IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TEXARKANA DIVISION

MAXELL, LTD.,

Plaintiff,

v.

CORETRONIC CORP.; OPTOMA CORP.,

Defendants.

Civil Action No. _____

COMPLAINT AND DEMAND FOR JURY TRIAL

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Maxell, Ltd. ("Maxell"), by and through its undersigned counsel, files this Complaint under 35 U.S.C. § 271 for Patent Infringement against Defendants Coretronic Corporation ("Coretronic") and Optoma Corporation ("Optoma") (together, "Defendants") and further alleges as follows, upon actual knowledge as to Maxell itself and its own acts, and upon information and belief as to all other matters.

OVERVIEW

1. This is an action for patent infringement by Maxell.

2. Founded in 1961 as Maxell Electric Industrial Co., Ltd., Maxell has been an innovator throughout its history. Among other offerings, Maxell has manufactured projectors and components thereof, including lenses.

3. Over the years, often in partnership with its former corporate affiliate, Hitachi Ltd., Maxell has designed and sold a wide variety of electronic devices, including projectors.

4. Maxell engineers (formerly at Hitachi) began developing projectors in 1988 and released a number of successful projector products under the Maxell and Hitachi name beginning

in 1995. Maxell is also a leading global manufacturer of information storage media products, including magnetic tapes, optical discs, and battery products such as lithium ion rechargeable micro batteries and alkaline dry batteries. The company has over 50 years of experience producing industry-leading recordable media and energy products for both the consumer and professional markets. Additionally, Maxell sells other devices, such as Bluetooth headsets, wireless charging solutions, and the like.

5. Maxell has built up an international reputation for excellence and reliability; for pioneering projectors, power supplies, and digital recordings for today's mobile and multi-media devices; and for leading the electronics industry in the fields of storage media, batteries, and the like.

6. For example, while at Hitachi, Maxell's projector engineers released the industry's first compact lens-mirror hybrid ultra-short-throw projector (the CP-A100) in 2007. Maxell also was one of the first companies to develop alkaline batteries and Blu Ray camcorder discs.

7. Specifically, for nearly thirty years, Maxell and Hitachi have developed a wide range of projector technologies. Following the release of its first projector (the CP-L100) in 1995, Maxell engineers also brought to market a single-chip DLP projector (the CP-WU9410) in 2014, and a hybrid laser-LED projector (the LP-WU3500) in 2016. Maxell continued to develop and release various types of projectors covering a wide range of technology.

8. At its Yokohama Factory and Lab, Maxell led invention projects that resulted in patented technologies, including some of the patents asserted here. These projects touched on a wide variety of technologies for different types and components of projectors, such as ultra-short-throw, solid light sources, and Retinex processing.

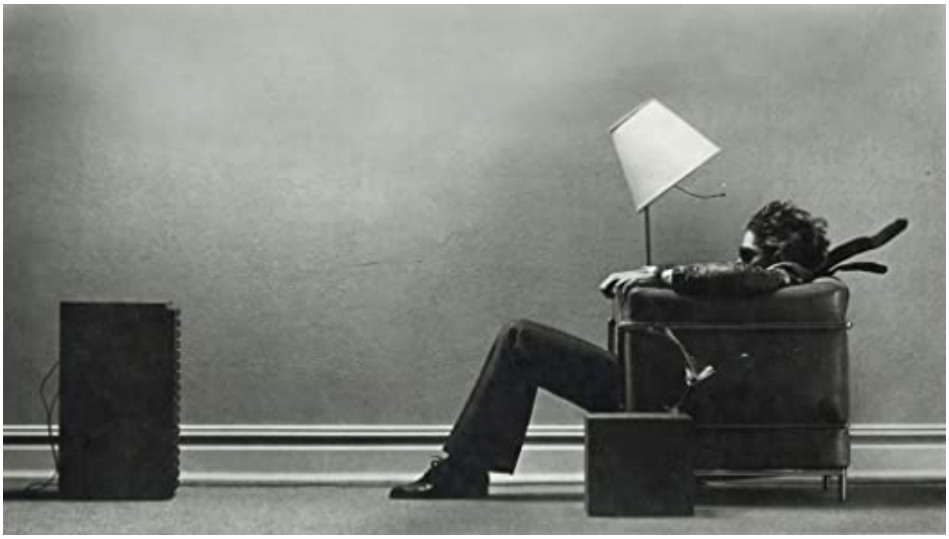
9. As recently as 2020, Maxell's MP-JW4001 LCD Laser Projector was ranked in the "2020 Best of the Year Awards" by ProjectorCentral.[1] This projector was praised for "its powerful 4,000-lumen brightness in a remarkably compact chassis." *Id*. The review also recognized the projector's "innovation" for including "[a] solid-state phosphor chip used in place of the usual spinning phosphor wheel found in most single-laser projectors[, which] saves both size and weight." *Id*.

10. Though Maxell has downsized its projector business in recent years, many of its core engineers continue to work at Maxell to develop advanced optical products, including heads-up display (HUD) and air floating image display technologies.

11. Maxell's well-recognized logos and iconic "blown away" image exemplify the reputation Maxell has carefully developed in the marketplace.

maxell
Within, the Future

maxell
Technology for the next generation.



[1] Rob Sabin, *ProjectorCentral 2020 Best of the Year Awards*, PROJECTORCENTRAL.COM (Jan. 7, 2021) https://www.projectorcentral.com/ProjectorCentral-2020-best-of-the-year-awards.htm#Maxell%20MP%20JW4001.

12. In 2009, Hitachi, Ltd. assigned much of its consumer product-facing intellectual property to its consumer product business division, Hitachi Consumer Electronics Co., Ltd. Here, Hitachi, Ltd. and Hitachi Consumer Electronics Co., Ltd. are referred to collectively as "Hitachi."

13. In 2013, the consumer electronics division, along with the projector design, development, and manufacturing assets and resources of Hitachi Consumer Electronics Co., Ltd., were transferred to Hitachi Maxell, Ltd. This transfer included re-assignments of intellectual property, including the '988 and '313 Patents asserted here, to Hitachi Maxell, Ltd.

14. In 2017, Hitachi Maxell, Ltd. engaged in a reorganization and name change—to Maxell, Ltd.—in an effort to align its intellectual property with the business development, research and development, and licensing efforts of Maxell. In October 2021, Maxell Holdings, Ltd. and Maxell, Ltd. underwent an absorption-type merger and name change. Maxell Holdings, Ltd. then changed its name to Maxell, Ltd.

15. Maxell continues to own all rights to the patents-in-suit, as well as the entire Maxell portfolio initially obtained from Hitachi.

16. Today, Maxell maintains a business in the advanced optical products and device market, including HUD, Air Floating Image Display, and lenses for automobiles. Maxell also maintains intellectual property related to televisions, computer products, tablets, digital cameras, and smartphones.

17. As a technology developer and industry leader, and due to its historical and continuous investment in research and development, including in this District, Maxell owns a portfolio of patents related to these and other technologies. Maxell actively enforces its patents through licensing programs.

18. Leading manufacturers have recognized the value of Maxell's intellectual property and have obtained a license from Maxell in the recent past—including many of the world's most well-known consumer electronics companies.

19. Maxell has had regular and continuous business in Texas since 2014. As a result of those business dealings, and in the hopes of expanding those and other business dealings, a Maxell affiliate, Maxell Research and Development America, LLC ("MRDA"), was founded in Marshall, Texas.

20. As part of a joint venture, MRDA and other entities work together on research and development of technologies related to lenses, cameras, IoT, mobile devices, media storage, and batteries, among other projects. Employees of Maxell and its affiliates also regularly travel to MRDA in Texas to help with these research and development efforts. Maxell intends to utilize these technologies for consumer electronics.

21. For example, Maxell engineers are currently designing an interactive display using Maxell's advanced optical technology for a museum in Marshall, Texas. An additional project at MRDA includes performing in-field testing of Advanced Floating Image Display (AFID) technology that uses an air operation interface.

22. Maxell is forced to bring this action against Defendants as a result of their knowing and ongoing infringement of Maxell's patents, which is described in further detail herein.

