that practice the  
8 '531 Patent?

9 A. All I can tell you is that the information on  
10 this sheet indicates what data was used to generate the  
11 lumen per watt values in those tables, and Mr. Bakewell  
12 took that information.

13 Q. Okay. Some of Cree's products have LPW ratings  
14 of greater than 60; right?

15 A. Yes.

16 Q. And some have an LPW rating of greater than 85?

17 A. That is correct.

18 Q. Some have an LPW rating of over 100?

19 A. That is correct.

20 Q. And over 110?

21 A. That is correct.

22 Q. And over 113.5?

23 A. That is correct.

24 Q. All right. Some of Cree's products have an LPW  
25 rating of over 130, don't they?

1 A. That is correct.

2 Q. And over 140?

3 A. I believe that is correct.

4 Q. All right. And even higher than 140, others?

5 A. I believe that is correct.

6 JUDGE CHENEY: Can I pause you right there,  
7 counsel, and ask you to repeat your question about ratings  
8 greater than 60.

9 I think there might be a discrepancy in our  
10 transcript.

11 MR. HICKERSON: Of course.

12 Q. So I asked Mr. Wilcox whether -- well, there  
13 were several questions. Let me ask this one. Make sure  
14 this is the right one. Whether Cree Lighting had products  
15 that had LPW ratings of greater than 60?

16 JUDGE CHENEY: What was your answer to that,  
17 Mr. Wilcox?

18 THE WITNESS: That is correct.

19 JUDGE CHENEY: Thank you. Please continue.

20 MR. HICKERSON: Give me just a second.

21 I don't have any further questions, Mr. Wilcox.

22 JUDGE CHENEY: Thank you, Mr. Wilcox.

23 THE WITNESS: Thank you.

24 JUDGE CHENEY: Before you step down, I have a  
25 couple of questions for you, Mr. Wilcox.

1                   Let me just remind counsel that you can object  
2 to my questions the same way you would object to any  
3 question from your opposing counsel.

4                   Mr. Wilcox, I recall in your testimony your  
5 description of ways that various spreadsheets could be  
6 manipulated to understand information about different  
7 domestic industry products.

8                   Do you recall giving that testimony?

9                   THE WITNESS: There was multiple different  
10 spreadsheets, and multiple different topics, but, yes, I  
11 recall, that Your Honor.

12                  JUDGE CHENEY: Okay. Suppose that I find that  
13 claims covering wall plug efficiencies over 113.5 lumens  
14 per watt are invalid. This is a hypothetical.

15                  Do you have any questions about my hypothetical  
16 before we go on?

17                  THE WITNESS: I believe I understand your  
18 statement.

19                  JUDGE CHENEY: Okay. How would I figure out  
20 which products are part of Cree's relevant domestic  
21 industry if I found the claims to be invalid as described  
22 in the hypothetical?

23                  THE WITNESS: The main spreadsheet that  
24 summarized the domestic industry -- or the main three  
25 spreadsheets that summarized domestic industry costs had a



1 column, I believe column G, that had the lumens per watt  
2 value for every particular product that was in the domestic  
3 industry, and that column could be filtered by any  
4 particular lumens per watt value or range to get that  
5 summary of information related to those costs.

6 JUDGE CHENEY: Thank you.

7 Do you have any knowledge -- let me back up and  
8 lay a little foundation.

9 Do you recall when your counsel asked you about  
10 the '449 Patent, and the research that led to it?

11 THE WITNESS: Yes.

12 JUDGE CHENEY: Do you recall when counsel for  
13 RAB asked you some cross-examination questions about that?

14 THE WITNESS: Yes.

15 JUDGE CHENEY: Do you have knowledge about when  
16 the research and development that led to the invention  
17 disclosed in the '449 Patent occurred?

18 THE WITNESS: In reviewing discovery material  
19 materials on this topic, we can identify a PowerPoint  
20 presentation that was dated that had a clear summary of all  
21 of the data related to the '449 invention that was handed  
22 off to the team in North Carolina to start the design work  
23 on those projects.

24 I don't remember the exact date of that  
25 PowerPoint off the top of my head.

1           JUDGE CHENEY: Was it before the filing of the  
2 application that led to the '449 Patent?

3           THE WITNESS: I don't recall the exact date.

4           JUDGE CHENEY: Okay. Do you know where the  
5 research and development occurred that led to the invention  
6 disclosed in the '449 Patent?

7           THE WITNESS: To my knowledge, the bulk of the  
8 work related to the invention disclosure was done in the  
9 Hong Kong office, although there were people who I learned,  
10 you know, later, who worked for me after I started working  
11 at Cree, who, you know, in North Carolina, who already  
12 supported those activities, building, testing projects,  
13 products.

14          JUDGE CHENEY: Approximately how many people  
15 working for you in North Carolina worked on building and  
16 testing projects and products related to the invention  
17 disclosed in the '449 Patent?

18          THE WITNESS: I would say at least three who  
19 directly worked on my teams over multiple years. There  
20 were, for example, five different generations of the CR  
21 Series downlight.

22                I know there were also a couple other people who  
23 worked on projects that became some of the other products,  
24 for example, for DDS, who worked on different parts of my  
25 team for, you know, more than a year.

1           And then there were several people who were not  
2 on my team but collaborated with those team members on some  
3 of those exact same products.

4           JUDGE CHENEY: What years were those five  
5 different generations of the CR Series downlight developed?

6           THE WITNESS: It was over a multi-year period.  
7 So from the -- I believe the -- I don't remember the exact  
8 date for the CR launch.

9           It was a couple of years after that initial LR6  
10 launch in 2007, and I know we worked on at least two, if  
11 not three of the generations after 2011 when I joined the  
12 company -- joined Cree.

13          JUDGE CHENEY: What is the very latest date that  
14 there was development on one of those generations of the CR  
15 Series downlight?

16          THE WITNESS: I don't remember off the top of my  
17 head.

18          JUDGE CHENEY: Was it later than 2015; do you  
19 recall?

20          THE WITNESS: I don't specifically recall  
21 activity after 2015.

22          JUDGE CHENEY: Okay.

23          Thank you. Those are all the questions that I  
24 have.

25          Is there any redirect for this witness?

1 MR. ERWINE: There is not, Your Honor.

2 JUDGE CHENEY: Okay. Thank you, Mr. Wilcox.

3 Your testimony was helpful to me in  
4 understanding this case. You are excused.

5 THE WITNESS: Thank you, Your Honor.

6 JUDGE CHENEY: Will Cree please call its next  
7 witness.

8 MR. ERWINE: Your Honor, one quick question  
9 before we go to the next witness. I believe that we  
10 were talking about entering exhibits before we got into the  
11 testimony, and I think we may have skipped over that going  
12 to Mr. Wilcox.

13 Did you want to do that now?

14 JUDGE CHENEY: This is a great time.

15 Have you coordinated with the other side about  
16 this motion you're about to make?

17 MR. ERWINE: I'm going to turn this over to my  
18 colleague, Mr. Lasher, but I believe the answer is yes.

19 JUDGE CHENEY: Okay. Mr. Lasher.

20 Let's go off the record for a moment.

21 (Off the record.)

22 JUDGE CHENEY: Okay. Let's go back on the  
23 record.

24 We're back on the record now after taking a  
25 short recess to address some technical issues.

1 Mr. Lasher, please proceed.

2 MR. LASHER: Thank you, Your Honor.

3 Pursuant to your instructions and our discussion  
4 at the prehearing conference on Friday, we put together two  
5 lists of exhibits to be admitted this morning.

6 The first list is a list of unopposed exhibits.  
7 This is, I think, what you referred to as the low-hanging  
8 fruit. We cut it down significantly.

9 This list is comprised of patents, the patent  
10 assignment, the file histories, and the stipulations among  
11 the parties.

12 If you would like me to read those into the  
13 record, or I could send them along to the court reporter,  
14 whatever is your preference.

15 JUDGE CHENEY: My preference is for you to  
16 coordinate with the court reporter and have the reporter  
17 insert the list at this point in the transcript.

18 Is there any opposition to the list of exhibits  
19 that Mr. Lasher is proposing?

20 MR. HICKERSON: No, Your Honor.

21 MR. LASHER: Your Honor --

22 JUDGE CHENEY: Without objection, the exhibits  
23 will be admitted.

24 (Exhibits, as submitted by counsel and reflected  
25 in the attached index, were received into evidence.)

1 MR. LASHER: Your Honor, the second --

2 JUDGE CHENEY: The next motion, Mr. Lasher.

3 MR. LASHER: Thank you. Apologies.

4 The second list of exhibits, which we also  
5 mentioned on Friday is a list of deposition -- deposition  
6 designations, and exhibits that are discussed as part of  
7 those designations.

8 As you recall, you informed us to prepare public  
9 versions of the designations as well, which we will do when  
10 we submit the actual exhibits, but for now, this is just a  
11 list of the designations and accompanying exhibits.

12 JUDGE CHENEY: Okay. So at this point in the  
13 record, will we see JX-XXXXC as well as JX-XXXXX?

14 MR. LASHER: I'm not sure I understand the  
15 question, Your Honor. Apologies.

16 JUDGE CHENEY: Will I see both a confidential  
17 exhibit number and a non-confidential exhibit number on the  
18 list that you're submitting for this point of the record?

19 MR. LASHER: Understood. Yes, Your Honor. We  
20 will do that, correct.

21 JUDGE CHENEY: Okay. Is there any objection to  
22 Mr. Lasher's motion?

23 MR. HICKERSON: No objection, Your Honor.

24 JUDGE CHENEY: Hearing no objection, the  
25 exhibits will be admitted. Please coordinate with the

1 court reporter to make sure it's entered correctly in the  
2 record.

3 MR. LASHER: Thank you, Your Honor.

4 (Exhibits, as submitted by counsel and reflected  
5 in the attached index, were received into evidence.)

6 MR. LASHER: Your Honor, I do have one  
7 additional logistical question going forward just to  
8 understand your preference.

9 For the attorney who is not doing the  
10 examination but will potentially do cross-examination,  
11 would you prefer that that attorney is on camera or off?

12 JUDGE CHENEY: I have no preference.

13 MR. LASHER: Okay. Thank you, Your Honor.

14 At this point, Cree Lighting calls its next  
15 witness, Mr. Christopher Bakewell.

16 There's Mr. Bakewell.

17 JUDGE CHENEY: Good afternoon, Mr. Bakewell.  
18 I'm going to administer the oath, if you'll please raise  
19 your right hand.

20 THE WITNESS: Yes.

21 CHRISTOPHER BAKEWELL,  
22 a witness, having been first duly sworn, was examined and  
23 testified as follows:

24 JUDGE CHENEY: Thank you.

25 Please proceed with your direct examination.

1 MR. LASHER: Thank you, Your Honor.

2 DIRECT EXAMINATION

3 BY MR. LASHER:

4 Q. Mr. Bakewell, thank you for being here today.  
5 For everyone's benefit, where are you testifying from  
6 currently?

7 A. I'm actually in Marshall, Texas, right now.

8 Q. Okay. Is there anyone in the room with you?

9 A. No.

10 Q. In addition to the electronic exhibits that  
11 we'll go over during your testimony, do you have any hard  
12 copy materials with you?

13 A. I have a hard copy of my report and exhibits  
14 just outside of the door, actually. That I can get if I  
15 need to.

16 MR. LASHER: Your Honor, the parties have  
17 stipulated to a variety of expert qualifications in this  
18 matter. This is one of the exhibits that was on our list  
19 of unopposed exhibits, Mr. Bakewell being one of those  
20 experts. I can still go through his qualifications, if you  
21 would prefer, or I can just offer him given that there is  
22 no opposition.

