7. More specifically, the below table specifies the Asserted Patents that each Proposed Respondent is alleged to infringe.[7]

Proposed Respondent[8]	Asserted Patents
Nichia Respondents	'483 Patent, '053 Patent, '421 Patent
Cree Respondents	'483 Patent, '053 Patent, '421 Patent
OSRAM Respondents	'483 Patent, '053 Patent, '421 Patent
Lumileds Respondents	'483 Patent, '053 Patent, '421 Patent
Signify Respondents	'483 Patent, '053 Patent, '421 Patent, '118 Patent, '608 Patent, '968 Patent, '844 Patent, '518 Patent
MLS Respondents	'483 Patent, '053 Patent, '421 Patent, '118 Patent, '608 Patent
GE Respondents	'483 Patent, '053 Patent, '421 Patent, '118 Patent, '608 Patent
Acuity Respondents	'483 Patent, '053 Patent, '421 Patent, '118 Patent, '608 Patent, '968 Patent, '844 Patent, '518 Patent
Eaton Respondents	'483 Patent, '053 Patent, '421 Patent, '118 Patent, '608 Patent
Leedarson Respondents	'421 Patent, '608 Patent, '968 Patent, '844 Patent, '518 Patent

8. The Asserted Patents have collectively received well over 500 citations by later patent applications. Indeed, many of the Respondents themselves have cited one or more of the Asserted Patents in seeking their own, later patents.

9. LSG seeks, as relief for the unfair acts of Respondents, the following: (i) an investigation into Respondents' violations; (ii) a public hearing; (iii) a limited exclusion order barring from entry into the United States all of the Accused Products that infringe one or more of the Asserted Patents and/or are falsely and misleadingly advertised, excluding from entry into the United States all of the Accused Products that infringe one or more of the asserted claims of the Asserted Patents; (iv) a general exclusion order barring from entry into the United States all of the Accused Products that infringe one or more of the Asserted Patents, excluding from entry into the

[7] As the table demonstrates, the allegations and causes of actions set forth in this complaint with respect to the Proposed Respondents significantly overlap and present no clear or practical basis for severance.

[8] The Proposed Respondents are defined in Section III below.

United States all of the Accused Products that infringe one or more of the asserted claims of the Asserted Patents; (v) a permanent cease and desist order directing all Proposed Respondents to cease and desist from activities that include, but are not limited to, importing, selling, selling for importation, offering for sale, transferring, distributing, warehousing inventory for distribution, using, assembling, qualifying for use in the products of others, testing, installing, promoting, marketing, advertising, demonstrating, and soliciting the sale in the United States, all of the Accused Products and/or products containing the Accused Products that infringe one or more of the Asserted Patents and/or falsely and misleadingly advertised; (vi) the imposition of a bond on importation and sales of infringing and/or falsely and misleadingly advertised products during the 60-day Presidential review period pursuant to 19 U.S.C. § 1337(j), and (vii) such other relief as the Commission deems proper.

II. Complainants

A. Lighting Science Group Corporation

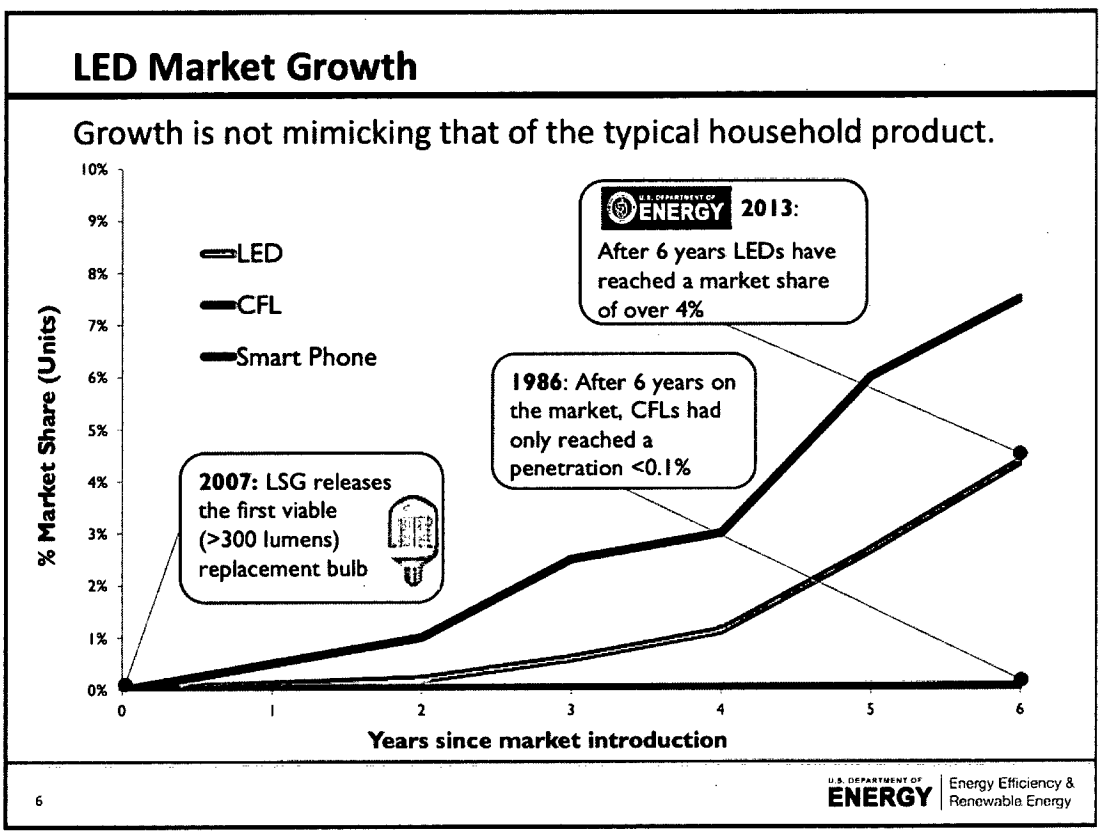
10. Lighting Science Group Corporation ("LSG") is a corporation organized under the laws of Delaware with its corporate headquarters at 1350 Division Road, Suite 204, West Warwick, Rhode Island 02893 and its principal place of business at 801 N. Atlantic Avenue, Cocoa Beach, Florida 32931.