THE PARTIES

23. Plaintiff Maxell, Ltd. is a Japanese corporation with a registered place of business at 1 Koizumi, Oyamazaki, Oyamazaki-cho, Otokuni-gun, Kyoto, Japan.

24. On information and belief, Defendant Coretronic is a Taiwanese Corporation with its principal place of business at No. 11, Lixing Rd., Hsinchu Science Park, Hsinchu City 300094, Taiwan, R.O.C.

25. Coretronic may be served pursuant to FED. R. CIV. P. 4(f)(2).

26. On information and belief, Defendant Optoma is a Taiwanese corporation. Optoma is a subsidiary of Coretronic with its principal place of business at 5F, No.108 Minchiuan Road, Xindian City, Taipei, 231 R.O.C., Taiwan.

27. Optoma may be served pursuant to FED. R. CIV. P. 4(f)(2).

28. Through a series of other wholly owned corporate subsidiaries, Coretronic also wholly owns Optoma, and Optoma's ultimate corporate parent is Coretronic.[2]

29. On information and belief, Defendants are in the business of providing projector products to consumers throughout the United States, including in this District. Specifically, Defendants provide and make available for sale display systems, including projectors.[3]

30. Defendants make, use, sell, offer to sell, and/or import the Accused Products (defined later for each patent) in or into the United States thereby committing infringing acts under 35 U.S.C. § 271(a). For example, Defendants offer to sell and/or sell the Accused Products in the United States directly to their subsidiaries, sister companies, affiliates, and/or partners (*e.g.*, Samsung Electronics America, Inc., Coretronic Projection (Kunshan) Corp., Ricoh USA, Inc., and Nureva Inc. c/o Dhl Global Forwardi). *See* Coretronic – Shipments to U.S.(Exhibit A); Optoma – Shipments to U.S. (Exhibit B).

[2] *See* Coretronic Corporation, 2023 Annual Report (May 3, 2024) at 153, https://www.coretronic.com/en/ir/report (last visited July 1, 2024).
[3] *See* Coretronic, Introduction, https://www.coretronic.com/en/about/intro (last visited July 1, 2024).

31. On information and belief, as further explained herein, Coretronic as a principal also directs its agents (*e.g.*, subsidiaries such as Coretronic Projection (Kunshan) Corp.) to make, use, sell, offer to sell, and/or import the Accused Products in or into the United States, thereby committing infringing acts under 35 U.S.C. § 271(a).[4] *See* Coretronic – Shipments to U.S. (Exhibit A); Optoma – Shipments to U.S. (Exhibit B).

32. On information and belief, as further explained herein, Optoma as a principal also directs its agents (*e.g.*, subsidiaries and/or sister companies) to make, use, sell, offer to sell, and/or import the Accused Products in or into the United States, thereby committing infringing acts under 35 U.S.C. § 271(a).[5] *See* Optoma – Shipments to U.S. (Exhibit B).

33. As further explained herein, Coretronic should be held liable for the infringing acts of its subsidiaries under 35 U.S.C. § 271(a) as an alter ego because Coretronic and its subsidiaries (*e.g.*, Coretronic Projection (Kunshan) Corp.) have such unity of interest, ownership, and/or control that the separate personalities of the corporation and its subsidiaries no longer exist and that an inequitable result will follow if the acts giving rise to infringement are treated as those of Coretronic alone. See note 4, *supra*.

34. As further explained herein, Optoma also should be held liable for the infringing acts of its subsidiaries under 35 U.S.C. § 271(a) as an alter ego because Optoma and its subsidiaries and sister companies (*e.g.*, Coretronic Projection (Kunshan) Corp.) have such unity of interest, ownership, and/or control that the separate personalities of the corporation and its subsidiaries no

[4] *See generally* Coretronic, Introduction, https://www.coretronic.com/en/about/intro (last visited July 1, 2024); Coretronic Corporation, Annual Report, https://www.coretronic.com/en/ir/report (last visited July 1, 2024); Coretronic Corporation, Financials, Financial Reports, https://www.coretronic.com/en/ir/financial (last visited July 1, 2024).

[5] *See generally* Optoma, https://www.optoma.com/ (last visited July 1, 2024).

longer exist and that an inequitable result will follow if the acts giving rise to infringement are treated as those of Optoma alone. See note 5, *supra*.

35. Defendants also induce their subsidiaries, sister companies, affiliates, partners, and/or customers (such as brand customers in the ODM and Solutions business, including Samsung Electronics America, Inc., Coretronic Projection (Kunshan) Corp., Ricoh USA, Inc., and Nureva Inc. c/o Dhl Global Forwardi) to make, use, sell, offer to sell, and/or import Accused Products or components, sub-system, and system solutions of the Accused Products in the United States, including in the state of Texas and this District, thereby committing infringing acts under 35 U.S.C. § 271(b). See notes 4 and 5, *supra*; *see also* Coretronic – Shipments to U.S. (Exhibit A); Optoma – Shipments to U.S. (Exhibit B); Sample Bill of Lading – Projectors sent by Coretronic to Ricoh USA, Inc. (Exhibit C); Sample Bill of Lading – Projectors sent by Coretronic Projection (Kunshan) Corp. to Coretronic Corp. (Exhibit D)).

36. As further explained herein, Defendants had notice of the Asserted Patents (defined *infra*) and their infringement thereof by no later than April 27, 2023. Defendants undertook and continued their infringing actions despite an objectively high likelihood that they infringed the Asserted Patents, which have been duly issued by the USPTO, and are presumed valid.

37. As principals directing their agents (*e.g.*, subsidiaries and/or sister companies) and as alter egos of their subsidiaries and/or sister companies, Defendants should be held liable for the infringing acts of their subsidiaries under 35 U.S.C. § 271(c).

38. For example, the Accused Products include arrangements of hardware and/or software that are critical to Defendants' projectors. These are components of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process. Further,

these components are a material part of the invention and are not a staple article or commodity of commerce suitable for substantial non-infringing use.

39. Thus, Defendants should be held liable for infringement of the Asserted Patent pursuant to 35 U.S.C. § 271(c).

Coretronic as a Principal/Alter Ego of its Subsidiaries' Infringing Projector Business

40. For the reasons described herein, under agency theory Coretronic is liable for its subsidiaries' infringing projector business because Coretronic directs and controls its subsidiaries' infringing activities in the projector industry, such as manufacturing, marketing, and selling the Accused Products.

41. Also for the reasons described herein, under alter ego liability Coretronic is responsible for its subsidiaries' infringing projector business because Coretronic and its subsidiaries have such unity between them that the separateness of the corporation has ceased, and holding only Coretronic liable for all its subsidiaries infringing acts would result in injustice.

42. For example, Coretronic incorporates its subsidiaries' sales in presentations to Coretronic's investors to specify the percentage of Coretronic's revenue that is derived directly from Optoma.[6]

43. Coretronic's Financial Reports over the years have analyzed the finances of "the Group," which includes Coretronic and all of its subsidiaries.

44. As "the Group" disclosed in the 2023 Financial Report, "the preparation of the Group's consolidated financial statements require[d] management to make judgments, estimates

[6] *See e.g.*, Coretronic 2024 First Quarter Results Presentation for 2024 First Quarter Earnings Conference on Apr. 30, 2024 (https://www.coretronic.com/en/ir/seminar).

and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities, the disclosure of contingent liabilities." [7]

45. Coretronic documents confirm that the company and its dozens of subsidiaries are treated as a single entity. In Coretronic's 2023 Financial Report, "the Group" – referring to Coretronic Corporation and its subsidiaries – was mentioned at least 250 times. *Id*.

46. In limited occurrences, Coretronic was specifically referenced as "CORE," for example, to cover Coretronic's voting rights and Coretronic's ownership of its subsidiaries. In the 2024 Financial Report, "CORE" was mentioned just 34 times. *See id*. at 17, 24.

47. The 2023 Financial Report also includes the Group's Intangible Assets, including the valuation of their Patents. In particular, the Financial Report references these "Intangible Assets" as they belong to the Group, rather than to Coretronic or one of its seventy-nine subsidiaries. *See id*. at 56.

48. Coretronic "controls its key patents and core technology via a business strategy of vertical integration" as one of the manufacturers "developing and mass-producing" projectors. See note 3, *supra*.