23 JUDGE CHENEY: Hearing no opposition to  
24 Mr. Bakewell being offered as an expert, I am prepared to  
25 accept him as an expert.



1 Will you please articulate the field in which he  
2 is being offered?

3 MR. LASHER: Yes, Your Honor. Mr. Bakewell is  
4 being offered as an expert in economic and financial  
5 analysis, including as it relates to the economic prong of  
6 the domestic industry requirement and remedies.

7 JUDGE CHENEY: Because there is no opposition to  
8 your offer, I will accept Mr. Bakewell as an expert in the  
9 fields tendered.

10 Please proceed with your examination.

11 MR. LASHER: Thank you, Your Honor.

12 BY MR. LASHER:

13 Q. Mr. Bakewell, aside from your qualifications, do  
14 you have any practical work experience that might bear on  
15 the issues we are going to discuss today?

16 A. I do. As part of my career, I spent a  
17 significant part of it in industry. I lived in Amsterdam  
18 and oversaw the cost accounting for a factory in Holland,  
19 as well as some other factories in Europe.

20 When I was in the United States working for that  
21 same company, I oversaw the cost accounting for a factory  
22 in Indiana as well as some projects that we built around  
23 the world.

24 Q. Thank you, Mr. Bakewell.

25 You were retained on behalf of Cree Lighting in

1 this case; correct?

2 A. Yes.

3 Q. Could you provide a high level of your  
4 assignment in this investigation?

5 A. Yes.

6 It was to analyze issues that related to the  
7 economic prong of the domestic industry and significance.

8 Q. Would you mind giving us a summary of your  
9 opinions, please?

10 A. Yes.

11 I found that Cree has made significant  
12 investments in the DI products under sub-prongs A and B, as  
13 I understand them.

14 Q. Mr. Bakewell, did you prepare any demonstratives  
15 to help guide our discussion today?

16 A. I did.

17 MR. LASHER: Your Honor, at this point, we would  
18 like to go on the Cree Lighting CBI record. The  
19 information that will be shown is Cree's internal  
20 investment data.

21 JUDGE CHENEY: Okay. We are now on the Cree  
22 confidential record.

23 (Whereupon, the trial proceeded in confidential  
24 session.)

25

1 O P E N S E S S I O N

2 BY MR. LASHER:

3 Q. Mr. Bakewell, what types of information did you  
4 rely on in forming your opinion?

5 A. Oh, a wide range of information. We heard  
6 Mr. Wilcox talk about some of it. So financial data from  
7 Cree's Oracle database. And I read Cree's financial  
8 statements. There was other information in depositions  
9 that were taken in this case. There's information  
10 available in the public domain that I reviewed from my  
11 research. I reviewed information about Cree's competitors.

12 RAB retained an expert, and he submitted an  
13 expert report, and he was deposed. I mentioned him a  
14 moment ago, Dr. Akemann.

15 I interviewed technical experts as well  
16 regarding the asserted patents.

17 Q. Thank you, Mr. Bakewell.

18 Mr. Jay, could you please pull up CDX-004.004?

19 Mr. Bakewell, is this a slide you prepared?

20 A. Yes.

21 Q. I think what we'll do today is just use this as  
22 somewhat of a roadmap to guide our discussion.

23 Let's start with the first category. It  
24 references context. What do you mean by that?

25 A. So these are considerations that I help -- that

1 I think help set the table or to use the word again,  
2 provide context for the data and figures that we'll be  
3 discussing.

4 Q. What do you understand the domestic industry  
5 products to be in this case?

6 A. We heard Mr. Wilcox talk about them. They're  
7 downlights of various forms, generally larger outside ones,  
8 although there's some that are for inside -- intended for  
9 inside use.

10 Q. Mr. Jay, could you please pull up CDX-004.0006.

11 Mr. Bakewell, what is this slide describing?

12 A. This provides better description than I just  
13 provided of the domestic industry products. They're  
14 grouped by patent.

15 On the right side are some visual depictions of  
16 what these products are. And sort of in the middle left,  
17 the names of the DI products are included. And then the  
18 left-most column is the asserted patents.

19 Q. Were you here for Mr. Wilcox's testimony this  
20 morning?

21 A. Yes.

22 Q. Okay. So do you know where the Cree Lighting's  
23 domestic industry products are manufactured?

24 A. Well, they're largely made in the United States.  
25 There's a few exceptions. The '449 Patent, those products

1 are made overseas in Hong Kong. And there's a couple of  
2 other products, the LM and the UR, they're made by contract  
3 manufacturers in Asia.

4 We'll talk about the '449 Patent in those  
5 activities, and the activities that occur in the United  
6 States associated with the '449 Patent separately at the  
7 end.

8 And then the LM and UR activities, the foreign  
9 activity, I haven't included those in my calculations for  
10 the other patents.

11 Q. Thank you.

12 Let's take a look at CX-370. Is this a document  
13 that you considered in forming your opinions?

14 A. Yes, it is.

15 Q. What is this?

16 A. I think this provides a good description of  
17 context of some of the things Mr. Wilcox discussed about  
18 the facility in Racine are discussed in this article. And  
19 that's a picture of the Racine facility.

20 You can see the part that's being called out  
21 explains how labor intensive the production is in Racine.

22 There's been a decision by Cree Lighting to  
23 invest in the US and to invest in employing people in the  
24 US, and this provides some background on that.

25 Q. Aside from this article, did you review any

1 additional information about Cree Lighting's manufacturing  
2 operations in Racine?

3 A. Yes, it's described in financial statements, and  
4 analyst reports, and the like. We heard Mr. Wilcox  
5 summarize that.

6 I think he provided a summary of the reasons why  
7 Cree is focused on the US looking at and moving towards  
8 higher value-added, higher profit margin products in the US  
9 that are more oriented to this market, frankly, and that's  
10 how Cree is seeking to maximize its profits by making those  
11 types of investments.

12 Q. Let's pull up CDX-004.007.

13 This is a slide you prepared, Mr. Bakewell?

14 A. Yes.

15 Q. Can you please describe what this is showing?

16 A. Yes. So on the left side, I'm describing the  
17 Racine facility and what occurs there. There is  
18 manufacturing, assembly, testing, painting and coating, and  
19 R&D that occurs there in that facility that Mr. Wilcox  
20 described.

21 In Durham, there's R&D that occurred there. We  
22 heard that the headquarters activity is being moved to  
23 Racine.

24 Then on the right side, I have a breakdown of  
25 kind of how the employees by function work, at least as of

1 the middle of 2020. There's a little under a thousand  
2 employees, and 583 are in production, shipping and  
3 logistics, and about 168 in R&D.

4 Those are the US employees specifically.

5 Q. What are these employee numbers based on?

6 A. These are based upon -- I interviewed Mr. Wilcox  
7 and Cree personnel, but I also confirmed this through  
8 various org charts that are produced. I think that the  
9 exhibit numbers are included in the bottom right of the  
10 slide.

11 Q. That's CX-0208 through CX-0266C. Those are the  
12 org charts that you just referred to?

13 A. Yes.

14 Q. Have you seen anything that indicates RAB or  
15 Dr. Akemann disputes these employee totals as of the filing  
16 of the complaint?

17 A. No, I haven't.

18 Q. Okay. All right. We discussed context. I'd  
19 now like to discuss the next point on your slide, and this  
20 is production investments, in particular, plant and  
21 equipment.

22 Do you have an understanding how far Cree  
23 Lighting tracks the investments work production activities  
24 in its Racine facility?

25 A. Yes, I do. It does that in the Oracle database

1 that it uses. It uses a standard costing system to keep  
2 track of that type of information.

3 Q. All right. Let's go to the next slide, which is  
4 CDX-004.9, and can you explain what this is showing?

5 A. Yes. So this is actually very similar to a  
6 slide that I saw Mr. Wilcox show. His headers were in  
7 yellow, and I actually started with that same information  
8 to make this slide.

9 So these are the categories of information that  
10 came from the Oracle accounting system. Then on the right,  
11 Mr. Wilcox discussed how he was able to go through and  
12 ascertain or determine the number of lumens per watt on a  
13 SKU-by-SKU level.

14 That isn't kept in the Oracle database, but it's  
15 sort of kept in the ordinary course of business.  
16 Mr. Wilcox linked that together.

17 Would you like me to spend a minute describing  
18 these categories?

19 Q. Sure.

20 A. Okay. I'll start from the left. The  
21 quantities. We'll talk about the quantities.

22 Cree tracks labor in the ordinary course of  
23 business associated with SKUs based on direct and indirect  
24 labor expenses. It actually allocates -- it has a  
25 category -- because it's a manufacturing facility, it calls



1 this overhead, but it's at the facility, so these are  
2 typically facility costs and plant and equipment -- that's  
3 what the P&E stands for -- that is allocated, and is  
4 typically, as I understand, considered by the ITC.

5           There's also repair and supply-related costs  
6 that come from -- directly from the Oracle ERP system.

7           There's R&D that's kept in the ordinary course  
8 of business, direct and indirect labor for  
9 production-related engineering. Then that information is  
10 aggregated. That's what that total column means.

11         Q.     How, if at all, did you analyze this production  
12 cost data in this case?

13         A.     Well, I analyzed it in various ways. I looked  
14 at SKUs, and looked at the data over time, and by category.  
15 I think we'll talk about it.

16           I have some slides that summarize this data.  
17 They're sort of guideposts there. We talked, too, on the  
18 agenda that we'll have some things that we will go through.

19           Every time I aggregate the numbers, there's a  
20 bar chart with the categories of activities that are  
21 counted, and we'll go through each of those, I believe.

22           JUDGE CHENEY: I think we'll go through each of  
23 those after our lunch break.

24           It's now time for to us take lunch. It will be  
25 one hour. You are welcome to leave your connection muted,

1 or you can leave the meeting and rejoin.

2                   The meeting session will remain open for the  
3 entire lunch break. So if you do stay logged in, make sure  
4 you are muted.

5                   We are now off the record.

6                   (Whereupon, at 12:30 a.m., a lunch recess was  
7 taken.)

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 A F T E R N O O N S E S S I O N

2 (1:31 p.m.)

3 JUDGE CHENEY: We're back on the record now in  
4 the 1213 evidentiary hearing.

5 Before the break, we were listening to the  
6 direct examination of Cree's economic expert witness,  
7 Mr. Bakewell.

8 Please continue that examination.

9 MR. LASHER: Thank you, Your Honor.

10 CONTINUED DIRECT EXAMINATION

11 BY MR. LASHER:

12 Q. Welcome back, Mr. Bakewell.

13 Just to reorient ourselves, before the break,  
14 you were discussing some bar charts that you had created  
15 with some calculations, but before we get to those, I'd  
16 like to ask you a couple of questions about your testimony  
17 concerning the SKU filtering.

18 Did your team perform any SKU filtering of the  
19 production investment documents?

20 A. Yes.

21 Q. What -- how so?

22 A. Well, I think that Mr. Wilcox described kind of  
23 the predicate of it, but the data that we have is sorted by  
24 SKU and relates to the SKUs stockkeeping units, that are in  
25 the domestic industry products, and they contain

1 assumptions about the inputs like Mr. Wilcox described,  
2 including efficiency.

3           And there's different scenarios that are run in  
4 the back of my report or throughout my report where you can  
5 determine what different assumptions yield regarding  
6 efficiency for the two patents that that matters on.