11. Both directly and through its subsidiaries, LSG is in the business of manufacturing, researching, developing, and selling devices and systems that use LEDs as the light source.[9]

[9] As of January 1, 2019, LSG transferred certain of its product lines to its newly formed, wholly-owned subsidiary, Complainant Healthe, Inc.

Complainants' LED lighting business was founded in 2000 by Fredric Maxik, who continues to serve as LSG's Chief Technical Officer.[10]

12. Throughout its history, LSG has been at the frontier of LED technological innovation. The Department of Energy has recognized LSG as the first U.S.-based manufacturer to make an LED light commercially available, launching an industry whose consumer adoption and market penetration have nearly rivaled that of the smartphone.[11]



Screenshot from DOE Market Introduction Workshop[12]

[10] Complainants' LED business began in 2000 through NuGreen, Inc., whose LED business and assets were ultimately acquired by Lighting Science, Inc., which, in December 2004, became Lighting Science Group Corporation.

[11] Ex. 102 ("DOE's Market Introduction Workshop") at 6.

[12] *Id.*

13. LSG also created the first LED retrofit lamp to qualify for ENERGY STAR® certification.[13] LSG's innovative LED lighting products have spanned across numerous segments, from energy-efficient retrofit bulbs, to solar street lighting fixtures, to biological lighting solutions that promote healthy circadian rhythms, among others. LSG has won numerous awards for its technological contributions, including Sustainability Awards, Edison Awards, Sapphire Awards, Popular Science Magazine's 2016 Best of What's New Award, and the Illuminating Engineering Society Illumination Award.[14]

14. The White House has also recognized LSG's contributions to lighting innovations, noting that LSG "is staffed by thought-leaders in design, engineering and manufacturing who, by taking a holistic approach to R&D, turn ideas into intelligent LED lighting solutions; faster, better and more successfully than the competition. And that success shows, with consumers, cities, federal agencies, national retailers and global brands all choosing reliable Lighting Science products."[15]

15. LSG's founder, Fred Maxik, has also received widespread recognition. In 2011, the White House identified Mr. Maxik as a "Champion of Change."[16] Mr. Maxik has received a Congressional Medal of Merit, the NASA Group Achievement Award, the Samuel Bard Award in Science and Medicine, the Friends of the Phelophepa Award, and the Business Intelligence Group

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[13] Ex. 103 ("Lighting Science Group Receives Industry's First Energy Star Label for an LED Bulb"); Ex. 104 (LSG 2011 SEC Form 10-K) at 7.

[14] Ex. 105 (LSG Introduction to Biological Lighting) at 2.

[15] Ex. 106 ("Champions of Change: Winning the Future Across America" – White House Archives).

[16] *Id.*

2016 "Sustainability Hero of the Year" award.[17] Mr. Maxik's prolific inventive contributions to the LED space have resulted in 197 issued U.S. patents.

16. In 2008, LSG entered the LED street lighting market when it was selected by The New York City Department of Design and Construction, from among more than ten global lighting companies, to engineer and produce the winning LED-based design of the City Lights 21st Century Streetlight Design Competition.[18] LSG's street lighting portfolio broadened in 2015 to include the FreeLED® Solar LED Street Light, which is brighter, more efficient, and longer-lasting than traditional street lighting solutions.[19]

17. In 2010, LSG partnered with The Home Depot to introduce the EcoSmart 9W A19 LED Light Bulb ("EcoSmart A19 Bulb"), the first 40-watt equivalent bulb that sold for less than $20.[20] The EcoSmart A19 Bulb required approximately 80% less energy than similarly bright incandescent bulbs, and it was more than 50% cheaper than similar LED products.[21] That same year, LSG became the first company to produce a retrofit lamp that qualified for the Department of Energy's ENERGY STAR® certification.[22]

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[17] Ex. 107 (Partnership for a Healthier America); Ex. 108 (LSG's Maxik Named Sustainability Hero of the Year by BIG).

[18] Ex. 109 (NYC Lights Design Competition).

[19] Ex. 110 ("Lighting Science Group Launches Innovative Solar-Powered LED Street Lights with Partner BHP Energy Mexico to Light up Mexico City Streets").

[20] Ex. 99 ("The Home Depot Takes LED Lighting Mainstream with $20 Bulbs").

[21] Ex. 111 ("The Home Depot Sells Ecosmart LED Lamps Made by Lighting Science Group").

[22] Ex. 103 ("Lighting Science Group Receives Industry's First Energy Star Label for an LED Bulb"); Ex. 104 (LSG 2011 SEC Form 10-K) at 7.

18. In 2013, LSG introduced its line of biologically-corrected lighting, which helps to support a healthy sleep-wake cycle.[23] These products can include an "Awake & Alert" spectrum, which supports mental alertness, and a "Good Night" spectrum, which aids in falling asleep faster, staying asleep longer, and achieving a more restful night's sleep.[24] The technology underlying these biologically-corrected products was developed out of a collaboration between LSG and NASA to support the circadian rhythms of astronauts living aboard the International Space Station.[25]

19. LSG has since worked with numerous prominent organizations to implement biologically-corrected solutions. For example, in 2014, LSG worked with the Los Angeles Dodgers to help reduce the effects of jet lag on the team when traveling to and from the 2014 MLB opening game in Sydney, Australia. The project included installing custom lighting in the Dodgers' plane, as well as preparing player individualization plans to reduce fatigue. The Dodgers went on to beat the Arizona Diamondback 3-1 in Sydney, and the Dodgers' manager Don Mattingly praised the effects of LSG's light therapy plan.[26]

20. LSG has also been at the forefront of innovations in the connected lighting space. For instance, in 2011 LSG worked with Google to develop the "Smart Light," an Android-

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[23] Ex. 112 (Definity Digital Launch).

[24] *Id.*

[25] Ex. 113 ("LEDs Illuminate Bulbs for Better Sleep, Wake Cycles").