49. During negotiations with Maxell, representatives from Coretronic (Ms. Katherine Liang (Coretronic, General Counsel) and Mr. Justin Chen (Coretronic, Senior Director of IP)) participated on behalf of Optoma Corporation.

50. Also during negotiations with Maxell, only individuals with Coretronic's email domain ("@coretronic.com") participated in the email exchanges related to this matter. No representative with an Optoma email address participated in any of these exchanges.

[7] *See e.g.*, Coretronic and Subsidiaries: Consolidated Financial Statements with Report of Independent Auditors, For the Years Ended December 31, 2023 and 2022, at 49, https://www.coretronic.com/en/ir/financial.

51. No representative specifically associated with Optoma (as opposed to Coretronic) attended the in-person negotiation, and no Optoma representative has made contact with Maxell regarding these matters.

52. In subsequent written communications following the in-person meeting, Ms. Katherine Liang (Coretronic, General Counsel) confirmed that she was acting on behalf of both Coretronic and its subsidiary, Optoma.

53. Optoma is "built on … its parent company" that "leverag[es] the R&D strengths of Coretronic," for its display technologies.[8]

54. Coretronic tracks the Group's worldwide sales, including sales of the accused Optoma projectors in North America. See note 2, *supra*, at 114.

55. Moreover, the Group has been working and continues to work with its customers and partners to be the "one-stop manufacturing and global after-sales services." See note 3, *supra*.

56. Coretronic's "Board of Directors resolved to absorb Optoma Technology Corporation through simplified acquisition procedure on July 1, 2022."[9] These changes in corporate structure, on information and belief, increased Coretronic's direct control over Optoma's projector business, including the sales of Optoma projectors (such as the Accused Products) in the United States and in this District.

57. Coretronic also directly advertises Optoma projectors (including the Accused Products) on its official website, which is accessible from the United States, including in this District and elsewhere in Texas:

[8] *See* Optoma Brand Identity Guidelines, January 2021, at slide 2, https://www.optomaeurope.com/uploads/additionalinfo/Optoma%20Brand%20Guidelines.pdf.
[9] *See* Coretronic Corporation 2022 Annual Report (May 3, 2024), at 24, https://www.coretronic.com/en/ir/report.

Screenshot of the Coretronic Website, advertising an Optoma projector for its "Unique MCLA Technology" (https://www.coretronic.com/en).

Closer view of the Optoma projector (with Optoma's logo imprinted on the top) being advertised on Coretronic's website (https://www.coretronic.com/en).

58. Coretronic and its subsidiaries share the same pool of leadership, with each individual holding multiple positions across Coretronic, its subsidiaries, and close affiliates. See notes 2 and 9, *supra*.

59. For example, Mr. SY Chen, a founding member and President of Coretronic, also "co-founded Optoma Group (a subsidiary of Coretronic)."[10] Mr. Chen oversaw the Optoma Group's projector business as its chairman. *Id.* As of April 16, 2023, Mr. Chen also concurrently served as an officer (Director) at twelve of Coretronic's subsidiaries and affiliates, including Optoma Deutschland GmbH, Mat Limited, Optoma Europe, Optoma Benelux B.V., Optoma Espana, S.L., Boom Power, Optoma Scandinavia. A.S, Optoma Holding, Coretronic Investment, Young Green Energy Co., Ltd., and Optoma Corporation. See note 12, *supra*, at 25-26.

60. Ms. Sarah Lin, President of Young Lighting Technology, Inc., a subsidiary of Coretronic, also concurrently holds positions at numerous of Coretronic's subsidiaries: Chairman of Young Optics Inc., Champ Vision Display Inc., and uCare Medical Electronics Co., Ltd.; Director in affiliated enterprises including Nano Display Hong Kong, Bigshine International, Bigshine International Hong Kong, Lead Bright International, Lead Bright Hong Kong, Elite View, Elite View Hong Kong, Young Lighting, Masterview Enterprises, Best Alpha, Grace China, Nano Precision Taiwan Limited and Tsen Ming Investment Corp.; person-in-charge of Coretronic Nanke Branch and Korea Office. See note 2, *supra*, at 23.

61. Ms. Ann Wu, Chief Security Officer of Coretronic, also concurrently serves as a Chairman of Coretronic's subsidiary, InnoSpectra Corporation. See note 2, *supra*, at 23-24.

62. Mr. Franck Ho, Vice President of Coretronic, also concurrently serves as supervisor to several affiliates, including Nano Precision (Suzhou) Co., Ltd., Coretronic (Shanghai) Co., Ltd.,

[10] Optoma, Management Team, https://www.optoma.com/about-optoma/ (last visited May 28, 2024).

Coretronic Optotech (Suzhou) Co., Ltd., Coretronic (Ningbo) Co., Ltd., Coretronic (Guangzhou) Co., Ltd., Coretronic Venture Capital Co., Ltd., Optoma Display (Kunshan) Co., Ltd., Coretronic Projection (Kunshan) Co., Ltd., Coretronic Optics (Kunshan) Corporation, Vimax (Kunshan) Co., Ltd., Boom Power Electronics (Suzhou) Co., Ltd, Coretronic System Engineering (Shanghai) Co., Ltd., Coretronic Display (Suzhou) Co., Ltd., Coretronic (Suzhou), Young Green Energy Co., Ltd., Chung Tsen Investment Corp., Tsen Ming Investment Corp., Coretronic Optics(Suzhou) Co., Ltd., Coretronic Robotek (Kunshan) Corporation; Director to affiliates including Optoma Holding, Champ Vision Display Inc, Coretronic Intelligent Cloud Service Corp., Coretronic Intelligent Robotics Corp., InnoSpectra Corporation, Venture Orient, Mordern Smart Technology Ltd., Dynamic Time Investments Ltd., Nano Precision Taiwan, Coretronic Reality Inc., Coretronic Intelligent Logistics Solutions Corporation and a director to Yann Yuan Investment Co., Ltd. See note 2, *supra*, at 23-24.

63. Mr. Robert Hsueh, Vice President of Coretronic, concurrently serves as Chairman to Coretronic Intelligent Robotics Corporation and Coretronic Reality Incorporation; Director to Coretronic MEMS Corporation, Chung Tsen Investment Corporation, Tsen Ming Investment Corporation, Coretronic Venture Capital Co., Ltd., and Coretronic Intelligent Cloud Service; president to Coretronic Reality Incorporation; and person-in-charge of Tainan Branch of Coretronic Intelligent Robotics Corporation. See note 2, *supra*, at 23-24.

64. Mr. CY Lin, Vice President of Coretronic, concurrently serves as Chairman of Coretronic Intelligent Logistics Solutions. See note 2, *supra*, at 23-24.

65. Mr. Wilson Hsu, Vice President of Coretronic, concurrently serves as Chairman of Chung Tsen Investment Corporation, Tsen Ming Investment Corporation, Coretronic Venture Capital Co., Ltd., and Coretronic MEMS Corporation; Director and President to Young Green

Energy Co., Ltd.; and President of Chung Tsen Investment Corporation, Tsen Ming Investment Corporation, Coretronic Venture Capital Co., Ltd. See note 2, *supra*, at 23-24.

66. Ms. Sara Lin, Associate Vice President of Young Lighting Technology, Inc., a subsidiary of Coretronic, concurrently serves as Director of affiliated enterprises at Coretronic (Shanghai) Co., Ltd., YLG Limited, and Young Optics Inc.; as well as President of Coretronic (Shanghai) Co., Ltd. See note 2, *supra*, at 23-24.

67. Mr. Ken Wang, Chairman of Nano Precision Taiwan Limited, a subsidiary of Coretronic, also concurrently serves as a Director of Young Optics Inc., another subsidiary of Coretronic. See note 2, *supra*, at 23-24.

68. Ms. Miranda Wang, Vice President of Optoma, also concurrently serves as Chairman of Nano Precision Taiwan; Director to Core-Flex and Nano Precision (Suzhou) Co., Ltd.; and President of Nano Precision (Suzhou) Co., Ltd. See note 2, *supra*, at 23-24.

69. Mr. Mark Yang, Associate Vice President of Coretronic, also concurrently serves as Director (corporate representative) of Eterge Opto-Electronics Co., Ltd., for which Coretronic holds 18.5% of its shares. Eterge Opto-Electronics Co., Ltd. is "directly or indirectly controlled" by Coretronic. See note 2, *supra*, at 23-24, 96.