7           Q.     So with respect to the lumens per watt data, and  
8 filtering that Mr. Wilcox explained, is it possible to sort  
9 the production investment costs for any particular lumens  
10 per watt range?

11          A.     Yes.

12          Q.     Okay. Let's go back to discussing the  
13 calculations for your domestic industry analysis.

14                 Over what period of time did you run the  
15 calculations associated with the production costs?

16          A.     That's from the beginning of 2018 through the  
17 time of the filing of the complaint, July 15th, I believe,  
18 2020.

19          Q.     Do you have an understanding of whether the  
20 costs that you just referenced -- and these are shown in  
21 JPX-1107 through 0019C -- are those standard costs or are  
22 those actual costs?

23          A.     Well, it's standard costs or actual costs.  
24 They're both. So this is a production facility. So they  
25 use a standard costing system in the facility, and the idea

1 is that you estimate what your standard costs are going to  
2 be going forward, and you revisit it every year. You  
3 revisit the variances versus your standard cost.

4           So over time the numbers are actuals. There's a  
5 trueing-up process, but there's what's called production  
6 variances that can occur in any particular period of time.

7           Q.     Is it reasonable, in your opinion, to use  
8 standard costs to track these types of expenditures?

9           A.     It is. It's a standard cost accounting tool,  
10 and I think here the standard costs methodology, and sort  
11 of the data that it yields provides additional context or  
12 information about Cree's investment, so it's worth  
13 discussing briefly.

14          Q.     Okay. Let's talk about the calculations you ran  
15 in particular.

16                 At a high level, without talking about the  
17 specifics of the data, what did those calculations show?

18          A.     Well, they show that there's significant  
19 investments in plant and equipment and labor and capital.

20                 MR. LASHER: Your Honor, at this point, we'd  
21 like to go on the Cree Lighting confidential information as  
22 we are going to be getting into the specific data --  
23 internal data for Cree Lighting.

24                 JUDGE CHENEY: Okay. Let's go on the Cree  
25 confidential record.

1                   If you're not authorized to view Cree  
2 confidential information, please remove yourself to the  
3 breakout session.

4                   (Whereupon, the trial proceeded in confidential  
5 session.)

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 O P E N S E S S I O N

2 BY MR. LASHER:

3 Q. Now, Mr. Bakewell, did you analyze any  
4 categories of investments other than the production-related  
5 investments we just discussed?

6 A. Yes, I consider activities that relate to  
7 research and development.

8 Q. How does Cree Lighting invest in research and  
9 development?

10 A. Well, it does so over relatively long periods of  
11 time. The product life cycles here are fairly lengthy. It  
12 will do that by deciding whether or not to make  
13 investments, or it will make budgets, as Mr. Wilcox  
14 described, and then it will incur costs associated with  
15 further engineering of the products as they're developed  
16 over time.

17 And those tend to be tracked in its cost  
18 accounting system. The R&D activities that occur up front  
19 tend to be done in budgets. We heard that there are a  
20 couple of acquisitions that happened to build Cree, LLF and  
21 Ruud, and so we have information from those companies in  
22 the form of budgets.

23 Q. In your opinion, is it reasonable to track R&D  
24 investments in the manner you just described?

25 A. Yes. This is what Cree and its predecessors did

1 in the ordinary course, and this is consistent with what I  
2 have seen other companies do.

3 Q. At a high level, what time periods did you  
4 consider when analyzing R&D investments?

5 A. So I considered sort of -- if you take today and  
6 go backwards, you can look at the activities over -- you  
7 can extend it out as far as is appropriate for each product  
8 line.

9 So yearly is one answer to your question. And  
10 then another answer is some of the activities related to  
11 R&D go back to the 2007 to 2009 time frame associated with  
12 certain product lines.

13 So I have aggregated that, but it can be  
14 disaggregated, too.

15 Q. In your view, is it reasonable to include  
16 investments going back to, I think you mentioned the 2007  
17 time frame in your analysis before the ITC?

18 A. I think so. I mean, I have tried to present it  
19 in a way where it's really up to the fact-finder to  
20 determine what ultimately the time frame is. But there are  
21 R&D activities that go back for -- until 2007 for those --  
22 for these products. It's a reality, so I considered it,  
23 and it's up to the fact-finder to sort of weigh it.

24 I think it's relevant in that it further shows  
25 significance of the commitment to an industry over a



1 decade, and it helps understand the context of the figures.

2 Q. Does the fact that these products have been on  
3 sale for a long period of time have any bearing on your  
4 analysis?

5 A. Well, it does in that, I think, that it shows  
6 that this is an ongoing industry. We'll talk about some  
7 other considerations in that regard.

8 I think from my perspective, economically, it  
9 shows significance because this is a business that's been  
10 committed to, and continues to be committed to, an industry  
11 in the United States, and, in fact, we talked about the  
12 variances, the production variances, and Mr. Wilcox talked  
13 about the commitment to hiring personnel in the United  
14 States.

15 I think, in this case, information over that  
16 period of time actually provides additional information  
17 that is relevant, Yes.

18 Q. Thank you, Mr. Bakewell.

19 Did you calculate the investments in R&D  
20 related -- labor and capital in this case?

21 A. Yes.

22 MR. LASHER: Your Honor, at this point, I'd like  
23 to move back onto the Cree Lighting CBI record.

24 This is the internal R&D investment data.

25 JUDGE CHENEY: I apologize for being muted.

1                   Please proceed on the confidential record now,  
2 Mr. Lasher.

3                   (Whereupon, the trial proceeded in confidential  
4 session.)

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 O P E N S E S S I O N

2 JUDGE CHENEY: Back on the public record.

3 MR. LASHER: Thank you, Your Honor.

4 BY MR. LASHER:

5 Q. Now, Mr. Bakewell, I'd like to turn to your  
6 analysis relating to the '449 Patent.

7 You mentioned a couple of times today you  
8 analyzed the '449 Patent separately from the other patents.  
9 Why is that?

10 A. Well, it's different in that the products made  
11 that are practiced -- the '449 are -- they're manufactured  
12 abroad, and there's R&D activities that occur domestically  
13 to associate -- associated with that, but they're not made  
14 in Racine is the short answer.

15 MR. LASHER: Okay. If we could pull back up,  
16 Mr. Jay, CDX-004C.6.

17 Q. And, Mr. Bakewell, is this a slide you prepared?

18 A. Yes.

19 Q. What are the -- just as reminder, what are the  
20 44 products again?

21 A. Well, they're downlights, as you can see on  
22 bottom. They are the three, CR Series, the CRT Series, and  
23 the DDS Series, and then the images are shown of them on  
24 the right.

25 Q. Were you able to calculate research and

1 development investments in labor and capital associated  
2 with those products?

3 A. Yes.

4 MR. LASHER: Your Honor, I'd like to go back on  
5 the CBI record again. This is the internal R&D figures.

6 JUDGE CHENEY: Okay. Let's go back on the  
7 confidential record for Cree.

8 MR. LASHER: Yes, thank you.

9 (Whereupon, the trial proceeded in confidential  
10 session.)

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 O P E N S E S S I O N

2 BY MR. LASHER:

3 Q. Going back to the roadmap for your discussion,  
4 you have a bullet point saying, "Ongoing."

5 Can you explain what you mean by that?

6 A. Yeah. So I was interested, as I performed my  
7 analysis, what the nature of the investments are that are  
8 being made. We've discussed this to a large degree  
9 already, that these products have long life cycles, and  
10 that Cree continues to invest in them over time.

11 So these are products where the investments are  
12 ongoing.

13 Q. Mr. Bakewell, what evidence, if any, do you have  
14 that Cree's investments are ongoing?

15 A. Well, there's the type of evidence that we  
16 referred to earlier, but I also performed a comparison  
17 before and after the time of the filing of the complaint.

18 Q. Okay. We'll look at that.

19 Before we look at that, let's look at CX-1046.  
20 And if you could describe what this is and if it's relevant  
21 to your opinion.

22 A. Oh. Well, this is more information like the  
23 information we've discussed earlier. Cree continues to  
24 invest in the US and in its Racine facility. This is a  
25 document that highlights that. It's describing how it's

1 making more than \$8 million in investments, and plan to  
2 create more than a thousand jobs -- or excuse me, more than  
3 100 jobs or nearly 100 jobs, and more that a thousand  
4 administrative and manufacturing employees is what were in  
5 its plans as of January 2020.

6 This is part of Cree's strategy to commit to  
7 investing in the United States.

8 Q. Okay. Let's turn to the calculations you just  
9 described with respect to your opinion that Cree Lighting's  
10 investments are ongoing.

11 MR. LASHER: Your Honor, I'd like to turn back  
12 now again to the Cree Lighting CBI record. Again, these  
13 are internal investment data.

14 JUDGE CHENEY: Okay. We're back on the Cree  
15 confidential record.

16 (Whereupon, the trial proceeded in confidential  
17 session.)

18

19

20

21

22

23

24

25

1 O P E N S E S S I O N

2 BY MR. LASHER:

3 Q. Your final point here, Mr. Bakewell, is  
4 significance.

5 At a high level, what are your opinions  
6 regarding the significance of Cree Lighting's domestic  
7 industry investments?

8 A. There's a variety of indications that the  
9 investments are significant.

10 Q. Did you analyze these investments in terms of  
11 qualitative significance or quantitative significance?

12 A. Both.

13 Q. Okay. Let's talk about qualitative significance  
14 first.

15 Can you describe some of the analyses concerning  
16 qualitative significance of Cree Lighting's investments  
17 that you performed?

18 A. Sure. So we've discussed many of them already.  
19 We've discussed the commitment to the industry in the  
20 United States. We've discussed how it's a significant  
21 portion of the activities that occur in Racine, and what  
22 these products are.

23 I think that we've covered a lot of that over  
24 the past hour.

25 Q. Did you prepare a slide summarizing your

1 opinions with respect to qualitative significance?

2 A. Yes.

3 Q. That would be CDX-004C.26.

4 Does this cover your opinions with respect to  
5 qualitative significance?

6 A. It does. So the left side is a timeline that  
7 Mr. Wilcox discussed, and shows the ongoing nature of the  
8 investments, and the commitment to the industry, and the  
9 wave of developments, the latest products that have been  
10 released, built on work that's been done over the years.

11 I don't think there's any dispute that Cree is a  
12 leading innovator of LED technology. These products have  
13 been successful. They have long life cycles, and the  
14 idea -- the strategy that Cree Lighting has, is to continue  
15 investing in the Racine, Wisconsin, facility to continue  
16 commercializing these products successfully.

17 Q. In your opinion, Mr. Bakewell, are sales figures  
18 relevant in addressing significance?

19 A. They can be. I mean, it's really up to the  
20 Commission, but I think here it provides additional  
21 context, and further shows the significance of DI products,  
22 and the asserted patents.

23 Q. What, if any, calculations, did you run with  
24 respect to Cree Lighting's sales information?

25 A. I considered the amount of -- the products that



1 are at issue here relative to the total output at Racine in  
2 terms of sales.

3 MR. LASHER: Your Honor, at this point, we'd  
4 like to go back on the Cree Lighting confidential record.

5 It's both sales information and investment data.

6 JUDGE CHENEY: Back on the Cree confidential  
7 record.

8 (Whereupon, the trial proceeded in confidential  
9 session.)