[26] Ex. 114 (Dodgers Case Study); Ex. 115 ("Los Angeles Dodgers Rely on Lighting Science Group's LED Lights to Combat Jetlag & Enhance Performance in First Ever MLB Games in Southern Hemisphere").

controlled omnidirectional bulb that can be dimmed or brightened using a device running the Android operating system.[27]

21. In addition to manufacturing and selling innovative residential and commercial lighting solutions to the mass market, LSG has worked with companies to provide them custom lighting solutions, with a focus on aesthetic design, circadian lighting, and energy efficiency. For instance, LSG has provided lighting to 7 World Trade Center and Saks Fifth Avenue in New York City, the Macy's holiday façade in San Francisco, the Chanel retail store in Ginza, Tokyo, and a casino project for the City of Dreams in Macau.[28] LSG also worked with Ashley Furniture HomeStore to overhaul its in-store lighting. LSG's solution was anticipated to result in enough annual energy and maintenance savings, relative to the store's prior lighting solution, for the store to recoup its investment in just under two years.[29] And after Markon Solutions, Inc. failed a WELL certification due to insufficient circadian lighting, it turned to LSG. LSG's biologically-corrected products allowed Markon to exceed the WELL certification requirements by more than 100%, and Markon became the first WELL Certified™ business in the state of Virginia.[30]

22. Recently, LSG and its wholly owned subsidiary, Healthe, partnered with hotel brand IHG to trial circadian lighting at the Crowne Plaza hotel at the Hartsfield-Jackson Atlanta Airport. The Crowne Plaza hotel has installed special free-standing lights on cabinets in a pilot study designed to test how different light spectrums can assist guests to maximize their sleep.[31]

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[27] Ex. 115 ("Google, Lighting Science Working on Open Source Home Wireless Protocol.

[28] Ex. 117 (LSG 2009 SEC 10-K) at 6.

[29] Ex. 118 (Ashley Furniture Case Study).

[30] Ex. 119 (Markon Solutions Case Study).

[31] Ex. 120 ("Crowne Plaza Hotels Trial Circadian Lighting").

23. LSG has further deployed its innovative lighting technologies and expertise toward charitable and environmental interests. When thirty-three Chilean miners were trapped underground for nearly seventy days, LSG designed and donated customized biological lighting to help maintain the miners' circadian rhythms.[32] In recognition of those efforts, NASA awarded LSG's Fred Maxik the Group Achievement Award.[33] And in response to the disruption of sea turtle nesting and hatchling behavior caused by the expansion of lighting across the Florida coastline, LSG developed a custom "Turtle Light" to reduce the harmful effects of artificial light on turtle hatching. This light, marketed as MyNature® Coastal, was certified by the Florida Fish & Wildlife Conservation Commission as meeting Florida ordinances requiring lighting that protects against disruption of sea turtle nesting.[34]

24. Over the course of its nearly two-decade history, LSG has contributed significantly to the United States economy, hiring more than 400 employees across more than 25 states, and generating more than $600 million in revenue in the past decade alone. From 2012 through 2014, LSG was named on Deloitte's Technology Fast 500™, making LSG one of the top 500 fastest growing companies in North America.[35] LSG and its subsidiaries hold more than 400 U.S. patents related to LED lighting and has sold more than 30,000,000 energy-efficient LED bulbs to date.

25. The innovative contributions of LSG (and its wholly-owned subsidiary Healthe, Inc.) continue. For example, in December 2018, Travel + Leisure recognized one of LSG/Healthe's

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[32] Ex. 121 ("Chilean Miners: Surviving the Darkness").

[33] Ex. 122 (NASA Group Achievement Award – Chilean Miner Incident).

[34] Ex. 123 ("How Can a Lightbulb Change Your Life?") at 10; Ex. 124 ("LEDing the Way").

[35] Ex. 101 ("Lighting Science Group Corporation Ranked in Top 500 Fastest Growing Companies for Third Consecutive Year in North America on Deloitte's 2014 Technology Fast 500™").

recent products, the Journi™ Mobile Task Light, as one of the "16 New Travel Products That Will Make Your Trips Smarter, Healthier, and More Fun in 2019."[36]

26. The Asserted Patents reflect LSG's innovative contributions to the LED lighting industry and are practiced by a number of the products discussed above.

B. Healthe, Incorporated

27. Healthe, Inc. ("Healthe") is a corporation organized under the laws of Delaware, with corporate headquarters and principal place of business at 801 N. Atlantic Avenue, Cocoa Beach, Florida 32931.

28. Healthe is in the business of manufacturing, researching, developing, and selling devices and systems that use LEDs as the light source. Healthe was founded as a wholly-owned subsidiary of LSG on October 23, 2018, and it is a licensee of the Asserted Patents. Healthe continues the development, manufacture, and/or sale of various products that were originally researched, developed, manufactured, and/or sold by LSG, including the Cleanse™ Air-Sanitizing LED Troffer, GoodNight® A19 LED Bulb, Good Day&Night® LED Downlight, SunLync™ Wireless Control Device, SunTrac™ App, JOURNI™ Mobile LED Task Light, and Series A+™ Par30 LED Gimbal Lamp. Healthe also continues to provide service to LSG's former health and well-being customers, including the Sleep Lab at the Virginia Hospital Center in Arlington, VA and several resort locations worldwide. Healthe is a licensee of the Asserted Patents.

29. In March 2019, the JOURNI™ Mobile LED Task Light was featured on The Today Show. Renowned Sleep Doctor, Dr. Michael Breus, highly recommended the JOURNI™ Mobile LED Task Light, saying that he personally regularly uses the product.[37]

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[36] Ex. 125 ("16 New Travel Products That Will Make Your Trips Smarter, Healthier, and More Fun in 2019").

[37] Ex. 126 (The Today Show, "Sleep Better Today" Segment); Ex. 127 ("How to Sleep Better: 25 Gadgets for a Better Night's Sleep").

C. Global Value Lighting, LLC

30. Global Value Lighting, LLC ("GVL") is a corporation organized under the laws of Delaware, with corporate headquarters and principal place of business at 1350 Division Road Suite 204, West Warwick, Rhode Island 02893.

31. GVL is in the business of manufacturing and selling private-label LED lighting solutions. GVL was founded as a majority-owned subsidiary of LSG on May 8, 2017, and it is a licensee of the Asserted Patents.

III. Respondents

A. Nichia Respondents

32. Nichia Corporation is a privately held corporation organized under the laws of Japan. It has its principal place of business at 491 Oka, Kaminaka-Cho, Anan-Shi, Tokushima 774-8601, Japan.