70. Mr. Willy Tsai, Associate Vice President of Coretronic, also serves concurrently as Director of Calibre UK, another subsidiary of Coretronic. See note 2, *supra*, at 23-24.

71. On information and belief, Coretronic is the ultimate parent of at least seventy-nine subsidiaries, at least some of which play a part in the infringing acts under Coretronic's control and direction. See note 2, *supra*, at 152-53.

72. Given these facts, the Coretronic "Group" is likely acting as one company under the direction of Coretronic, and it would be inequitable not to treat the Coretronic Group as one entity for purposes of this action.

Optoma as a Principal/Alter Ego of the Infringing Projector Business of its Subsidiaries and/or Sister Companies

73. For the reasons described herein, under agency theory Optoma is liable for its subsidiaries' and sister companies' infringing projector business because Optoma directed and controlled its subsidiaries' and sister companies' infringing activities in the projector industry, such as by manufacturing, marketing, and selling the Accused Products.

74. For the reasons described herein, under alter ego liability Optoma is responsible for its subsidiaries' infringing projector business because Optoma and its subsidiaries have such unity between them that the separateness of the corporation has ceased, and holding only Optoma liable for all its subsidiaries' infringing acts would result in injustice.

75. On information and belief, for the reasons described herein, Optoma directs and controls the projector business of the Optoma "Group." On information and belief, the Optoma "Group" is responsible for the making, importing, offering to sell, selling, and/or using of the Accused Products in the United States, including in the State of Texas generally and this District specifically.

76. The Optoma "Group" has "continental headquarters in Europe, the USA, and Asia Pacific," where the "local services are delivered from multiple offices across this region."[11]

[11] *See* Optoma's LinkedIn Overview (https://www.linkedin.com/company/optoma/about/).

77. On information and belief, the sale of Optoma projectors (*i.e.*, projectors with Optoma logos imprinted on them), including the Accused Products, are being collected as sales of "Optoma" as found in Coretronic's presentation to its investors. See note 7, *supra*.

78. The Optoma "Group" advertises Optoma projectors (including the Accused Products) on websites accessible from the United States, including in Texas, such as at https://www.optoma.com/.

79. The website at https://www.optoma.com/social-media/ also links to the social media platforms (Facebook, Youtube, Twitter, Instagram, LinkedIn, Pinterest, and WeChat) where Optoma products, including the Accused Products, are advertised.

80. Further, the webpage https://www.optoma.com/ includes Terms and Conditions that impose terms between users and the Optoma "Group."

81. Within the Optoma Group's official website, promotional materials advertising features of the Optoma projectors directly lead to the Optoma projectors at https://www.optomausa.com/, listing Optoma projectors, including the Accused Products.

82. As displayed on the Optoma Group's website, awards for Optoma's projectors (including the Accused Products) credited Optoma as the designer and the manufacturer in Taiwan (*e.g.*, IF Design Award 2023, reddot winner 2023, and Green Good Design award).[12]

83. On information and belief, the management team of the Optoma Group controls and directs the projector business of its subsidiaries.[13] The following descriptions from the Optoma Group's website exemplify how the Optoma Group controls and directs its subsidiaries' projector business.

[12] Optoma Awards, https://www.optoma.com/awards/ (last visited July 1, 2024).
[13] *See generally* Optoma, Experience More with Optoma, Message from the CEO, Corporate Overview, and Management Team, https://www.optoma.com/about-optoma/ (last visited July 1, 2024).

84. Mr. SY Chen, Chief Executive Officer of Optoma Group, is "a founding member of Coretronic" and also "co-founded Optoma Group (a subsidiary of Coretronic) and opened Optoma EMEA headquarters in the UK." See note 10, *supra*. Mr. Chen oversaw the Optoma Group's projector business as the chairman of the Optoma Group. *See id.* As described earlier, he also held numerous positions across multiple subsidiaries of Coretronic and Optoma.

85. Ms. Michelle Chu, Chief Financial Officer of the Optoma Group, oversaw restructuring of the Optoma Group, and also directed implementation of a new system in Optoma's US subsidiary. *See id.*

86. Ms. Carol Wu, Chief Operations Officer of the Optoma Group, joined Coretronic as Chief Legal Counsel, and "she oversaw the company's legal and intellectual property affairs." Ms. Wu also "established the company's patent and legal systems." *See id*. Ms. Wu also lead the promotion of Optoma's DLP projector brand worldwide and was also tasked with the development of new business. *See id*.

87. The Accused Products are and have been sold through retailers throughout Texas and specifically in this District, for example, at Productive Solutions (located at 3214 McDonald Rd, Tyler, Texas 75701), and Cynergy (located at 3903 Timms, Tyler, Texas 75701).[14]

88. Further, the Accused Products are and have been sold in physical retailers located in this District, such as Best Buy (located at 22 West TX-281 Loop, Suite 100, Longview, Texas 75605).[15]

89. Thus, Defendants and their affiliates operate as a unitary business venture and are jointly and severally liable for the acts of patent infringement alleged herein.

[14] *See* Optoma, Dealer Locator, https://www.optomausa.com/dealers/locator (last visited July 1, 2024).
[15] *See* Best Buy Longview, https://stores.bestbuy.com/tx/longview/422-w-loop-281-594.html (last visited July 1, 2024).

90. The parties to this action are properly joined under 35 U.S.C. § 299 because of the right to relief asserted against Defendants jointly, severally, or in the alternative with respect to or arises out of the same transaction, occurrence, or series of transactions or occurrences relating to the making, using, importing into the United States, offering for sale, or selling of the same accused products.

91. Additionally, questions of fact common to all Defendants will arise in this action. Put simply, on information and belief, Coretronic through Optoma and/or Coretronic itself designs and manufactures the Accused Products, selling them in the United States and throughout the world.

92. Indirectly through Optoma or directly by itself, Coretronic also directs and controls its subsidiaries and affiliates to design and manufacture the Accused Products to sell Accused Products with Optoma branded projectors in the United States and elsewhere.

NATURE OF THE ACTION, JURISDICTION, AND VENUE

93. Maxell brings this action for patent infringement of United States Patent Nos. 7,159,988; 7,850,313; 8,593,580; 9,322,530; 9,547,226; 9,565,388; and 9,900,569 (the "Asserted Patents") under the patent laws of the United States, 35 U.S.C. § 271 *et seq*.

94. This Court has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338(a) because the action arises under the patent laws of the United States.

95. This Court has personal jurisdiction over Defendants in this action pursuant to due process and/or the Texas Long Arm Statute, by virtue of at least the substantial business Defendants conduct in this District, directly and/or through intermediaries.

96. This conduct includes but is not limited to: (1) having committed acts within the Eastern District of Texas giving rise to this action and having established minimum contacts with

this forum such that the exercise of jurisdiction over each Defendant would not offend traditional notions of fair play and substantial justice; (2) having directed activities to customers in the State of Texas and this District, solicited business in the State of Texas and this District, transacted business within the State of Texas and this District, and attempted to derive financial benefit from residents of the State of Texas and this District, including benefits directly related to the instant patent infringement causes of action set forth here; (3) having placed their products and services into the stream of commerce throughout the United States and having been actively engaged in transacting business in Texas and in this District; and (4) either individually, as members of a common business enterprise, vicariously through and/or in concert with its alter egos, intermediaries, agents, distributors, importers, partners, customers, subsidiaries, sister companies, affiliates, and/or consumers; and/or in conjunction with third parties, having committed acts of infringement within Texas and in this District.

97. In addition, or in the alternative, this Court has personal jurisdiction over Defendants pursuant to Fed. R. Civ. P. 4(k)(2).

98. Additionally, on information and belief, Coretronic sells and offers to sell the Accused Products in the United States. For example, Coretronic ships projectors to the United States for its customers, such as Samsung Electronics America, Inc., Coretronic Projection (Kunshan) Corp., and Ricoh USA, Inc. *See* Coretronic – Shipments to U.S. (Exhibit A).

99. Optoma sells and offers to sell the Accused Products in the United States. For example, Optoma ships projectors to the United States for sale. *See* Optoma – Shipments to U.S. (Exhibit B).