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 O P E N S E S S I O N

2 JUDGE CHENEY: Please proceed, Mr. Lasher.

3 MR. LASHER: Thank you, Your Honor.

4 BY MR. LASHER:

5 Q. Mr. Bakewell, could you take a look at CX-1866  
6 through CX-1868.

7 A. Yes.

8 Q. Do you have those in your folder in front of  
9 you? Mr. Jay may not be able to pull those up.

10 A. I have those, yes, in my Box folder.

11 Q. You can just tell us what those are, please.

12 A. Let me open.

13 So this is annual report for Signify 1867.

14 That's one of Cree's competitors. I'm having problems with  
15 my computer. It keeps --

16 Q. That's fine. We'll move on. I don't want to  
17 waste his honor's time.

18 A. I'm getting the circle of --

19 Q. That's fine.

20 JUDGE CHENEY: Do you want to make a  
21 representation about those exhibits, Mr. Lasher?

22 MR. LASHER: Yes, Your Honor. CX-1866 through  
23 CX-1868 are the annual reports of Acuity, Signify, and  
24 OSRAM.

25 JUDGE CHENEY: Any objection from the other

1 side?

2 MR. HICKERSON: No objection.

3 JUDGE CHENEY: Okay. Please proceed,  
4 Mr. Lasher.

5 MR. LASHER: Thank you, Your Honor.

6 At this point, Your Honor, we need to go back to  
7 the Cree Lighting CBI record, please.

8 JUDGE CHENEY: Okay. We're back on the Cree  
9 record.

10 (Whereupon, the trial proceeded in confidential  
11 session.)

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 O P E N S E S S I O N

2 BY MR. LASHER:

3 Q. Finally, Mr. Bakewell, can you describe what is  
4 shown here on this CDX-004C.34?

5 A. Yes. I mentioned this briefly earlier and so  
6 did Mr. Wilcox.

7 So out of the 996 employees in the US, that's in  
8 the left-most bar, as of July 2020, there were only 75  
9 people in Europe. There's the facility in Florence that  
10 there's some assembly that goes on there. There is a small  
11 amount of employees, 15 in Canada and 6 in Asia. This, I  
12 think, further shows quantitatively and, to some extent,  
13 qualitatively the fact that Cree Lighting is focused on its  
14 industry in the United States.

15 MR. LASHER: Thank you, Your Honor. At this  
16 point, I pass the witness.

17 JUDGE CHENEY: Is there cross-examination for  
18 this witness?

19 MR. HICKERSON: Yes, Your Honor.

20 JUDGE CHENEY: Please proceed when you're ready.

21 MR. HICKERSON: I am ready.

22 CROSS-EXAMINATION

23 BY MR. HICKERSON:

24 Q. Good afternoon, Mr. Bakewell. David Hickerson  
25 here. Good to see you.

1 A. Nice to see you, too.

2 Q. As you know, I represent RAB, the Respondent in  
3 this case, and I'm just going to ask you some questions to  
4 follow up on what Mr. Lasher was asking you.

5 So let me start with this: In your report, you  
6 analyze Cree Lighting's domestic investments under  
7 sub-prongs A and B; is that right?

8 A. That's correct.

9 Q. You understand under Commission precedent that  
10 research development investment count toward sub-prong C  
11 only if a nexus is established between the R&D investments  
12 and the asserted patent; is that correct?

13 A. As a non-lawyer, my understand is under  
14 sub-prong C, that there is a nexus requirement.

15 Q. You were not requested to do an analysis under  
16 sub-prong C in this case; right?

17 A. That's correct.

18 Q. Right. Your report does not include any  
19 sub-prong C analysis; is that correct?

20 A. I don't think I agree with that.

21 Q. Well, can you point me to anywhere in your  
22 report where you do an analysis of research and development  
23 of Cree Lighting's investments under sub-prong C?

24 A. I don't know that I have that specifically in my  
25 report, like broken out in a section like that.

1           The reason why I disagreed with you is because,  
2 in concept, the activities -- and they can be shown through  
3 some of the information that I have in my report, I didn't  
4 set out to do that, but I wouldn't -- I didn't want to  
5 answer your question and exclude all -- exclude that as a  
6 possibility when I don't know if it's a possibility or is  
7 not. And that's all I was leaving.

8           Q.     Okay. I understand.

9           So let me talk about the domestic industry  
10 products that you did analyze here.

11           So if we could pull up your demonstratives,  
12 CX-139C. Again, I think maybe -- Mr. Hall, before you do  
13 that, we may need to go on the confidential record. So let  
14 me just double-check.

15           Before we go on the confidential record, let me  
16 change that exhibit, because I know this one's -- we've  
17 agreed is not confidential.

18           Let's go to RDX-10, and page 1 of that. You can  
19 pull that up now, Mr. Hall. Just the first page, please.  
20 There we go.

21           So I'll represent to you this is excerpted from  
22 your expert report. It's simply put onto one page and has  
23 a fancier heading on it.

24           But do you recognize that this is a table that  
25 you prepared?

1 A. Yes.

2 Q. All right. And are these the domestic industry  
3 products that you analyzed the investments for?

4 A. Yes.

5 Q. Right. You have indicated here which patent  
6 each of the product families is asserted to practice; is  
7 that correct?

8 A. Correct.

9 Q. Right. For some of these patents -- let me  
10 withdraw that.

11 Some of these products are asserted to practice  
12 multiple patents; is that correct?

13 A. Yes.

14 Q. Right. You have testified, I believe, that some  
15 of these products were manufactured by contract  
16 manufacturers outside the United States; is that correct?

17 A. It is.

18 Q. Right. Can you identify which of these product  
19 families were manufactured outside the United States?

20 A. Well, the ones that practice the '449 is the  
21 most direct way.

22 Q. Right. So that would be, see if you agree with  
23 me, the CRT Series, the CR Series downlight and the DDS  
24 Series; is that right?

25 A. Yes.

1 Q. All right. There are two other product families  
2 here that were also manufactured outside the United States;  
3 isn't that correct?

4 A. Yes.

5 Q. All right. I believe, we'll see if you agree  
6 with me, that's the LM Series and the UR Series?

7 A. That's consistent with my memory.

8 Q. Okay. So let's talk about the '449 Patent.  
9 You -- let's pull it up, JX-0003.

10 All right. You heard Mr. Wilcox testify that,  
11 and it's on the face of this patent as well, that the  
12 inventors of this patent are located in Hong Kong; is that  
13 correct?

14 A. Correct.

15 Q. Right. You heard him, Mr. Wilcox, testify these  
16 are employees of a company called LLF at the time -- well,  
17 let me rephrase that.

18 These three inventors were employees of LLF at  
19 some point in time; do you understand that?

20 A. Generally. He qualified his answer, I remember,  
21 but generally speaking, I agree with you.

22 Q. Right. You heard Mr. Wilcox testify that the  
23 development of the '449 downlight products began in Hong  
24 Kong; is that correct? Do you remember hearing him say  
25 that?



1           A.     I don't know that he -- I mean, he said whatever  
2 he said, but what I understand is there was some -- there  
3 was some ideas that related to this patent, and the  
4 investments and R&D that related to products, that  
5 generally -- those generally occurred in the United States.  
6 And, in fact, I think he might have said in North Carolina.

7                     And -- I mean, his -- he's the authority on  
8 this, so I would defer to him, but he also qualified his  
9 answer, I think, similar to the way that I just explained  
10 to you.

11          Q.     All right. Then you understand from Mr. Wilcox,  
12 and you interviewed him with respect to your report in this  
13 case, right, that Cree's current DI products built on  
14 generations of products from decades ago?

15          A.     Yes.

16          Q.     All right. In your report, as an example of  
17 that, you cite to the CR Series downlight products, which  
18 you say is in its fifth or sixth generation; is that  
19 correct?

20          A.     That sounds correct.

21          Q.     All right. So did you look at the amounts of  
22 money that were spent on R&D on those downlight products  
23 that were done by LLF in Hong Kong?

24          A.     I did look into that, yes.

25          Q.     All right. What did you find?

1           A.       Well, Mr. Wilcox told me there wouldn't be any  
2 amounts, really, to determine that relate -- or to gather  
3 that relate to the products for the reason I just explained  
4 earlier, that they did work that related to, like, general  
5 ideas that were -- that were patented.

6                    To the extent that the work related specifically  
7 to products, it was the amounts that you would quantify  
8 aren't significant relative to the amounts that related to  
9 activities in the United States.

10                   And I confirmed with him basically the bottom  
11 line is there wouldn't be any amounts to include as either  
12 investments or for comparative purposes for the reasons I  
13 just discussed.

14                   Again, I would defer to him. I'm giving you my  
15 understanding of that.

16           Q.       Okay. So I think -- well, no, I would -- we  
17 don't need to go on the confidential record yet, but let me  
18 ask you:

19                   We've discussed and you've testified that you  
20 understand that all of the '449 DI products were  
21 manufactured outside of the United States; correct?

22           A.       Yes.

23           Q.       They were imported into the United States by  
24 Cree Lighting as finished products?

25           A.       That part, I -- you asked me that in my

1 deposition, too, and I said I didn't know if it would be  
2 fair to call them finished products at that point. That  
3 also seems to be like a term that I've heard a lot of  
4 lawyers use in the ITC, so I'm not entirely sure what you  
5 mean by that, but there is additional, like, work  
6 potentially that could be done on those products.

7           That's not to say they're not -- I'm not saying  
8 they're made in the US. They're not. That just -- you use  
9 those words, and I did the same thing in my deposition, I'm  
10 like, well, let me be clear.

11       Q.     Well, you're not aware of any finishing costs  
12 that Cree has spent on any of the '449 DI products, are  
13 you?

14       A.     I don't think any of the costs that I saw  
15 related to finishing.

16       Q.     Okay. With respect to those '449 DI products,  
17 there is no domestic production-related labor costs; right?

18       A.     Not domestic production.

19       Q.     Right. And there's no domestic plant or  
20 equipment investments?

21       A.     There is associated with R&D but not for  
22 manufacturing.

23       Q.     Okay. And there's no domestic capital  
24 investments with respect to the '449 DI products; right?

25       A.     Not for manufacturing. It relates to labor, and

1 like R&D capital.

2 MR. HICKERSON: Okay. So I am now going to go  
3 into Cree confidential information, so I think we need to  
4 go on the confidential record.

5 JUDGE CHENEY: Okay. We're on the confidential  
6 record now.

7 (Whereupon, the trial proceeded in confidential  
8 session.)

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 O P E N S E S S I O N

2 JUDGE CHENEY: Okay. We're back on the public  
3 record.

4 BY MR. HICKERSON:

5 Q. So this morning, did you hear Mr. Wilcox testify  
6 about a sampling of SKUs that he did to determine the  
7 relative percentages of US and foreign content of the  
8 domestic industry products?

9 A. Yes.

10 Q. All right. And so you're aware that Mr. Wilcox  
11 did a sampling of a certain number of SKUs?

12 A. I don't think that's -- as I understand it, I  
13 don't know that that's completely accurate.

14 My understanding is that there was some back and  
15 forth between the parties about sampling and what would be  
16 produced. And I think that if I have the right topic, that  
17 my understanding is that it related to some back and forth  
18 about the scope of that sample that you requested.

19 Q. Right. Well, my question was whether you're  
20 aware that Mr. Wilcox did that sampling, that he actually  
21 conducted it.

22 Are you aware of that?

23 A. I answered your question. I don't think that's  
24 a fair characterization, with all due respect, as I  
25 understand the situation.

1 Q. Were you involved in doing that sampling?

2 A. No.

3 Q. All right. Were you asked about the sampling  
4 methodology?

5 A. No.

6 Q. All right. You've designed sampling  
7 methodologies as a professional?

8 A. Yes.

9 Q. A little while ago, you testified that Cree  
10 was -- and I think you showed a public press release or  
11 press document of some sort about Cree expanding its  
12 operations in Racine, Wisconsin.