33. On information and belief, Nichia Corporation, directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

34. Nichia America Corporation is a privately held corporation organized under the laws of the State of Michigan. It has its principal place of business at 48561 Alpha Drive, Suite 100, Wixom, Michigan 48393 and a sales office at 3625 Del Amo Boulevard, Suite 325, Torrance, California 90503.

35. On information and belief, Nichia America Corporation is a subsidiary of Nichia Corporation, and it, directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

36. Nichia Corporation is a manufacturer of LEDs and the world's largest LED supplier.[38] Upon information and belief, it manufactures certain Accused Products in Japan.[39] Nichia Corporation offers to sell certain Accused Products in the United States through its subsidiary Nichia America Corporation, which has sales offices in the United States.[40] For instance, a Nichia career posting states: "As the world's largest supplier of LED's [Nichia Corporation's] sales offices are responsible for bringing these products to [their] customers" in the United States.[41]

37. Nichia Corporation and Nichia America Corporation collectively are referred to as the "Nichia Respondents."

B. Cree Respondents

38. Cree, Inc. is a publicly traded corporation organized under the laws of the State of North Carolina. It has its principal place of business at 4600 Silicon Drive, Durham, North Carolina 27703.[42]

39. On information and belief, Cree, Inc., directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

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[38] Ex. 134 (Nichia Career Posting).

[39] Ex. 135 (Nichia Plant and Sales Office Locations) (listing location for all manufacturing plants in Japan); *see, e.g. infra*, Section VIII(A); Ex. 34 (Stonedale Importation Decl.) ¶¶ 112-116, 235-239 (showing country of origin as Japan).

[40] Ex. 135 (Nichia Plant and Sales Office Locations) (listing Nichia America Corporation Sales Offices in the United States); Ex. 136 (Nichia 2018 LED Catalogue).

[41] Ex. 134 (Nichia Career Posting).

[42] Ex. 139 (Cree Offices).

40. Cree Hong Kong, Limited is organized under the laws of Hong Kong with its principal place of business at 18 Science Park East Avenue Hong Kong Science Park, Shatin, New Territories, Hong Kong.[43] Cree Hong Kong, Limited is a wholly-owned subsidiary of Cree, Inc.[44]

41. On information and belief, Cree Hong Kong, Limited, directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

42. Cree Huizhou Solid State Lighting Company Limited is organized under the laws of the People's Republic of China with a principal place of business in Huizhou, Guangdong Province, China.[45] Cree Huizhou Solid State Lighting Company Limited is a wholly-owned subsidiary of Cree Hong Kong, Limited.[46]

43. On information and belief, Cree Huizhou Solid State Lighting Company Limited, directly, or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

44. Cree, Inc. is a manufacturer of LEDs and a self-proclaimed "market leader in LED lighting."[47] On information, Cree, Inc. designs, develops, and sells LED luminaires, LED bulbs,

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[43] Ex. 139 (Cree Offices); Ex. 157 (Cree Complaint) ¶ 2.

[44] Ex. 162 (Cree, Inc. 2018 Form 10-K) at Ex. 21.1 (Significant Subsidiaries of the Registrant).

[45] Ex. 161 (Company Overview of Cree Huizhou Solid State Lighting Company Limited)

[46] Ex. 162 (Cree, Inc. 2018 Form 10-K) at Ex. 21.1 (Significant Subsidiaries of the Registrant).

[47] Ex. 137 ("Cree Signs Agreement for Expansion in Huizhou, China").

and LED chips, including certain of the Accused Products, through its headquarters in Durham, North Carolina.[48]

45. Cree Hong Kong, Limited manufactures LED lamps and components used in the manufacture of LED lighting products, which it sells to retailers and other manufacturers of lighting products throughout Asia.[49] Cree, Inc. acquired COTCO Luminant Device Limited—now Cree Hong Kong, Limited—in 2007 to provide "expanded packaging, research and development capabilities, a broader LED component portfolio, a lower cost manufacturing facility and expanded . . . sales channels in China."[50]

46. Upon information and belief, Cree, Inc. manufactures certain Accused Products in Huizhou, China before importing, marketing, and selling them in the United States.[51] In 2009, Cree, Inc. established Cree Huizhou Solid State Lighting Company Limited and signed an agreement with the city of Huizhou to open a manufacturing facility in Huizhou.[52] The Huizhou, China facility tests, cuts, and classifies LED wafers prior to packaging.[53] This facility was created to increase Cree Inc.'s LED chip production capacity to satisfy increased global demand.[54]

47. Cree, Inc., Cree Hong Kong, Limited, and Cree Huizhou Solid State Lighting Company Limited collectively are referred to as the "Cree Respondents."

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[48] Ex. 139 (Cree Offices).

[49] Ex. 157 (Cree Complaint) ¶ 12; Ex. 158 (Cree Hong Kong, Limited Company Overview).

[50] Ex. 159 (Cree, Inc. 2010 Form 10-K) at 3; Ex. 160 (Cree to Acquire COTCO Luminant Device Ltd.).

[51] Ex. 138 ("Cree Opens LED Chip Manufacturing Facility in Huizhou"); *see, e.g. infra*, Section VIII(B); Ex. 34 (Stonedale Importation Decl.) ¶¶ 4, 11, 14-23, 117, 118, 130-141, 161-175, 204 (showing country of origin as China).

[52] Ex. 138 ("Cree Opens LED Chip Manufacturing Facility in Huizhou").

[53] *Id.*

[54] *Id.*

C. OSRAM Respondents

48. OSRAM Licht AG is a publicly traded company organized under the laws of Germany. It has its principal place of business at Marcel-Breuer-Strasse 6, 80807 Munich, Germany.

49. On information and belief, OSRAM Licht AG directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity. On information and belief, OSRAM GmbH is a wholly-owned subsidiary of OSRAM Licht AG.

50. OSRAM GmbH is a privately held company organized under the laws of Germany. It has its principal place of business at Marcel-Breuer-Strasse 6, 80807 Munich, Germany.

51. On information and belief, OSRAM GmbH directly or through its affiliates produces abroad, sells for importation, imports, and sells in the United States after importation Accused Products and/or knowingly induces such activity.

52. OSRAM Opto Semiconductors GmbH is a privately held company organized under the laws of Germany. It has its principal place of business at Leibnizstr 4, 93055 Regensburg, Germany.