100. As explained herein, Defendants have shipped and continue to ship projectors and projector parts (*e.g.*, Projector Parts HS code 852862) to the United States.

101. Personal jurisdiction also exists specifically over each of Defendants because the Coretronic "Group" has a vertically integrated corporate structure where, on information and belief, Defendants engage in developing, manufacturing, importing, distributing, and/or providing after-sale services to customers in the United States and in this District. The close connections in operation of Defendants as the vertically integrated corporate structures are further demonstrated herein.

102. For example, Defendants offer to sell and sell projectors to customers (*e.g.*, subsidiaries and affiliated companies) in the United States, which then subsequently sell the Accused Products in the United States, including in Texas generally and this District specifically. *See* Coretronic – Shipments to U.S. (Exhibit A); Optoma – Shipments to U.S. (Exhibit B).

103. On information and belief, Defendants (themselves and/or through their affiliates) have authorized sellers and sales representatives that offer and sell products pertinent to this Complaint throughout the State of Texas, including in this District, and to consumers throughout this District. Optoma projectors (*i.e.*, projectors with Optoma logos imprinted on them), including the Accused Products, are being sold at dealers within this District.[16] These sellers/affiliates include Productive Solutions (located at 3214 McDonald Rd, Tyler, Texas 75701) and Cynergy (located at 3903 Timms, Tyler, Texas 75701).

104. On information and belief, Optoma projectors (including the Accused Products) are also advertised for purchase in the United States and in this District through affiliates including Abt Electronics (https://www.abt.com/Projectors/c/389.html?filters[812][4]=Optoma&order_by_post=relevance%2Cdesc&start_index=0&per_page=20), Audio General Incorporated

[16] Optoma, Dealer Locator, https://www.optomausa.com/dealers/locator (last visited July 1, 2024).

(https://www.audiogeneral.com/store/products/search?page_rcd=100&type=19&mfg=30), AVI-SPL Marketplace (https://catalog.avispl.com/brands/optoma.asp), AV Superstore (https://avsuperstore.com/506-projectors#/manufacturer-optoma), B&H iPhoto Video Pro Audio (https://www.bhphotovideo.com/c/products/Multimedia-Projectors/ci/6340/N/4294546231?filters=fct_brand_name%3Aoptoma-technology), CCS Presentation Systems (https://ccsprojects.com/brands/optoma/), Crutchfield (https://www.crutchfield.com/g_160150/Projectors.html?tp=164&fa=1#&nvpair=FFBrand|Optoma), Focused Technology (https://www.focusedtechnology.com/optoma-projectors.html), Full Compass (https://www.fullcompass.com/brand/opt-optoma/), Projector SuperStore also known as PSSAV (https://pssav.com/brand/optoma/), and ProjectorScreen.com (https://www.projectorscreen.com/optoma).

105. The Optoma projectors (including the Accused Products) are also advertised and can also be purchased through Best Buy (https://www.bestbuy.com/site/optoma/optoma-projectors/pcmcat1530205251343.c?id=pcmcat1530205251343), and Amazon (https://www.amazon.com/Video-Projectors-Optoma-Electronics/s?rh=n%3A300334%2Cp_89%3AOptoma). The Optoma projectors (including the Accused Products) are also being advertised for purchase through Projector Central (https://www.projectorcentral.com/buy-Optoma-projectors.htm).

106. Defendants also offer and sell products pertinent to this Complaint through other retailers located in this District, such as Best Buy (located at 422 West TX-281 Loop, Suite 100, Longview, Texas 75605).

107. As an additional example, Coretronic Projection (Kunshan) Cor. is another affiliate of Defendants that makes, imports, offers to sell, sells, and/or uses the Accused Products in the United States, including in Texas generally and this District specifically.

108. Each Defendant has, directly or through its distribution network, purposefully and voluntarily placed Accused Products in the stream of commerce, knowing and expecting them to be purchased and used by consumers in the United States, including in this District.

109. On information and belief, Defendants have also derived substantial revenue from infringing acts in this District, including from the sale and use of the Accused Products.

110. Venue is proper in this District pursuant to 28 U.S.C. §§ 1391(c)(3). Defendants are organized under the laws of a foreign jurisdiction (*i.e.*, Taiwan), and neither is a resident of the United States. Thus, Defendants may be sued in any judicial district.

Defendants' Knowledge of Maxell's Patent Portfolio

111. Defendants became aware of the Asserted Patents no later than April 27, 2023. On that date, Maxell (through its counsel) sent a letter to Mr. SY Chen, Chief Executive Officer of Optoma.

112. This letter invited Optoma to discuss an intellectual property transaction and licensing arrangement, and listed numerous exemplar patents in Maxell's projector portfolio, including each of the Asserted Patents. This letter also identified exemplary Optoma products.

113. On May 24, 2023, Optoma (through its counsel) sent a response to Maxell's April 27 letter.

114. Optoma's May 24 letter (through its counsel) confirmed receipt of Maxell's April 27 letter by Optoma. On information and belief, and as further demonstrated herein, Coretronic

also obtained knowledge of Maxell's April 27 letter and the patents and products therein through its subsidiary, Optoma.

115. Following several written communications between Maxell and Defendants, on July 21, 2023, the parties agreed to having a face-to-face meeting to discuss a licensing deal.

116. Though this business meeting was originally scheduled for September 26, 2023, Defendants cancelled this meeting five days beforehand, on September 21, 2023. The meeting was then rescheduled for December 2023.

117. On December 12, 2023, Maxell and Defendants held a face-to-face meeting to discuss a license to Maxell's patents, including each of the patents asserted here.

118. On behalf of Maxell, Mr. Takuya Shimizu, Senior Manager, and Mr. Satoshi Nakayama, Manager of the IP Innovation Division at Maxell, attended the meeting, along with outside counsel.

119. On behalf of Defendants, the General Counsel of Coretronic, Ms. Katherine Liang, and Senior Director of IP at Coretronic, Mr. Justin Chien, along with outside counsel, attended the meeting.

120. For purposes of the December 12, 2023 meeting and all communications related to licensing arrangements between Maxell and Defendants, Ms. Liang was acting on behalf of both Coretronic and its subsidiary, Optoma. Indeed, Ms. Liang confirmed this in subsequent written communications following the December 12 meeting.

121. During this December 12 meeting, Maxell explained its licensing structure and the history of its innovation in the projector market, and presented a license offer to Defendants.

122. Also at this meeting, Defendants committed to providing a counteroffer and/or counterproposal soon thereafter through their corporate representatives in attendance and/or

through outside counsel. Defendants also committed to providing particular information to help advance discussions toward a mutually beneficial licensing arrangement.

123. Following the face-to-face meeting in December 2023, Maxell (through its counsel) sent at least two emails to Defendants in an effort to continue licensing negotiations and to request that Defendants honor their commitment to provide a counteroffer.

124. On March 21, 2024, Maxell (through its counsel) also sent an additional letter with an updated list of products and four additional patents.

125. Despite Defendants' repeated delays during negotiations, Maxell remained hopeful that the parties could reach a mutually beneficial licensing arrangement.

126. Unfortunately, for over five months since the parties' December 12, 2023 meeting, Defendants refused to engage in good faith negotiations by, for example, declining to provide the promised counteroffer and other information.

127. Indeed, Defendants did not honor their commitment to providing a counteroffer until over five months after the parties' December 2023 meeting and over a year after first receiving Maxell's April 27, 2023 letter.

128. In their final communication to Maxell, Defendants made plain that they were not interested in advancing good-faith negotiations. Defendants also declined to provide any of the information they promised to provide to Maxell at the parties' December 2023 meeting.

129. Consequently, Maxell files this action to protect its intellectual property rights. Even today, Defendants continue to make, use, sell, and/or offer for sale Accused Products with Maxell's patented technology without a license while also continuing to work with their affiliated partners to make, use, sell, and/or offer for sale Accused Products with Maxell's patented technology.

COUNT 1 - INFRINGEMENT OF U.S. PATENT NO. 7,159,988

130. Maxell incorporates all prior paragraphs here by reference.

131. U.S. Patent No. 7,159,988 (the "'988 Patent," attached hereto at Exhibit E) duly issued on January 9, 2007, and is entitled *Projection Optical Unit and Projection Image Display Apparatus*.