13 Do you remember that testimony?

14 A. I do.

15 Q. All right. And you're also aware, aren't you,  
16 that Cree is shutting down a facility in North Carolina?

17 A. It's moving things from North Carolina to  
18 Wisconsin.

19 Q. Right. So they're, in fact, transferring some  
20 of their activities from North Carolina to Wisconsin;  
21 right?

22 A. I think that's a better way of saying it, yes.

23 MR. HICKERSON: So we need to go back on the  
24 Cree confidential record at this point.

25 (Whereupon, the trial proceeded in confidential

1 session.)  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

1 O P E N S E S S I O N

2 JUDGE CHENEY: We're back on the public record  
3 after hearing the conclusion of the cross-examination of  
4 Cree's economic expert, Mr. Bakewell. We will take a  
5 15-minute break now. I will see you back here at 3:14.

6 Mr. Bakewell, please don't discuss your  
7 testimony during the break.

8 We're off the record.

9 (Whereupon, the afternoon break was taken,  
10 2:59 p.m. - 3:14 p.m.)

11 JUDGE CHENEY: Okay. We're back on the public  
12 record now after taking our afternoon break.

13 Before the break, we heard the conclusion of  
14 cross-examination of Cree's economic expert, Mr. Bakewell,  
15 by counsel for Respondent, RAB Lighting. And now I just  
16 have a few questions for Mr. Bakewell. Let me remind  
17 counsel, you're welcome to object to my questions the same  
18 as you would to questions of your opponent.

19 Mr. Bakewell, do you recall being asked your  
20 opinion as to whether Cree's investments in the '819 and  
21 '531 Patents were significant?

22 THE WITNESS: Yes.

23 JUDGE CHENEY: Now, where you present when I  
24 posed a hypothetical to Mr. Wilcox about certain claims of  
25 the '819 and '531 Patents, but not all claims, being



1 hypothetically found to be invalid?

2 THE WITNESS: Yes, I was.

3 JUDGE CHENEY: Do you have any questions about  
4 that hypothetical before I proceed?

5 THE WITNESS: No.

6 JUDGE CHENEY: How would I determine Cree's  
7 relevant domestic industry investments if I determined  
8 certain patent claims of the '819 and '531 Patents are  
9 invalid?

10 THE WITNESS: If they relate to output and those  
11 types of measures that I understand were discussed -- I  
12 have exhibits in my report. There's the 13 Series of  
13 exhibits in particular that goes to that.

14 It breaks down the product allocations by  
15 different outputs. Efficiencies is a better word.

16 JUDGE CHENEY: If you would suppose for me --  
17 well, let me rephrase the question.

18 Do you recall whether there is any product for  
19 which Cree is relying in its domestic industry case that  
20 has a lumens per watt output of greater than 113.5?

21 You may not know the answer to that question.  
22 I'm just curious if you do.

23 THE WITNESS: I don't. I'm sorry, Your Honor.

24 JUDGE CHENEY: Okay.

25 Did you hear Mr. Wilcox testify that he was not

1 aware of any R&D investments relating to the invention  
2 disclosed in the '449 Patent after 2015?

3 THE WITNESS: I know what he's -- yes. I know  
4 what you are referring to.

5 JUDGE CHENEY: Are you aware of any investments  
6 for the '449 Patent after 2015?

7 THE WITNESS: They would be in my report, the  
8 amounts each year. And I -- I would need to go back and  
9 look. I didn't look, but that sounded like it was a little  
10 bit old to me. I would need to go back and check.

11 The time that he gave me was -- that he provided  
12 of 2015 sounded like it was too far back.

13 JUDGE CHENEY: Okay.

14 Can we have -- let's go on the confidential  
15 record now.

16 (Whereupon, the trial proceeded in confidential  
17 session.)

18

19

20

21

22

23

24

25

1 O P E N S E S S I O N

2 JUDGE CHENEY: We're back on the public record  
3 now after having completed some questions that I had for  
4 Cree's economic expert, Mr. Bakewell. And now Cree has  
5 announced that Mr. Hamstra will be the next witness -- or  
6 will be the examining counsel for the next witness. So we  
7 welcome Mr. Hamstra to the podium.

8 And Mr. Hamstra, will you please call the next  
9 witness?

10 Let's go off the record for just a moment while  
11 we get all that set up.

12 (Off the record.)

13 MR. HAMSTRA: I'm ready, Your Honor.

14 JUDGE CHENEY: Okay. We're back on the record  
15 now after a brief break to get everything set up for the  
16 next witness.

17 Mr. Hamstra, who will the next witness be?

18 MR. HAMSTRA: Dr. Michael Lebbby.

19 JUDGE CHENEY: Dr. Lebbby, will you please raise  
20 your right hand, and I will administer the oath.

21 MICHAEL LEBBY, PhD,  
22 a witness, having been first duly sworn, was examined and  
23 testified as follows:

24 JUDGE CHENEY: Thank you.

25 Please proceed, Mr. Hamstra.

1 DIRECT EXAMINATION

2 BY MR. HAMSTRA:

3 Q. Good afternoon, Dr. Leby. Could you state your  
4 full name for the record?

5 A. Michael Steven Leby.

6 Q. Dr. Leby, I understand you've prepared some  
7 demonstratives for us today.

8 Mr. Jay, could you call up CDX-002C?

9 In the meantime, Dr. Leby, could you share with  
10 us your educational background?

11 A. Yes. I have two doctorates in electrical  
12 engineering, a bachelor's in electrical engineering all  
13 from the University of Bradford in the UK.

14 Q. At a high level, what is the subject matter of  
15 the testimony you're intending on providing today?

16 A. The subject matter is the '570 Patent. It's the  
17 optical lens design that's taught in the '570 Patent to  
18 direct light to a preferential direction, which is  
19 off-axis.

20 Q. Dr. Leby, I know we have a stipulation in  
21 place, but nevertheless, could you just highlight a  
22 particular piece of your work experience that is most  
23 relevant to your testimony today?

24 A. Yes. If you look down my professional  
25 experience, the time frame from 1989 to 1998 where I was

1 corporate R&D manager at Motorola in Phoenix. At that  
2 time, I was involved with LEDs, optical lenses, different  
3 types of materials and different types of optical lens  
4 designs.

5 MR. HAMSTRA: Your Honor, pursuant to the  
6 parties' stipulation, I proffer Dr. Michael Lebby as a  
7 technical expert in the field of LED lighting technology in  
8 this investigation.

9 JUDGE CHENEY: As there is no objection,  
10 Dr. Lebby will be accepted as an expert in the field  
11 offered.

12 Please proceed, counsel.

13 MR. HAMSTRA: Thank you, Your Honor.

14 BY MR. HAMSTRA:

15 Q. Turning to CDX-2.3, what patent are you opining  
16 on --

17 A. I am opining --

18 Q. -- today, Dr. Lebby?

19 A. Today, I'm opining on the '570 Patent.

20 Q. What is the general problem that the '570 Patent  
21 is directed to addressing?

22 A. The '570 Patent is an optical lens design that  
23 is designed to send light off-axis in a preferential  
24 direction using a novel lens design.

25 Q. Let's start at the source of the light in the

1 LED system.

2           You have a graphic on the left on CDX-2C.4. Can  
3 you explain what that's depicting?

4           A.     Yes. On the left-hand image, we have what is in  
5 yellow, the square part of that is the LED chip, the  
6 semiconductor chip. On top of that, we have a dome lens,  
7 which we have called a primary lens, and then I've shown  
8 schematically using those vertical lines where the light  
9 would be distributed.

10           But if we look to the right-hand image, we can  
11 see that the maximum intensity of light is actually  
12 perpendicular to the horizontal plane, which is at angle  
13 zero, and that intensity drops off as you increase those  
14 angles towards the horizontal.

15           Q.     Dr. Leby, from CX-676 excerpted here, what is  
16 the implication of that fall-off in terms of redirecting  
17 the light to a preferential side?

18           A.     So that is the distribution of light. As you  
19 can see, the highest intensity of light is at angle zero,  
20 and if we really wanted the light to go off axis to a  
21 preferential site, then we're going to have to change the  
22 shape of that curve.

23           Q.     Dr. Leby, turn to the next slide. You've  
24 annotated part of Figure 12.

25           Could you explain what's being shown here?

1           A.     Yes.  This is a little bit more complex, but if  
2 you think about the previous slide, we had the LED chip and  
3 the primary dome lens.  I've annotated that in yellow in  
4 this slide, and that's where the light is sourced, and on  
5 top of that, you can see what I have annotated in blue,  
6 which is the subject of the '570 Patent, which is the  
7 secondary lens, or the '570 lens.

8                     I've also annotated a green dotted vertical  
9 line, which is the emitter axis, which is as-taught in the  
10 '570 Patent.

11                    Now, those black lines are ray traces, and the  
12 ray traces show that the majority of the light is actually  
13 heading to the right-hand side, which is the preferential  
14 side.

15                    I've also annotated three of those light ray  
16 traces that emanate from the LED chip, and they actually go  
17 to the non-preferential side first, and get reflected using  
18 a TIR reflector back to the preferential side showing that  
19 there's a technique here to gather the light, as indicated  
20 by Mr. Wilcox earlier today, to the right-hand side.

21           Q.     So what was the color of the three rays you just  
22 referenced in this annotated figure?

23           A.     They're a yellowy color.

24           Q.     Thank you, Dr. Leby.

25                    Turning to your next slide, CDX-2C.6.

1                   Dr. Leby, what products of RAB are you opining  
2 on today?

3           A.     I'm opining on two products, JX-85, the  
4 LOTBLASTER, and JX-86, the TRIBORO.

5           Q.     What specific optics in these products are you  
6 offering testimony on?

7           A.     So we can see the exploded figures in the center  
8 of this slide, and I have annotated in yellow the lens  
9 panels for both the LOTBLASTER, which is the upper middle,  
10 and the TRIBORO, which is the lower middle.

11                   I have also indicated on the right-hand side of  
12 the slide a table, and they are three different lens  
13 designs, T2, T3 and T4. These are the lenses that have  
14 been asserted by the '570 Patent.

15                   The T5 is a lens design that is not being  
16 asserted.

17           Q.     Dr. Leby, are these -- is this table from  
18 CX-655C and CX-656C?

19           A.     That is correct.

20           Q.     So, Dr. Leby, on CDX-2C.7, you show some panels  
21 on the top here. Let's start with type 2, type 3, type 4.

22                   What does that refer to in this context,  
23 Dr. Leby?

24           A.     Type 2, type 3 and type 4 are different light  
25 distributions as indicated by the IES standard, which I



1 have got noted in the bottom right-hand corner of this  
2 slide.

3           These different distributions on the light  
4 panels will send the light in slightly different areas. As  
5 you can see, from the bottom three figures, I've annotated  
6 there what I wrote what it would look like, and where a  
7 street light would be showing the different distributions  
8 of light with the different lenses.

9           As you can see, there's a small change in the  
10 angulation of the arrows.

11         Q.     Dr. Leby, the prior slide indicated that these  
12 were 2-by-6 lenses; what is that referring to?

13         A.     So if you look at the panel on the top left-hand  
14 side, you see two rows of six. You see there's sort of  
15 square-type objects, and those are the lenses that cover  
16 the LEDs. And those are computer-aided design images of  
17 the lens panel.