53. On information and belief, OSRAM Opto Semiconductors GmbH is a subsidiary of OSRAM GmbH, and it, directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

54. OSRAM Opto Semiconductors, Inc. is a privately held corporation organized under the laws of the State of Delaware. It has its principal place of business at 1150 Kifer Road, Suite 100, Sunnyvale, California 94086.

55. On information and belief, OSRAM Opto Semiconductors, Inc. is a subsidiary of OSRAM GmbH, and it, directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

56. OSRAM GmbH, OSRAM Licht AG, OSRAM Opto Semiconductors GmbH, and OSRAM Opto Semiconductors, Inc. collectively are referred to as the "OSRAM Respondents."

57. OSRAM Licht AG and OSRAM GmbH, through their affiliates OSRAM Opto Semiconductors GmbH and OSRAM Opto Semiconductors, Inc., are a "globally leading lighting manufacturer" whose products include "LED-based solutions."[55] The OSRAM Respondents manufacture certain Accused Products at plants in at least China and Malaysia.[56] Upon information and belief, OSRAM Opto Semiconductors, Inc. offers to sell and does sell certain of the Accused Products in the United States, which accounted for $904 million of revenue to OSRAM in fiscal year 2018.[57]

D. Lumileds Respondents

58. Lumileds Holding B.V. is a privately held company organized under the laws of the Netherlands. It has its principal place of business and corporate headquarters at The Base Building B, 5th Floor, Evert van de Beeksttraat 1-107, 1118 CN Schipol, Netherlands.

59. On information and belief, Lumileds Holding B.V., directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after

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[55] Ex. 140 (OSRAM Fact Sheet).

[56] Ex. 141 ("OSRAM Opens LED Assembly Plant in China"); Ex. 142 (OSRAM Opens Malaysian LED Manufacturing Plant); *see, e.g. infra*, Section VIII(C); Ex. 34 (Stonedale Importation Decl.) ¶¶ 119-123, 125-126, 142-147, 176, 182-183, 185-188, 201 (showing country of origin as Malaysia), ¶¶ 124, 181, 184, 200 (showing country of origin as China).

[57] Ex. 143 (2018 OSRAM Annual Report) at 20.

importation into the United States certain Accused Products and/or knowingly induces such activity.

60. Lumileds, LLC is a privately held company organized under the laws of the State of Delaware. It has its principal place of business and operational headquarters at 370 West Trimble Road, San Jose, California 95131.

61. On information and belief, Lumileds, LLC is a subsidiary of Lumileds Holding B.V., and it, directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

62. Lumileds Holding B.V. "manufactures and markets light-emitting diodes (LED)."[58] Upon information and belief, Lumileds Holding B.V. operates plants in Germany and Malaysia where it manufactures certain Accused Products.[59] Lumileds, LLC, a subsidiary of Lumileds Holding B.V., sells certain Accused Products in the United States out of its headquarters in San Jose, California.[60]

63. Lumileds Holding B.V. and Lumileds, LLC collectively are referred to as the "Lumileds Respondents."

E. Signify Respondents

64. Signify N.V. (f/k/a Philips Lighting N.V.) is a publicly traded company organized under the laws of the Netherlands. It has its principal place of business at High Tech Campus 48,

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[58] Ex. 144 (Lumileds Holding B.V. Bloomberg Overview).

[59] Ex. 145 (Lumileds Locations); *see, e.g. infra*, Section VIII(D); Ex. 34 (Stonedale Importation Decl.) ¶¶ 127-129, 148-160, 178-180, 189-199, 202 (showing country of origin as Malaysia).

[60] Ex. 146 (Lumileds LLC Bloomberg Overview).

5656 AE Eindhoven, The Netherlands. Signify N.V. recently changed its name from Philips Lighting N.V. and will continue to sell products under the Philips brand name.

65. Signify N.V. designs and manufactures, among other things, LED lighting products.[61] Upon information and belief, Signify N.V. manufactures certain Accused Products abroad, including in manufacturing facilities in China and Mexico.[62]

66. On information and belief, Signify N.V. directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

67. Signify North America Corporation (f/k/a Philips Lighting North America Corporation), is a privately held corporation organized under the laws of the State of Delaware. It has its principal place of business at 200 Franklin Square Drive, Somerset, New Jersey 08873. Signify North America Corporation recently changed its name from Philips Lighting North America Corporation.

68. On information and belief, Signify North America Corporation is a wholly-owned subsidiary of Signify N.V., and it, directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products, including products manufactured abroad by Signify N.V. On information and belief, Signify North America Corporation will continue to import and sell products under the Philips brand name and/or knowingly induces such activity.

69. Signify N.V. and Signify North America Corporation collectively are referred to as the "Signify Respondents."

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[61] Ex. 147 (Signify 2018 Annual Report) at 9, 21.

[62] *See, e.g.*, *infra* Section VIII(E); Ex. 34 (Stonedale Importation Decl.) ¶¶ 9, 36-40, 42-47, 49-55, 103-104, 208, 212-215 (identifying Signify (f/k/a Philips) products with indicated country of origin of Mexico and/or China).

F. MLS Respondents

70. MLS Co., Ltd. is a publicly traded company organized under the laws of the People's Republic of China. It has its principal place of business at No. 1, MLS Avenue Xiaolan Town, Zhongshan, People's Republic of China 528415.

71. On information and belief, MLS Co., Ltd., directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

72. LEDVANCE GmbH is a privately held company organized under the laws of Germany. It has its principal place of business at Parkring 29-33, 85748 Garching, Germany. LEDVANCE GmbH is wholly owned by MLS Co., Ltd. On information and belief, Respondent MLS Co., Ltd. acquired LEDVANCE GmbH from Respondent OSRAM Licht AG.

73. On information and belief, LEDVANCE GmbH, a wholly-owned subsidiary of Respondent MLS Co., Ltd.,[63] directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products, including under the Sylvania and OSRAM brands and through its related company LEDVANCE LLC and/or knowingly induces such activity.

74. LEDVANCE LLC is a privately held company organized under the laws of the State of Delaware. It has its principal place of business at 200 Ballardvale Street, Wilmington, Massachusetts 01887. LEDVANCE LLC is wholly owned by MLS Co., Ltd.

75. On information and belief, LEDVANCE LLC, directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after

[63] Ex. 150 (About LEDVANCE).

importation into the United States certain Accused Products, including under the Sylvania and OSRAM brands and/or knowingly induces such activity.