132. The '988 Patent claims priority to JP 2003-398395, filed on November 28, 2003.

133. Maxell is the owner by assignment of the '988 Patent and possesses all rights under the '988 Patent, including the exclusive right to recover for past and future infringement.

134. Defendants have directly infringed one or more claims of the '988 Patent in this District and elsewhere in Texas, including at least claim 1, literally and/or under the doctrine of equivalents, by or through making, using, importing, offering for sale, and/or selling their ultra short throw projectors, including at least Optoma model numbers CinemaX D2, CinemaX D2 Smart, CinemaX P2, all CinemaX series, ZU500USTe, EH340UST, GT5600, L1, EH340UST, ZH430UST, GT3500HDR, ZW410UST and W340UST (the "'988 Accused Products"). Maxell reserves the right to discover and pursue any additional infringing devices that incorporate infringing functionalities, including those that Defendants' subsidiaries make, use, import, offer for sale, and/or sell under Defendants' control and/or direction. For the avoidance of doubt, the '988 Accused Products are identified to describe Defendants' infringement and in no way limit the discovery and infringement allegations against Defendants concerning other devices that incorporate the same or reasonably similar functionalities.

135. Each of the '988 Accused Products is, includes, or acts as a projection optical unit for enlarged projection of an image displayed by an image display element.

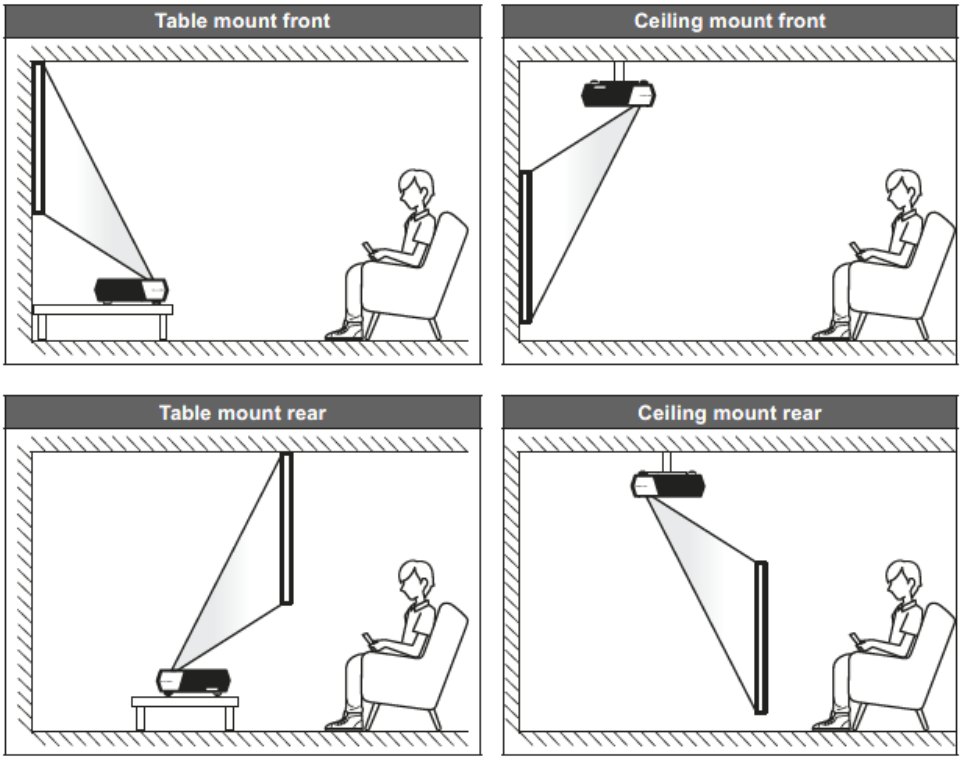
136. For example, the CinemaX D2 projector is, includes, or acts as a projection optical unit for enlarged projection of an image displayed by an image display element (such as a digital micromirror device (DMD)). Indeed, the user manual for the CinemaX D2 confirms that the device is capable of enlarged projection of images through a projection optical unit:

CinemaX D2 Datasheet (https://www.optomausa.com/ContentStorage/Documents/7a0fe54c-0849-405a-8da7-2f75536b0a7e.pdf) at 1.

Specifications

EAN: 5055387665811, Colour: Black	
EAN: 5055387666023, Colour: White	
UPC: 796435 81 447 2, Colour: Black	
UPC: 796435 81 446 5, Colour: White	
Display/image	
Display technology	DLP™
Resolution	UHD (3840x2160)
Brightness	3,000 lumens
Contrast ratio	1,800,000:1
Native aspect ratio	16:9
Aspect ratio - compatible	4:3
Keystone correction - horizontal	10°
Keystone correction - vertical	10°
Horizontal scan rate	31 – 135Khz
Vertical scan rate	24 – 120Hz
Uniformity	90%
Screen size	85" – 120" diagonal
Lamp info	
Light source type	Laser
LASER life	30,000 hours
Optical	
Throw ratio	0.25:1
Projection distance	18.5" - 25.98"
Focal length (mm)	525mm/20.669"
Native offset	124%

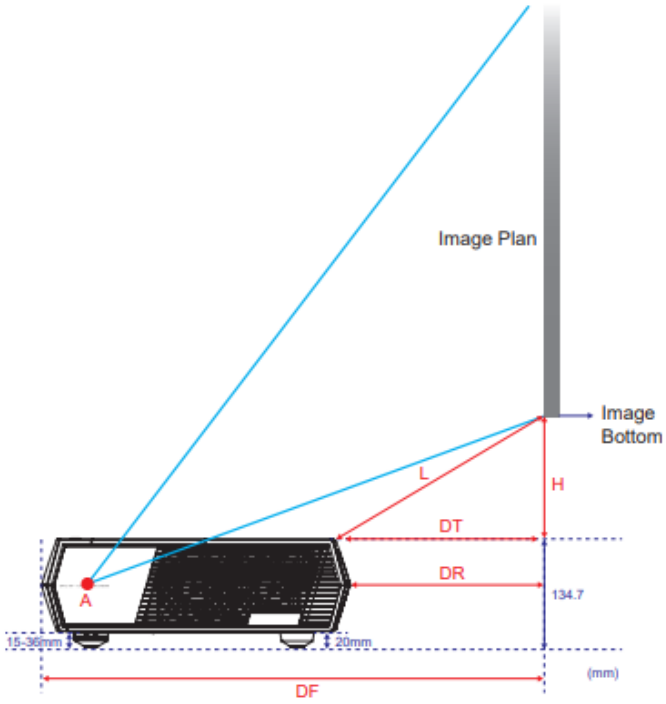
CinemaX D2 Datasheet (https://www.optomausa.com/ContentStorage/Documents/7a0fe54c-0849-405a-8da7-2f75536b0a7e.pdf).



CinemaX D2 User Manual (https://www.optomausa.com/ContentStorage/Documents/04deea99-19a0-4325-883c-9efad8901bf5.pdf) at 14.