18           The middle row of three are the CAD, the  
19 computer-aided design images of a cross-section of those  
20 lenses as indicated by that red line in each one of those  
21 panels of T2, T3, and T4.

22         Q.     Dr. Leby, just for the record, just because  
23 we'll be speaking about them quite a bit today, can you  
24 identify for the record the exhibit numbers for the CAD  
25 files you will be discussing today?

1 A. Yes, those are CDX-1893, 1894, and 1895.

2 Q. And those are for T2 through T4 lens,  
3 respectively?

4 A. That's correct.

5 Q. Dr. Leby, where did the IES distribution  
6 examples originate from?

7 A. The standard -- the IES is a standard that  
8 companies design to when they want to design these types of  
9 lenses.

10 Q. Is that an excerpt from CX-677?

11 A. That is correct.

12 Q. So turning to your infringement analysis,  
13 Dr. Leby, first of all, what tests did you apply for  
14 evaluating infringement of the claims on which you are  
15 opining?

16 A. So I looked at both the LOTBLASTER and the  
17 TRIBORO products, and I compared the claim language, in  
18 particular, the elements -- each element of these claims in  
19 this slide to the products.

20 Q. And at what point in your evaluation of the  
21 different elements of these claims were you able to  
22 conclude that they did, in fact, infringe?

23 A. I went through every element of all of the  
24 claims listed on this page.

25 Q. Dr. Leby, turning to CDX-2C.10, what

1 interpretation did you apply of the claim language in your  
2 analysis?

3 A. I applied the Court's claim construction of  
4 preferential side to my interpretations.

5 Q. And for terms that were not construed by his  
6 honor, what understanding did you apply to those terms?

7 A. I applied the plain and ordinary meaning.

8 Q. Dr. Leby, what did you conclude regarding your  
9 analysis of RAB's LOTBLASTER and TRIBORO products using the  
10 T2, T3 and T4 lenses?

11 A. Sure. My conclusion that RAB's LOTBLASTER and  
12 TRIBORO products using those lens types T2, T3 and T4 in  
13 Claims 1, 3, 4, 5 and 10 of the '570 Patent.

14 Q. Dr. Leby, with respect to slide 12 of your  
15 presentation, let's start walking through the claim  
16 language.

17 First of all, what is the preamble of Claim 1?

18 A. Preamble is a lens for distribution of light,  
19 predominantly towards the preferential side from the light  
20 emitter having an emitter axis, and defining an emitter  
21 plane, comprising.

22 Q. What conclusion did you draw regarding this  
23 preamble in the LOTBLASTER and the TRIBORO products?

24 A. So to look at the LOTBLASTER and the TRIBORO  
25 products, I examined the specification sheet. As you can

1 see, CX-666 for each one of those, and CX-668, and when I  
2 looked at the specification sheet, I found light  
3 distribution diagrams for the LOTBLASTER, which is the  
4 upper three yellow graphs, and the light distribution  
5 diagrams for the TRIBORO, which is the lower three  
6 distribution graphs.

7                   What I was looking for where -- was where the  
8 light distribution was going from light emitter, and you  
9 can see for T2, T3, and T4, the light emitter is depicted  
10 by a small gray dot in each one of those, and the same for  
11 the TRIBORO figures below.

12                   And you can see the distribution of light is  
13 predominantly towards the preferential side.

14                   MR. HAMSTRA: Your Honor, at this point, we need  
15 to go on to the third-party confidential record. This is  
16 of LEDiL, three of the -- the only three images that  
17 they've asked to us go on the confidential record for.

18                   JUDGE CHENEY: Okay. We will now go on to the  
19 confidential record for LEDiL.

20                   If you're not subscribed to the protective  
21 order, you should leave the hearing room.

22                   (Whereupon, the trial proceeded in confidential  
23 session.)

24

25

1 O P E N S E S S I O N

2 JUDGE CHENEY: We're now back on the public  
3 record after I asked a question on the confidential record  
4 about some of the material.

5 Please proceed with your examination.

6 BY MR. HAMSTRA:

7 Q. Dr. Leiby, the preamble of Claim 1 also speaks  
8 of light from a light emitter having an emitter axis and  
9 defining an emitter plane.

10 Can you explain what those terms mean with  
11 respect to this annotated photo of CPX-35?

12 A. Yes.

13 What we are looking at here is an actual product  
14 from LOTBLASTER and TRIBORO, and I have annotated that with  
15 a red circle that shows where the light emitter is, where  
16 the LED is, and we can see there's a number of those on  
17 that panel and they're fixed in position.

18 I've also annotated in a vertical green dotted  
19 line where the emitter axis is as defined by the '570  
20 Patent.

21 And I've also annotated, and it's a little bit  
22 more difficult to see, a horizontal emitter plane, and that  
23 plane is actually positioned right on top of the emitter  
24 chip, the LED chip.

25 Q. Dr. Leiby, it's a little bit difficult to convey

1 three dimensions in a two-dimension photo. Could you just  
2 describe a little bit in more detail the relationship  
3 between the emitter axis in green and the emitter plane in  
4 blue?

5 A. So the emitter axis is perpendicular to the  
6 emitter plane, as indicated, and taught by the '570 Patent.

7 Q. Dr. Leby, how were you able to determine where  
8 the emitter is located in the TRIBORO products and  
9 LOTBLASTER products with respect to the lens?

10 A. So on inspection, the emitter chip is actually  
11 located and fixed in position, and that lens actually is  
12 positioned on top of the emitter chip, and is -- I would  
13 say -- I wouldn't say locked, but positioned in place so  
14 the emitter chip cannot be moved.

15 Q. All right, Dr. Leby, let's turn to the next  
16 limitation, an outer surface configured for refracting  
17 emitter light predominantly toward the preferential side.

18 Dr. Leby, could you explain what the first row  
19 of figured or photos on CDX-2C.16 are referring to?

20 A. Yes.

21 The top of three images are teardowns of the T2,  
22 T3 and T4, showing the cross-section. What I have  
23 annotated with a blue contour line is where I see the outer  
24 surface that -- on each of these lens products. And then  
25 in the lower three images are computer-aided design images

1 where I have annotated in blue where the outer surface is.

2 Q. Dr. Leiby, just for the record, could you  
3 identify the photos in the first row here?

4 A. The photos in the top row of three of T2, T3 and  
5 T4 are CX-661C, 662C and 664C.

6 MR. HAMSTRA: Your Honor, I now ask to go back  
7 on the confidential record, again, for LEDiL CBI.

8 JUDGE CHENEY: We are now back on the LEDiL  
9 confident record. If you are not subscribed to the  
10 protective order, please leave the hearing room.

11 (Whereupon, the trial proceeded in confidential  
12 session.)

13

14

15

16

17

18

19

20

21

22

23

24

25

1 O P E N S E S S I O N

2 JUDGE CHENEY: Please proceed, counsel.

3 MR. HAMSTRA: Thank you, Your Honor.

4 BY MR. HAMSTRA:

5 Q. Dr. Lebby, the next element of Claim 1 reads,  
6 "Refracting inner surface configured for refracting light  
7 from the emitter."

8 Were you able to identify such a refracting  
9 inner surface in the LOTBLASTER and TRIBORO products?

10 A. Yes, I did. And looking at three different  
11 2-by-6 lens designs, T2, T3, T4. Now what we are looking  
12 at here is the computer-aided design image of the underside  
13 of these lenses.

14 And looking at the underside, I have actually  
15 enlarged in all of these three different images where I  
16 have annotated in blue the refractive -- the refracting  
17 inner surface.

18 MR. HAMSTRA: Your Honor, I'm going to ask to go  
19 back on the LEDiL CBI record for the next slide.

20 JUDGE CHENEY: Okay. We're back on the LEDiL  
21 confident record.

22 MR. HAMSTRA: Mr. Jay, could you move the mouse  
23 there just so I can see who that is.

24 Ms. Fenster, could you join the breakout  
25 session?



1 All right. We're clear, Your Honor.

2 (Whereupon, the trial proceeded in confidential  
3 session.)

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 O P E N S E S S I O N

2 BY MR. HAMSTRA:

3 Q. Dr. Leby, the inner surface comprises a front  
4 sector centered on the preferential side.

5 Were you able to locate such a front sector in  
6 the accused products?

7 A. Yes.

8 So on the top three images, you are seeing CAD  
9 cross-sections of the T2, T3, and T4 lens designs. I have  
10 annotated each one of these with a blue vertical dotted  
11 line, which is the emitter axis as indicated, and taught by  
12 the '570 Patent.

13 Then I have drawn a green contour where the  
14 front sector is. I have also done exactly the same for  
15 three images of cross-section teardowns of products of T2,  
16 T3, and T4 in the lower three images, and you can see the  
17 blue annotated vertical line where the emitter axis is, and  
18 you can see it's positioned at the center of the LED chip,  
19 as indicated and taught by the '570 Patent, and you can see  
20 the green contour, which is where I have indicated  
21 different sectors.

22 Q. Again, for the record, Dr. Leby, could you just  
23 reference the exhibit numbers for those photos you  
24 annotated?

25 A. CX-661C, 662C, and 664C.

1 Q. Now, Dr. Leiby, the claim requires that this  
2 front sector be centered on the preferential side.

3 How would one of ordinary skill in the art  
4 understand it to mean for a front sector to be centered on  
5 a particular side?

6 A. So to answer this question, you have to look  
7 into the specification, and the figures of the '570 Patent,  
8 of which there is a couple of excerpts here.

9 Centered on is -- so you have to look at where  
10 the lens is, as indicated lens 10. It is bilaterally  
11 symmetrical by plane 4 as indicated by the spec. So go  
12 look at the lower right-hand image, Figure 5 from the '570  
13 Patent, what is depicted in that image is a horizontal  
14 line, which I have annotated with red as a red dotted line.  
15 That's labeled number four, and that is the bilateral  
16 symmetrical plane as indicated by the '570 Patent.

17 So that gave me the understanding of what  
18 "centered on" means.

19 Q. So, Dr. Leiby, how did you apply that analysis  
20 to the T2, T3 and T4 lenses as shown in slide 23 here?

21 A. So I looked for the bilateral symmetry as  
22 indicated in the previous slide for the T2, T3, and T4 lens  
23 designs. As you can see here, we're looking at the  
24 computer-aided design images from the underside of those  
25 lens panels, I have annotated in red as the red dotted

1 line, the bilateral symmetry line as indicated in the  
2 previous slide, and I have also annotated where the front  
3 sector is in sort of a yellowy color in each one of those  
4 products.

5 Q. Dr. Leby, what makes the front sectors you  
6 identified centered on the preferential side in particular?

7 A. So the front center needs to be centered because  
8 it needs to be bilaterally symmetrical as indicated by the  
9 specification of the '570 Patent, and that's how I have  
10 depicted where those red dotted lines are placed.

11 Q. And what makes this front sector be on the  
12 preferential side?

13 A. So the '570 Patent teaches that the front sector  
14 needs to have -- the boundary condition is the emitter  
15 axis, and the emitter axis as indicated in the '570 Patent  
16 is positioned at the center of the LED chip, and so to the  
17 right of that on the preferential side of that is the front  
18 sector.

19 To be centered, it's got to have bilateral  
20 symmetry as indicated in the '570 Patent.

21 Q. Thank you, Dr. Leby.

22 So turning to slide 23, the next element reads,  
23 "A back sector centered on the non-preferential side," and  
24 then continues.

25 Were you able to identify such a back sector in

1 the accused products?

2 A. Yes, I was, and the top row of images, the three  
3 images of T2, T3, and T4 are computer-aided design  
4 cross-section images, as we have seen before. I have the  
5 annotation of the emitter axis, which is the vertical blue  
6 dotted line.