76. MLS Co., Ltd. is a manufacturer of LEDs and sells LED and LED products throughout the world.[64] On information and belief, MLS Co., Ltd. and LEDVANCE GmbH manufacture certain Accused Products, including under the Sylvania brand name, in China.[65] On information and belief, those products are imported into the United States and sold by LEDVANCE LLC, headquartered in Wilmington, Massachusetts.[66]

77. MLS Co., Ltd., LEDVANCE GmbH, and LEDVANCE LLC collectively are referred to as the "MLS Respondents."

G. GE Respondents

78. General Electric Company is a publicly traded company organized under the laws of New York. It has its principal place of business at 41 Farnsworth Street, Boston, Massachusetts 02210.

79. On information and belief, General Electric Company, directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

80. Consumer Lighting (U.S.), LLC (d/b/a GE Lighting, LLC) ("GE Lighting") is a privately-owned company organized under the laws of the State of Delaware. It has its principal

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[64] Ex. 149 (MLS Co., Ltd. Bloomberg Overview).

[65] *See e.g.*, *infra* Section VIII(F); Ex. 34 (Stonedale Importation Decl.) ¶¶ 10, 24-34, 98, 105-107, 110, 206-207, 216-217 (showing country of origin as China).

[66] *See, e.g.*, Ex. 34 (Stonedale Importation Decl., Ex. 8) (showing Sylvania-branded product as being imported by LEDVANCE LLC).

place of business at 1975 Noble Road, Cleveland, Ohio 44112. GE Lighting is a subsidiary of General Electric Company.

81. On information and belief, GE Lighting, LLC, directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

82. General Electric Company, by and through its subsidiary GE Lighting LLC, manufactures and sells "consumer lighting applications" including LEDs throughout the United States.[67] Upon information and belief, GE Lighting, LLC manufactures certain Accused Products abroad in China.[68] On information and belief, GE Lighting, LLC then imports and sells those Accused Products in the United States, including through its headquarters in East Cleveland, Ohio.[69]

83. General Electric Company and GE Lighting, LLC are collectively referred to as the "GE Respondents."

H. Acuity Respondents

84. Acuity Brands, Inc. is a publicly traded corporation organized under the laws of the State of Delaware. It has its principal place of business at 1170 Peachtree Street N.E., Suite 2300, Atlanta, Georgia 30309.

85. On information and belief, Acuity Brands, Inc., directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after

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[67] Ex. 151 (GE 2018 Annual Report) at 32.

[68] *See e.g.*, *infra* Section VIII(G); Ex. 34 (Stonedale Importation Decl.) ¶¶ 6, 12, 56-76, 108-109, 209, 219, 223-228, 230, 233 (showing country of origin as China).

[69] Ex. 151 (GE 2018 Annual Report) at 32.

importation into the United States certain Accused Products and/or knowingly induces such activity.

86. Acuity Brands Lighting, Inc. is a privately held corporation organized under the laws of the State of Delaware. It has its principal place of business at One Lithonia Way, Suite 2300, Conyers, Georgia 30012.

87. On information and belief, Acuity Brands Lighting, Inc. is a subsidiary of Respondent Acuity Brands Inc., and it, directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

88. Acuity Brands, Inc. is the "North American market leader and one of the world's leading providers of lighting and building management solutions for commercial, institutional, infrastructure, and residential applications."[70] Upon information and belief, Acuity Brands, Inc. manufactures certain Accused Products, including under the Lithonia Lighting brand name, abroad in China and Mexico.[71] On information and belief, Acuity Brands, Inc. and Acuity Brands Lighting, Inc. then import and sell the Accused Products in the United States out of their offices in Atlanta, Georgia and Conyers, Georgia.[72]

89. Acuity Brands, Inc. and Acuity Brands Lighting are collectively referred to as the "Acuity Respondents."

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[70] Ex. 152 (About Acuity).

[71] *See e.g.*, *infra* Section VIII(H); Ex. 34 (Stonedale Importation Decl.) ¶¶ 8, 93, 232 (showing country of origin as Mexico), ¶¶ 76-82, 210-211, 231 (showing country of origin as China).

[72] Ex. 153 (Contact Acuity).

I. Eaton Respondents

90. Eaton Corporation plc is a publicly traded corporation organized under the laws of Ireland. It has its principal place of business at 30 Pembroke Road, Dublin, Ireland.

91. On information and belief, Eaton Corporation plc, directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

92. Cooper Lighting, LLC is a privately held company organized under the laws of the State of Delaware. It has its principal place of business at 1121 Highway 74 S, Peachtree City, Georgia 30269.

93. On information and belief, Cooper Lighting, LLC is a subsidiary of Eaton Corporation plc, and it, directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

94. Cooper Industries, LLC is a privately held corporation organized under the laws of the State of Ohio. It has its principal place of business at 600 Travis Street, Suite 5800, Houston, Texas 77002.

95. On information and belief, Cooper Industries, LLC is a subsidiary of Respondent Eaton Corporation plc, and it, directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

96. Eaton Corporation plc is a "power management company" that "provides energy-efficient solutions," including LED products.[73] Upon information and belief, Eaton Corporation plc manufactures certain Accused Products abroad in China and Mexico.[74] On information and belief, Cooper Lighting, LLC and Cooper Industries, Inc. import and sell the Accused Products in the United States through offices in Peachtree City, Georgia and Houston, Texas.

97. Eaton Corporation plc, Cooper Lighting, LLC, and Cooper Industries, LLC are collectively referred to as the "Eaton Respondents."

J. Leedarson Respondents

98. Leedarson Lighting Co., Ltd. is a privately-owned company organized under the laws of the People's Republic of China. It has its principal place of business at the Leedarson Building, No. 1511, 2nd Fanghu North Road, Xiamen 361010, People's Republic of China.

99. On information and belief, Leedarson Lighting Co. Ltd., directly or through its affiliates, imports into the United States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

100. Leedarson America, Inc. is a privately-owned corporation organized under the laws of the State of Georgia. It has its principal place of business at 4600 Highlands Pkwy SE, Suite D-E, Smyrna, Georgia 30082.