Image size and projection distance

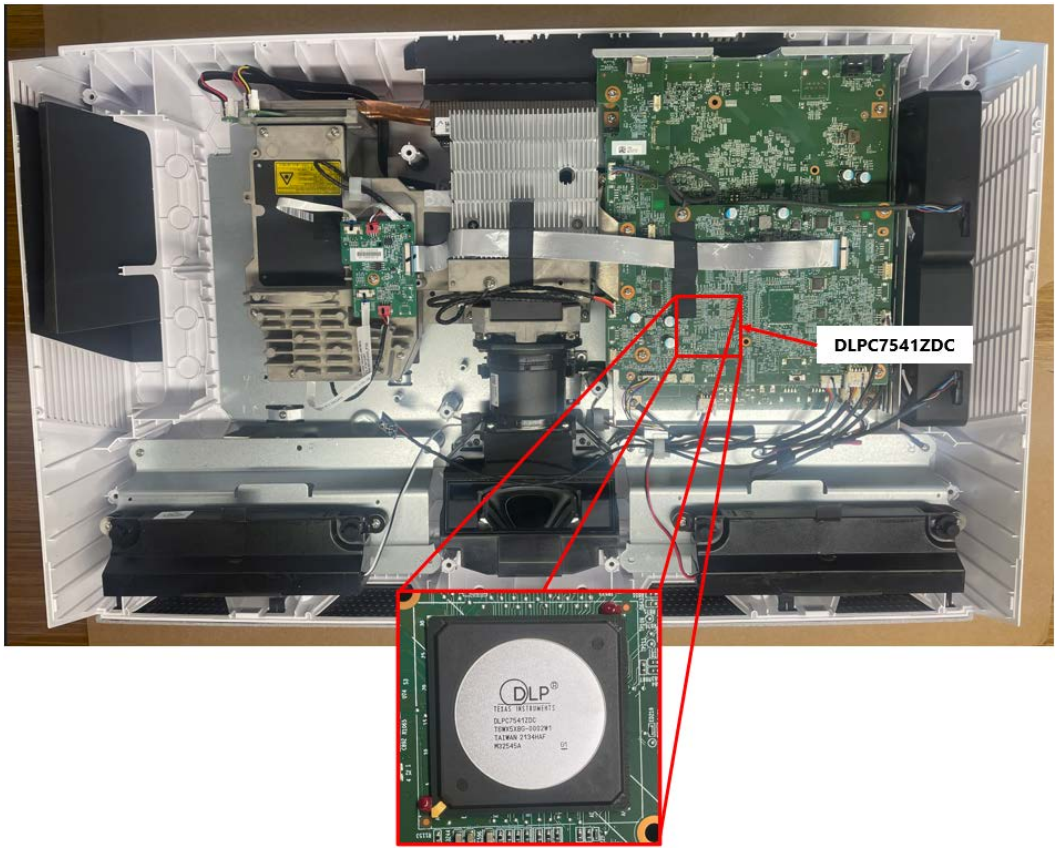
Image Size (inch)	DF		DR		DT		H Offset=121.5% ~ 130%		L Offset=121.5% ~ 130%	
	m	inch	m	inch	m	inch	m	inch	m	inch
85"	0.530	20.876	0.147	5.774	0.166	6.518	0.176 ~ 0.266	6.92 ~ 10.462	0.241 ~ 0.313	9.507 ~ 12.327
90"	0.558	21.983	0.175	6.881	0.194	7.625	0.189 ~ 0.284	7.447 ~ 11.198	0.271 ~ 0.344	10.658 ~ 13.547
100"	0.615	24.197	0.231	9.095	0.250	9.839	0.216 ~ 0.322	8.501 ~ 12.668	0.33 ~ 0.407	13.003 ~ 16.04
110"	0.671	26.411	0.287	11.309	0.306	12.053	0.243 ~ 0.359	9.555 ~ 14.139	0.391 ~ 0.472	15.381 ~ 18.579
120"	0.727	28.625	0.343	13.522	0.362	14.266	0.269 ~ 0.396	10.609 ~ 15.61	0.452 ~ 0.537	17.779 ~ 21.147



Id. at 42.

Id. at 1.

137. For example, a sample Optoma CinemaX D2 was disassembled and revealed a Texas Instruments DLPC7541ZDC controller on the backside of the main board, as shown in the annotated figure below:

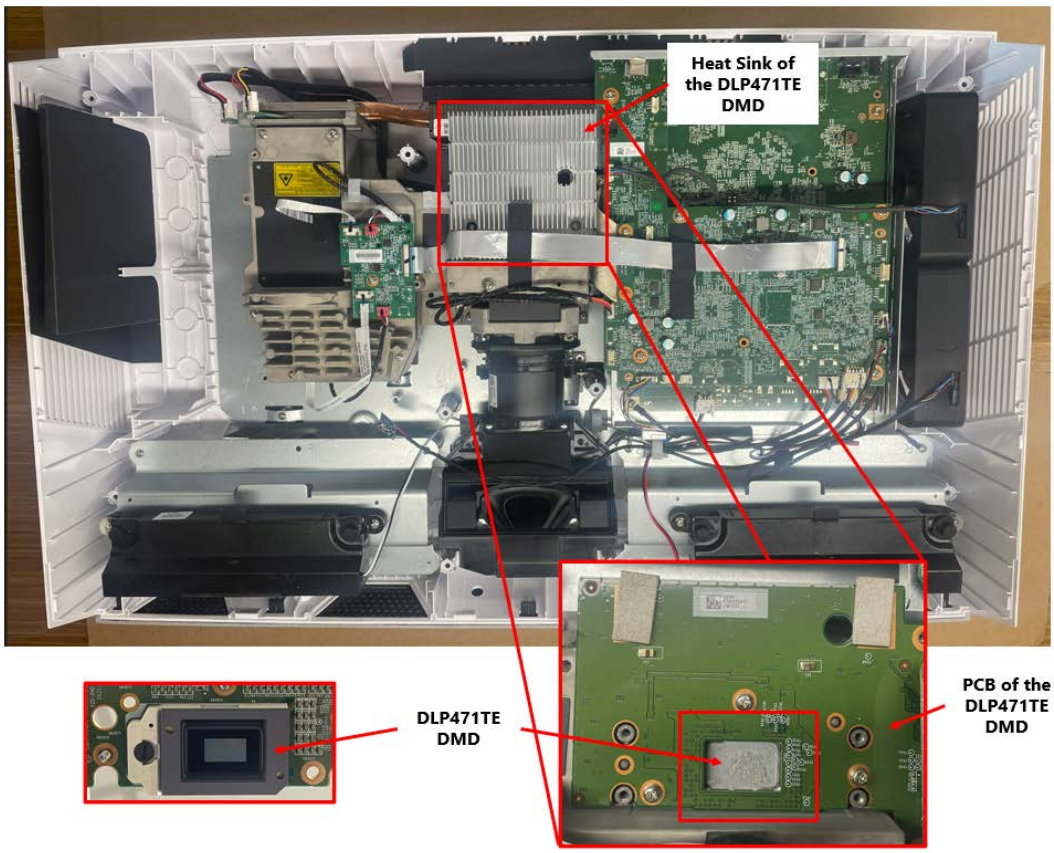


138. According to its manual, the CinemaX D2 includes an image display element (*e.g.*, DMD).

Optical	Description
Technology	Texas Instrument DMD, 0.47"(dimension)/ 4K UHD HSSI DMD X1 S451 (Packing typing), with 4-Way XPR actuator