7 I have also annotated in magenta, the back  
8 sector, which is on the non-preferential side to the left  
9 of the emitter axis, and you can see that in all three of  
10 those images on the top row.

11 I have also annotated three images of the  
12 cross-section of the actual products in the bottom three  
13 images, and you can see I have positioned the emitter axis  
14 at the center of the LED chip, and I have also annotated in  
15 magenta, the back sector in T2, T3 and T4, and those are  
16 CX-661C, 662C, and 64C.

17 Q. Thank you, Dr. Lebby.

18 Turning to CDX-2C.25.

19 How were you able to determine whether that back  
20 sector you identified is, in fact, centered on the  
21 non-preferential side?

22 A. So in order to determine this, for the T2, T3  
23 and T4 lens designs, I, again, looked at the CAD, the  
24 computer-aided design images. I turned them upside-down,  
25 but actually in this particular viewpoint. They're at an

1 oblique angle, but you can see they're not fully  
2 upside-down.

3           You can see inside. I have annotated with the  
4 red dotted line the bilateral symmetry line, as taught by  
5 the '570 Patent in each one of those.

6           I have also indicated with the orange arrow  
7 indicating the non-preferential side, which is to the left  
8 of that emitter axis which is the blue vertical dotted line  
9 we saw in the previous slide.

10        Q.     Turning to slide 26, this element speaks of a  
11 non-preferential side radially opposite the preferential  
12 side.

13           What did you understand that to mean, one side  
14 radially opposite the other?

15        A.     So the first thing I needed to do on the  
16 right-hand image is to look what radial means.

17           So what I have there is a drum-like figure  
18 showing the radial preferential side versus the  
19 non-preferential side. I have also shown a vertical arrow,  
20 which is the longitudinal axial arrow.

21           We can see, as we move over to the image on the  
22 left-hand side, that axial longitudinal arrow aligns well  
23 with the emitter axis, which is that vertical blue dotted  
24 line, which it depicts between the non-preferential side  
25 and the preferential side, and so radially opposite the

1 preferential side is going to be on the left-hand side of  
2 that blue dotted vertical line.

3 Q. Dr. Leby, turning to your slide 27, what does  
4 this element require of the surface configurations of the  
5 front and back sector?

6 A. So as we can see of these three images, which  
7 are CAD images of cross-sections of T2, T3 and T4 lenses,  
8 what I have annotated in each one of these is the emitter  
9 axis. Again, which is the vertical blue dotted line.

10 And to the right of that, I have annotated in  
11 green, a green contour of the surface configuration of T2,  
12 T3 and T4, and to the left-hand side of that vertical blue  
13 dotted line emitter axis, I have annotated in magenta, the  
14 surface configuration of the back sector.

15 So the back sector configuration, as we can see  
16 on T2 is sort of discontinuous. It has a sharp corner to  
17 it. It's very different in profile to the green contour,  
18 which is more smoother.

19 That's the T2.

20 For T3, it is similar, where the back sector,  
21 magenta contour is discontinuous. It's got a sharp corner.  
22 It's quite different in configuration than the green  
23 contour line, which is on the right-hand side of the  
24 emitter axis in T3.

25 It is also different in T4, too. So the magenta

1 back sector contour is different in surface configuration  
2 than the green contour, which is the front sector on T4.

3 Q. Dr. Leby, how do you respond to RAB's  
4 contention that your selection of the emitter axis is the  
5 dividing line between those sectors is arbitrary because  
6 the lens can be moved with respect to the emitter?

7 A. So I went to look at the data sheet, CX-672 on  
8 the right, and there's an image from the data sheet there,  
9 to the position of the LED in the primary lens in yellow.  
10 We can see the secondary lens in gray.

11 The position of the LED in the primary lens is  
12 fixed. To confirm it was fixed, I looked at the actual  
13 image on the left-hand side, and we can see the positions  
14 of the LED and the primary lenses in sort of yellow dome  
15 objects.

16 There's four of them there. They are fixed in  
17 position. So they are not arbitrary at all.

18 Q. So, Dr. Leby, what did you conclude regarding  
19 RAB's infringement of Claim 1 of the '570 Patent?

20 A. So as I went through Claim 1, and all of the  
21 sub-claim elements, and matched them to what I saw in the  
22 LOTBLASTER and the TRIBORO products, I found they both  
23 infringe Claim 1.

24 Q. So, Dr. Leby, let's turn to the next claim  
25 you're opining on, Claim 3, at slide 30.



1           What does this claim require?

2           A.     The claim requires an inner refracting surface,  
3 which defines an emitter surrounding cavity with an emitter  
4 receiving opening in an emitter adjacent base in the lens.

5           To look at this, I looked at the T2, T3 and T4  
6 products. So on the top row of three images of CAD  
7 cross-sections, and I have annotated those with two colors.

8           For the emitter-surrounding cavity, which is in  
9 purple, I have a purple arrow showing where the  
10 emitter-surrounding cavity is for T2, T3 and T4, and I have  
11 actually annotated in blue where the emitter adjacent base  
12 end is for T3 and T4.

13           Now, in the lower three images, which are actual  
14 cross-section of teardowns of T2, T3 and T4, I have  
15 annotated with a purple arrow where the emitter surrounding  
16 cavity is on all three of those, and those are CX-661C,  
17 662C and 664C.

18           Q.     So based on your analysis, what is your  
19 conclusion regarding RAB's infringement of Claim 3?

20           A.     My conclusion is that RAB's LOTBLASTER and  
21 TRIBORO products do infringe Claim 3 of the '570 Patent.

22           Q.     Dr. Leby, let's turn to slide 31.

23           What did you conclude regarding this claim?

24           A.     So this claim talks about a reflecting primary  
25 back surface. And to look for that, I took the three CAD

1 cross-sectional images that I have been using for T2, T3  
2 and T4, and I have annotated in magenta where the  
3 reflecting prime back surface is for CPX-1893, 1894 and  
4 1895.

5 Q. Dr. Leby, this claim recites total internal  
6 reflection or TIR.

7 Can you explain with reference to this figure  
8 from CX-680 what that means?

9 A. Yes.

10 The image on the right-hand side is an optical  
11 image. I know I had some mathematical formula on that, but  
12 I'll keep it simple.

13 If we just assume  $N_1$ , which is a material, we  
14 can consider that as acrylic or we can consider that like  
15 water, and  $N_2$  is another material, and this time it's air,  
16 just assume that's air. We know the optical refractive  
17 index of air is 1, and the optical refractive index of  
18 water is about 1.33 and of acrylic is about 1.5.

19 Now, if you are at that blue -- sorry, the gray  
20 point in the bottom left-hand part of that image on the  
21 right-hand side, and the light travels upwards vertically,  
22 then it's going to leave the body of water or the acrylic  
23 and go into the air.

24 Now, if that light goes to the right, it will  
25 actually see a total internal reflection. So not all the

1 light will get totally internally reflected, but some of  
2 the light. But what does that really mean? And so as I'm  
3 a swimmer, I just thought about sitting in the bottom of a  
4 swimming pool. And if you sit in the bottom of a swimming  
5 pool and you look directly up, you will see the lights at  
6 the ceiling, just like the figure shows on the right-hand  
7 side.

8                   But if you look down the pool and you sat at the  
9 bottom, what you will see is the reflection of those black  
10 lane markers in the surface of the water. That's total  
11 internal reflection. Not all the light gets totally  
12 internally reflected because some of it leaves so you can  
13 see the lights in the ceiling, but some of it also gets  
14 TIR, total internal reflection.

15                   MR. HAMSTRA: Your Honor, we need to return to  
16 the LEDiL confidential record once more.

17                   JUDGE CHENEY: Okay. We're back on the LEDiL  
18 confidential record.

19                   (Whereupon, the trial proceeded in confidential  
20 session.)

21

22

23

24

25

1 O P E N S E S S I O N

2 JUDGE CHENEY: Please proceed when you are  
3 ready, counsel.

4 BY MR. HAMSTRA:

5 Q. So, Dr. Leiby, how did you conduct your analysis  
6 of Claim 10 of the '570 Patent?

7 A. So I looked at the claim elements of Claim 10  
8 and compared them to what is on the right-hand side of this  
9 slide, Claim 4, which is dependent on Claim 1.

10 Q. What did you observe about the similarity  
11 between the requirements of Claim 10 on one hands, and  
12 Claims 4 and 1 on the other?

13 A. So what I observed was if the products infringed  
14 Claim 1 and Claim 4, that they will infringe Claim 10 as  
15 well.

16 Q. So, Dr. Leiby, what did you conclude regarding  
17 RAB's infringement of Claims 1, 3 through 5, and 10 of the  
18 '570 Patent?

19 A. So I concluded that Claims 1, 3, 4, 5 and 10  
20 infringe the -- or the LOTBLASTER and the TRIBORO products  
21 infringe the '570 Patent.

22 Q. Dr. Leiby, what is your understanding of the  
23 parties' agreement with respect to technical domestic  
24 industry in the '570 Patent?

25 A. I understand there is a stipulation.

1 Q. And what is the effect of that stipulation?

2 A. That the Cree products practice the claims of  
3 the '570 Patent.

4 Q. Okay. Thank you, Dr. Leiby. That's right. So  
5 I won't ask you questions about that.

6 So, Dr. Leiby, did you also have an opportunity  
7 to perform an analysis of secondary considerations of  
8 non-obviousness?

9 A. I did.

10 Q. What did you conclude regarding whether the  
11 secondary considerations supported non-obviousness of the  
12 claimed inventions of the '570 Patent?

13 A. I concluded they did and there was an nexus to  
14 commercial success.

15 Q. So, Dr. Leiby, what did you summarize on  
16 CDX-2C.58?

17 A. So these are the secondary considerations that I  
18 took into account. I'm not going to read the slide, but  
19 there's a list of them.

20 Q. Dr. Leiby, we kept this high-level so we can  
21 stay on the public record, but what is your understanding  
22 of whether the '570 Patent has been licensed?

23 A. Yes, the '570 Patent has been licensed as  
24 indicated by JX-77C, CX-345C, CX-343C, CX-342C, and the  
25 licensing is generally a really good sign that the

1 technology has been properly commercialized.

2 Q. You were here for Mr. Wilcox's and  
3 Mr. Bakewell's testimony today, right, Dr. Leiby,  
4 virtually?

5 A. Yes, I was.

6 Q. Based on that testimony and your overview of the  
7 evidence, do you also have an opinion of whether the  
8 products have -- the domestic industry products have  
9 experienced commercial success due to sales?

10 A. Well, I saw numbers for the '570 Patent that  
11 were in excess of \$100 million, and that is pretty  
12 impressive. So that is a really good indicator that there  
13 is commercial success.

14 Q. Dr. Leiby, did you also have an opportunity to  
15 analyze the record for evidence of long-felt but unmet need  
16 for the claimed invention?

17 A. I did, and this shows one of the press releases  
18 I believe came out in 2013. In this press release, I  
19 looked for evidence to see that the '570 teaching has been  
20 applied and implemented, and we can see that Cree's nano  
21 update precision technology achieves better optical  
22 control, and optical control is what the '570 Patent  
23 teaches for new types of street lighting fixtures over and  
24 above the traditional ones.

25 And so to me, that was evidence that an unmet

1 need was fulfilled.

2 Q. Dr. Leby, slide 61 features another exhibit,  
3 CX-649C, what did that indicate regarding long-felt but  
4 unmet need for this invention?