101. On information and belief, Leedarson America, Inc. is a subsidiary of Respondent Leedarson Lighting Co., Ltd., and it, directly or through its affiliates, imports into the United

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[73] Ex. 154 (Eaton 2018 Annual Report) at 10 (page 2 of Form 10-K).

[74] *See e.g.*, *infra* Section VIII(I); Ex. 34 (Stonedale Importation Decl.) ¶¶ 5, 83, 205 (showing country of origin as Mexico); *id.* ¶¶ 84-89, 102, 218, 220-222 (showing country of origin as China).

States, sells for importation into the United States, and/or sells after importation into the United States certain Accused Products and/or knowingly induces such activity.

102. Leedarson Lighting Co. Ltd. is a manufacturer of LED lamps and LED products and is the "Number 1 exporter in China."[75] Upon information and belief, Leedarson Lighting Co. Ltd. manufactures certain Accused Products abroad in Zhangzhou, China and Sichuan, China.[76] On information and belief, Leedarson America, Inc. imports and sells those Accused Products in the United States through its offices in Smyrna, Georgia. On information and belief, products made by Leedarson Lighting Co. Ltd. and/or imported by Leedarson America, Inc. are sold in the United States under at least the following brand names: Ecosmart, Commercial Electric, and LEDi2.[77]

103. Leedarson Lighting Co. and Leedarson America, Inc. are collectively referred to as the "Leedarson Respondents."

IV. The Technology and Products at Issue

104. Artificial (or "man-made") lighting is essential to human productivity. But the most popular sources of artificial lighting—incandescent and fluorescent lighting—present significant downsides. For example, incandescent lighting is highly energy inefficient: an incandescent bulb may convert as little as 10% of the electricity it uses into visible light.[78] And while fluorescent

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[75] Ex. 155 (Leedarson Company Profile).

[76] *Id.*; Ex. 156 (Leedarson Manufacturing Capabilities); *see, e.g.*, *infra* Section VIII(J); Ex. 34 (Stonedale Importation Decl.) ¶¶ 3, 7, 13, 41, 48, 90-92, 94-97, 99, 111, 229 (showing country of origin as China).

[77] Upon information and belief, the products listed were manufactured by or for the Leedarson Respondents. Ex. 34 (Stonedale Importation Decl.) ¶¶ 3, 7, 13, 41, 48, 90-92, 94-97, 99, 111, 229; *id.* at Stonedale Importation Decl. Exs. 1, 11, 39, 46, 97, 264-266, 268.

[78] Ex. 128 ("Why People Still Use Inefficient Incandescent Light Bulbs").

lighting is more efficient than incandescent lighting, it uses more energy and is more harmful to the environment than light-emitting diode technology.[79]

105. Light-emitting diode technology overcomes many of the drawbacks associated with incandescent and fluorescent light bulbs. LEDs can be highly energy efficient, converting a far higher percentage of the electricity they consume into light than previous technologies. Recognizing the significant energy efficiency benefits of LED lighting, in 2010, the Department of Energy identified LEDs as the most promising technology for reducing American energy consumption associated with lighting. LEDs also can emit light directionally, which means that the light is more efficiently transmitted to the desired area than is typically the case with incandescent and fluorescent bulbs. In addition, LEDs typically have a lifespan of more than 10 years, have reduced maintenance costs as compared to other forms of conventional lighting, and are environmentally friendly (enabling compliance with green regulations and certifications such as ENERGY STAR®). LEDs also generate higher quality lighting, operate well in both hot and cold environments, and present a lower safety risk due to lower heat emissions.[80]

106. The Asserted Patents relate to numerous aspects of the LED lighting market, including LED package and assembly architectures (the '483, '053, and '421 Patents), LED lighting fixture architectures (the '118 Patent), connected "smart" LED lighting systems (the '608 Patent), and LED downlights, including LED canister retrofits and low-profile LED downlights (the '968, '844, and '518 Patents). Section V, below, identifies the Asserted Patents in detail, along with a further description of the technology covered by each. For purposes of 19 C.F.R. § 210.10(b)(1) and § 210.12(a)(12), the Accused Products are (1) LED packages and assemblies; (2)

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[79] Ex. 129 ("Study: Environmental Benefits of LEDs Greater than CFLs").

[80] Ex. 130 ("15 Advantages of LEDs When Compared to Traditional Lighting Solutions").

LED luminaires; (3) connected "smart" LED lighting systems and components thereof; and (4) LED downlights, including LED canister retrofits and low-profile LED downlights.[81]

107. Respondents infringe LSG's patents with their sale for importation, importation, and/or sale after importation of certain LED products, such as LED packages, LED lighting fixtures, LED lighting systems, and related components. Representative infringing products are provided in Section VII below.

V. The Asserted Patents

A. U.S. Patent No. 7,098,483

1. Identification of the Patent and Ownership

108. The '483 Patent, titled "Light Emitting Diodes Packaged for High Temperature Operation," was issued on August 29, 2006, naming Joseph Mazzochette and Greg Blonder as the inventors. Ex. 1 ('483 Patent) at 1. The '483 Patent is based on U.S. Patent Application No. 10/933,096, filed September 2, 2004. U.S. Patent Application No. 10/933,096 is a divisional of U.S. Patent Application No. 10/638,579 (now U.S. Patent No. 7,095,053), filed August 11, 2003, which claims priority to U.S. Provisional Application No. 60/467,857, filed May 5, 2003. *Id.* at 1; 1:7-15. The expiration date of the '483 Patent is August 11, 2023. A certified copy of the '483 Patent is attached as Exhibit 1. This complaint is accompanied by a certified copy of the prosecution history for the '483 Patent, three additional copies of the prosecution history, and four copies of each patent and applicable pages of each technical reference mentioned in the prosecution history for the '483 Patent. *See* Appx. A1, A2. The prosecution history for the '483 Patent did not include any non-patent technical references.

[81] The plain English statement of the Accused Products is not intended to limit or construe the asserted claims of the Asserted Patents.

109. LSG owns by assignment all rights, title, and interest in the '483 Patent. *See* Exs. 11-14, 16-17, 20-23, 25, 28.

2. Nontechnical Description of the Patent[82]

110. The '483 Patent relates to light-emitting diode packages and assemblies. Generally, LED packages and assemblies emit visible light efficiently and are used in many products, including light bulbs, indoor light fixtures, outdoor light fixtures, roadway lights, automotive light assemblies, and consumer electronics. The '483 Patent describes novel LED package and assembly designs and their technical features.