5 A. So for this slide, I looked at the LED lighting  
6 product guide on the left-hand side, and I was looking for  
7 words like -- or phrases like "precise optical control" or  
8 "optical control."

9 We can see here that these LED vectors do  
10 improve the optical control in terms of application  
11 performance as well as energy savings.

12 This superior light control delivers more  
13 lumens, and certainly delivered it in a targeted area. So  
14 what we can see from the image below are improved  
15 uniformity ratios, and controlled high-angle brightness.

16 On the left-hand side of the photographic image  
17 is the classic high pressure sodium lighting as we all know  
18 is sort of orangey in color, and we can see the LED  
19 lighting on the right-hand side, and it looks really good  
20 from my perspective.

21 Q. Dr. Leby, based on your analysis of the  
22 evidence including CX-469C and JX-84 from the prior slide,  
23 what is your conclusion whether there is a nexus between  
24 the invention of the '570 Patent and the commercial success  
25 of Cree's lighting products?

1           A.     To me, there was a clear nexus. I have seen  
2 that in the sales of the products as well as the  
3 performance of the products, and the fact that the superior  
4 the optical control has been implemented into the products.

5           Q.     And, Dr. Leiby, did you also consider whether  
6 the '570 Patent asserted claims are entitled to the  
7 priority of a provisional application to which the '570  
8 Patent claims priority?

9           A.     Yes, I did.

10           JUDGE CHENEY: Counsel, is this a substantial  
11 new line of questions that will take a while?

12           MR. HAMSTRA: I think it's probably only about  
13 five minutes, and then we'll be done, but I'll happy pick  
14 this up tomorrow.

15           JUDGE CHENEY: No, if you can get your direct  
16 done in five minutes, that's great.

17           MR. HAMSTRA: All right.

18 BY MR. HAMSTRA:

19           Q.     So, Dr. Leiby, what did you conclude regarding  
20 whether the asserted claims are entitled to the benefit of  
21 provisional application serial number 61055958?

22           A.     So I found that Claims 1, 3, 4 and 10 are  
23 entitled to the original priority date of the '958  
24 provision.

25           Q.     So, Dr. Leiby, you have annotated CX-965 on



1 slide 64. Starting with the preamble, where is the  
2 preamble shown in the figures of that provisional  
3 application?

4 A. So I've annotated two figures here. The figure  
5 on the left is the figure 11 from the provisional. I have  
6 annotated where the preferential side is, number 35.

7 I have also annotated in the right-hand image,  
8 which is Figure 15 from the provisional, where the  
9 preferential side is, and you can see that's on the  
10 right-hand side.

11 Also I have annotated in blue where the emitter  
12 axis is, and the emitter axis in the right-hand image is  
13 seen by that blue dotted vertical line, emitter axis 44.

14 Q. What did the ray trace in Figure 11 of the  
15 provisional application show you about output towards a  
16 preferential side?

17 A. We can see the ray traces, which I think are  
18 labeled 35, that are actually a majority of those ray  
19 traces are directed towards the preferential side.

20 Q. Dr. Leby, turning to your slides, 65, could you  
21 briefly identify where you found the claimed outer surface  
22 refracting an inner surface and front sector?

23 A. Yes. From the '958 provisional looking at the  
24 image on the right-hand side, which is Figure 15, you can  
25 see I've annotated in yellow the output end surface 57 or

1 the outer surface.

2 I have also annotated in purple the refractive  
3 inner surface with the direction of the purple arrow. I  
4 have also annotated in green with the direction of the  
5 green arrow, the front sector, which is centered on the  
6 preferential side, and we can see the preferential side is  
7 on the right-hand side of the emitter axis, which is 44.

8 Q. Then, finally, Dr. Lebbby, with respect to Claim  
9 1, were you able to identify the required back sector?

10 A. So the back sector is on the non-preferential  
11 side of the emitter axis, as I have indicated in magenta  
12 with a magenta arrow.

13 I also looked for the surface configuration that  
14 was different, so a portion of the back sector is annotated  
15 in yellow.

16 Another portion of the front sector is annotated  
17 in purple. We can see that the purple is substantially  
18 planer or its flat or it looks like a straight line,  
19 whereas the yellow, certainly, as indicated by the  
20 provisional, has a convex shape to it, and so they are  
21 different.

22 Q. Turning to Claim 3, Dr. Lebbby, with respect to  
23 your slide 67, were you able to identify an  
24 emitter-surrounding cavity as claimed?

25 A. Yes. I annotate that in Figure 11 and Figure 15

1 of the provisional with the purple arrow as indicated.

2 Q. Turn to Claim 4.

3 Were you able to identify the claimed -- the  
4 claim reflecting primary back surface in the '958  
5 provisional application?

6 A. Yes, you can see the reflecting primary back  
7 surface annotated in pink in Figure -- I can't see  
8 backwards. It looks like it's 13 in Figure 11.

9 That's number 59. I've also annotated in yellow  
10 light from at least a portion of the refracting inner  
11 surface back sector, and I have also annotated in green  
12 where the light is directed from the LED to the outer  
13 surface.

14 That passes through total internal reflector,  
15 and then goes to the lens outer surface, which is the  
16 direction of the arrow head.

17 Q. Dr. Leby, based on your previous analysis of  
18 the similarities between Claims 1 and 4 on one hand and  
19 Claim 10 on the other, what is your conclusion regarding  
20 claims -- Claim 10 is also entitled to the benefit of the  
21 '958 application?

22 A. Yes, I agree. I believe Claim 10 is also  
23 entitled to the benefit of the '958 application priority  
24 date.

25 Q. And turn to your last slide of the day,

1 Dr. Lebbby, slide 69.

2 How do you respond to RAB's argument that the  
3 figures you just testified about are not actually included  
4 in the '570 Patent itself?

5 A. Well, the face of the '570 Patent has the '958  
6 provisional incorporated by reference, and so I agree with  
7 that.

8 Q. All right. Dr. Lebbby, in conclusion, what is  
9 your opinion about whether Claims 1, 3, 4 and 10 of the  
10 '570 Patent are entitled to the filing date of the '958  
11 provisional?

12 A. I agree. I believe they are.

13 MR. HAMSTRA: So I'll pass the witness, Your  
14 Honor.

15 JUDGE CHENEY: Thank you. Dr. Lebbby, we're  
16 going to get to your cross-examination tomorrow.

17 And so I'm instructing you not to discuss your  
18 testimony with anyone until you come back to the stand  
19 tomorrow.

20 Do you have any questions about that?

21 THE WITNESS: No, Your Honor.

22 JUDGE CHENEY: Okay. Now, you may step down  
23 while I address some housekeeping matters with the  
24 attorneys.

25 THE WITNESS: Thank you.

1                   JUDGE CHENEY:  Let's go on the confidential  
2 record.

3                   (Whereupon, the trial proceeded in confidential  
4 session.)

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 O P E N S E S S I O N

2 JUDGE CHENEY: We're back on the public record.

3 In the confidential session, I was asking counsel about  
4 things that were marked as confidential information that  
5 concededly were not confidential, and I asked counsel to  
6 make corrections so that we don't go through this again  
7 later in the hearing.

8 I've also instructed counsel for Cree to  
9 coordinate with counsel for LEDiL to make sure that we  
10 understand the basis for some of the LEDiL designations,  
11 and counsel has indicated that there are no other issues  
12 for us to discuss before we close the hearing for the day.

13 So we are now off the record.

14 (Whereupon, the proceedings were adjourned at  
15 4:46 p.m.)

16

17

18

19

20

21

22

23

24

25

1	I N D E X				
2					PAGE
3	Complainant Opening Statement				18
4	Respondent Opening Statement				32
5					
6	Witnesses	Direct	Cross	Redirect	Re-Cross
7	Kurt Wilcox	46	109		
8	Christopher	129	185		
9	Bakewell				
10	Michael	226			
11	Lebby PhD				
12					
13					PAGE
14	Afternoon Session				142
15					
16	Confidential Sessions: 61-63; 73-74; 80-81; 84-86;				
17		100-104; 106-108; 132-133; 146-155;			
18		160-162; 165-168; 171-172; 176-180;			
19		183-184; 194-201; 205-209; 213-224;			
20		235-238; 242-243; 246-247; 258-261; 272-277			
21					
22					
23					
24					
25					





1 JPX-0037C  
2 JPX-0038C  
3 JPX-0039C  
4 JPX-0040C  
5 JPX-0041C  
6 JPX-0042C  
7 JX-0125C  
8 JX-0125  
9 RX-0071  
10 JX-0005  
11 JX-0063C  
12 JX-0066C  
13 JPX-0074C  
14 JPX-0075C  
15 CX-0076  
16 JX-0154  
17 JX-0150  
18 JX-0151  
19 JX-0155  
20 JX-0156  
21 UNOPPOSED EXHIBITS OFFERED FOR ADMISSION  
22 JX-0001  
23 JX-0002  
24 JX-0003  
25 JX-0004

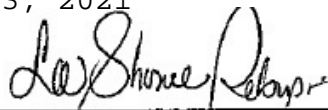
1 JX-0005  
2 JX-0006  
3 JX-0007  
4 JX-0008  
5 JX-0009  
6 JX-0010  
7 JX-0168  
8 CX-0016C  
9 CX-0017C  
10 CX-1839  
11 CX-1840  
12 CX-1841  
13 CX-1842  
14 CX-1843  
15 CX-1844  
16 CX-1845  
17 CX-1846  
18 CX-1847  
19 CX-1848  
20 CX-1849  
21 CX-1850  
22 CX-1851  
23 CX-1852  
24 JX-0169C  
25 CPX-0693C

1 CPX-0694C  
2 CPX-0695C  
3 CPX-0696C  
4 CPX-0697C  
5 CPX-0698C  
6 CPX-0699C  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

1 CERTIFICATE OF REPORTER  
2 TITLE: Certain Light-Emitting Diode Products, Fixtures,  
3 and Components Thereof  
4 INVESTIGATION NO: 337-TA-1213  
5 HEARING DATE: May 3, 2021  
6 LOCATION: Washington, D.C. - Remote  
7 NATURE OF HEARING: Evidentiary Hearing

8 I hereby certify that the foregoing/attached  
9 transcript is a true, correct and complete record of the  
10 above-referenced proceedings of the U.S. International  
11 Trade Commission.  
12 Date: May 3, 2021

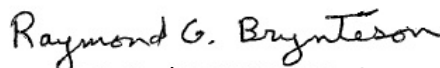
11 SIGNED:



12 Signature of the Contractor of the  
13 Authorized Contractor's Representative  
14 1220 L Street, N.W., Suite 206  
Washington, D.C. 20005

15 I hereby certify that I am not the Court Reporter  
16 and that I have proofread the above-referenced transcript  
17 of the proceedings of the U.S. International Trade  
18 Commission, against the aforementioned Court Reporter's  
19 notes and recordings, for accuracy in transcription in the  
spelling, hyphenation, punctuation and speaker  
identification and did not make any changes of a  
substantive nature. The foregoing/attached transcript is a  
true, correct and complete transcription of the  
proceedings.

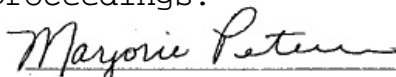
20 SIGNED:



Signature of Proofreader

21 I hereby certify that I reported the above-referenced  
22 proceedings of the U.S. International Trade Commission and  
23 caused to be prepared from my tapes and notes of the  
24 proceedings a true, correct and complete verbatim recording  
of the proceedings.

25 SIGNED:



Signature of the Court Reporter