111. The independent Asserted Claims of the '483 Patent cover an LED assembly, including without limitation one or more LED packages, made of a combination of insulating and metallic materials, with at least one dedicated thermal connection pad as well as one or more dedicated respective cathode and anode terminals, as well as a plurality of conductive traces that are electrically connected to the LED electrodes, and decoder/driver electronics that control the LED electrodes that are mounted within the LED assembly (such as, without limitation, an electrostatic discharge protection circuit), where the one or more LED diodes are housed within an opening in insulating material and are thermally coupled through a metal base to a dedicated thermal connection surface. The claimed LED assembly designs are useful for high temperature operation.

3. Foreign Counterparts of the Patent

112. The following foreign patents and patent applications correspond to the '483 Patent: (a) European Patent Application No. EP20040750631 (published as EP1620896(A2); withdrawn

[82] All "nontechnical descriptions" provided throughout this complaint with respect to any Asserted Patents and any Asserted Claims are non-limiting and do not define the scope of the Asserted Patents and Asserted Claims for purposes of evaluating validity, infringement or claim construction.

September 22, 2010); (b) Japanese Patent Application No. JP20060513307 (published as JP2006525679(A); granted December 26, 2011; published as Japanese Patent No. JP4912876(B2) on April 11, 2012); and (c) Korean Patent Application No. KR20057020831 (published as KR20060026015(A); granted September 19, 2011; published as Korean Patent No. KR101095291(B1) on December 16, 2011).

113. To the best of LSG's knowledge, information, and belief, there are no other foreign patents issued or foreign patent applications pending, filed, abandoned, withdrawn, or rejected corresponding to the '483 Patent.

4. Licensees

114. All licensees to the '483 Patent are identified in Confidential Exhibit 35C (Noroozi Licensee Declaration and Exhibits). There are no other known licenses relating to the '483 Patent.

B. U.S. Patent No. 7,095,053

1. Identification of the Patent and Ownership

115. The '053 Patent, titled "Light Emitting Diodes Packaged for High Temperature Operation," issued on August 22, 2006, naming Joseph Mazzochette and Greg Blonder as the inventors. Ex. 2 ('053 Patent) at 1. The '053 Patent is based on U.S. Patent Application No. 10/638,579, filed August 11, 2003, which claims priority to U.S. Provisional Application No. 60/467,857, filed May 5, 2003. *Id.* at 1; *id.* at 1:7-10. The expiration date of the '053 Patent is September 4, 2023. A certified copy of the '053 Patent is attached as Exhibit 2. This complaint is accompanied by a certified copy of the prosecution history for the '053 Patent, three additional copies of the prosecution history, and four copies of each patent and applicable pages of each technical reference mentioned in the prosecution history for the '053 Patent. *See* Appx. B1, B2. The prosecution history for the '053 Patent did not include any non-patent technical references.

116. LSG owns by assignment all rights, title, and interest in the '053 Patent. *See* Exs. 9, 13-14, 16-17, 20-23, 25, 28-29.

2. Nontechnical Description of the Patent

117. The '053 Patent relates to light-emitting diode packages. Generally, LED packages emit visible light efficiently and are used in many products, including light bulbs, indoor light fixtures, outdoor light fixtures, roadway lights, automotive light assemblies, and consumer electronics. The '053 Patent describes various novel LED package designs and their structural features, including embodiments that have an LED die thermally coupled to a metal base by thermal vias, a layer of electrically insulating material overlying the metal base, and LED electrodes electrically connected to a pair of underlying electrical connection pads. The described LED package designs are useful for high temperature operation.

118. The independent Asserted Claims of the '053 Patent cover an LED package made of a combination of insulating and metallic materials, with at least one dedicated thermal connection pad and one or more dedicated respective cathode and anode terminals, in which the LED diode is connected to at least one of the cathode or anode by electrical vias, and is thermally coupled through a metal base to an underlying thermal connection pad. Certain claims further require thermal vias and limit the insulating material to ceramic. The claimed LED package designs are useful for high temperature operation.

3. Foreign Counterparts of the Patent

119. The following foreign patents and patent applications correspond to the '053 Patent: (a) European Patent Application No. EP20040750631 (published as EP1620896(A2); withdrawn September 22, 2010); (b) Japanese Patent Application No. JP20060513307 (published as JP2006525679(A); granted December 26, 2011; published as Japanese Patent No. JP4912876(B2) on April 11, 2012); and (c) Korean Patent Application No. KR20057020831 (published as

KR20060026015(A); granted September 19, 2011; published as Korean Patent No. KR101095291(B1) on December 16, 2011).

120. To the best of LSG's knowledge, information, and belief, there are no other foreign patents issued or foreign patent applications pending, filed, abandoned, withdrawn, or rejected corresponding to the '053 Patent.

4. Licensees

121. All licensees to the '053 Patent are identified in Confidential Exhibit 35C (Noroozi Licensee Declaration and Exhibits). There are no other known licenses relating to the '053 Patent.

C. U.S. Patent No. 7,528,421

1. Identification of the Patent and Ownership

122. The '421 Patent, titled "Surface Mountable Light Emitting Diode Assemblies Packaged for High Temperature Operation," issued on May 5, 2009, naming Joseph Mazzochette as the inventor. Ex. 3 ('421 Patent) at 1. The '421 Patent is based on U.S. Patent Application No. 11/179,863, filed July 12, 2005, which is a continuation-in-part of U.S. Patent Application No. 10/638,579 (now U.S. Patent No. 7,095,053), filed August 11, 2003, which claims priority to U.S. Provisional Application No. 60/467,857, filed May 5, 2003. *Id.* at 1; 1:8-12. The expiration date of the '421 Patent is August 11, 2023. A certified copy of the '421 Patent is attached as Exhibit 3. This complaint is accompanied by a certified copy of the prosecution history for the '421 Patent, three additional copies of the prosecution history, and four copies of each patent and applicable pages of each technical reference mentioned in the prosecution history for the '421 Patent. *See* Appx. C1, C2. The prosecution history for the '421 Patent did not include any non-patent technical references.

123. LSG owns by assignment all rights, title, and interest in the '421 Patent. *See* Exs. 10, 13-14, 16-17, 20-23, 25, 28-29.