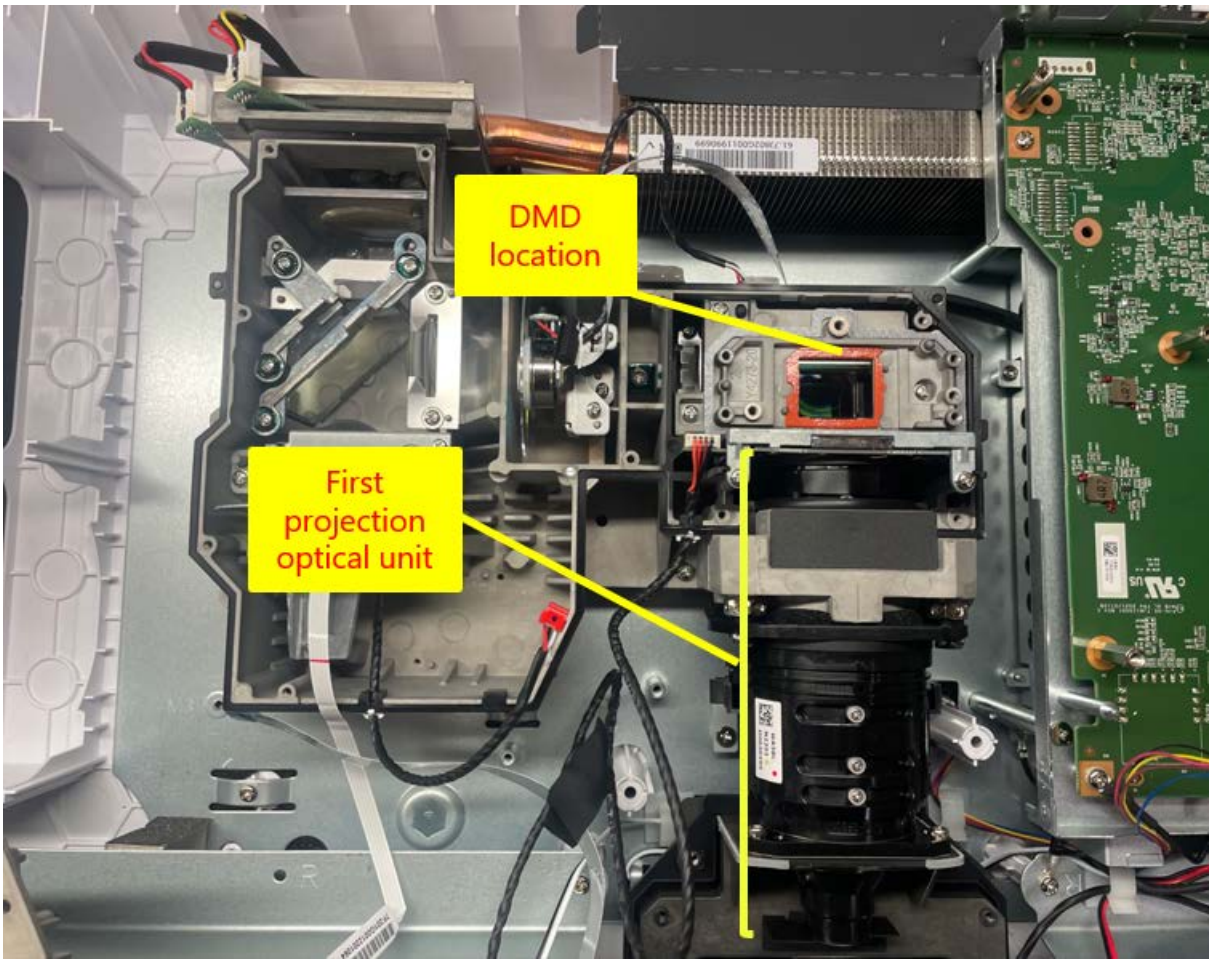
CinemaX D2 User Manual at 49, https://www.optomausa.com/ContentStorage/Documents/04deea99-19a0-4325-883c-9efad8901bf5.pdf.

139. Further, as shown in the following photo, the CinemaX D2 includes a DMD and associated hardware:

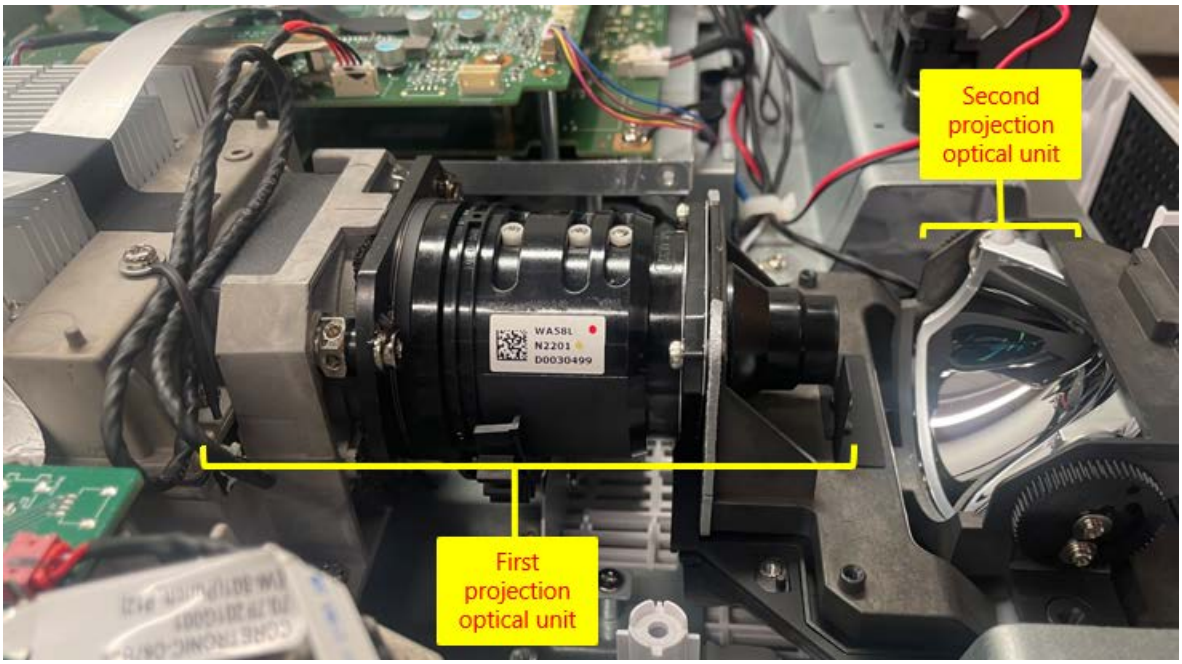


140. Each of the ’988 Accused Products includes a first projection optical unit that forms a first enlarged image, where the first projection optical unit has a positive refractive power.

141. For example, as shown in the following photo, the CinemaX D2 projector includes a first projection optical unit that forms a first enlarged image:

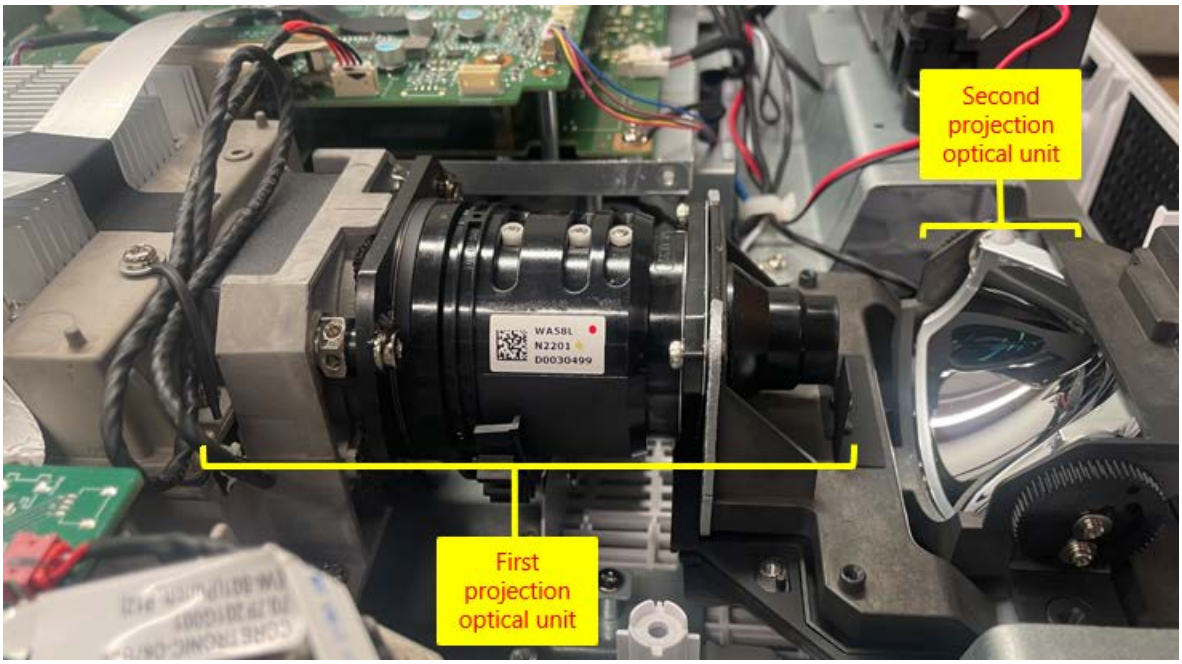


142. Further, the identified first projection optical unit has a positive refractive power, as shown in the following photo of an example of the CinemaX D2's first projection optical unit:



143. Each of the ’988 Accused Products also includes a second projection optical unit positioned at an enlarged image side of the first projection optical unit that forms a second enlarged image by further enlarging the first enlarged image. The second projection unit also has a positive refractive power.

144. For example, the CinemaX D2 projector includes a second projection optical unit positioned at an enlarged-image side of the first projection optical unit, as shown in the following annotated photos of a dissembled CinemaX D2:

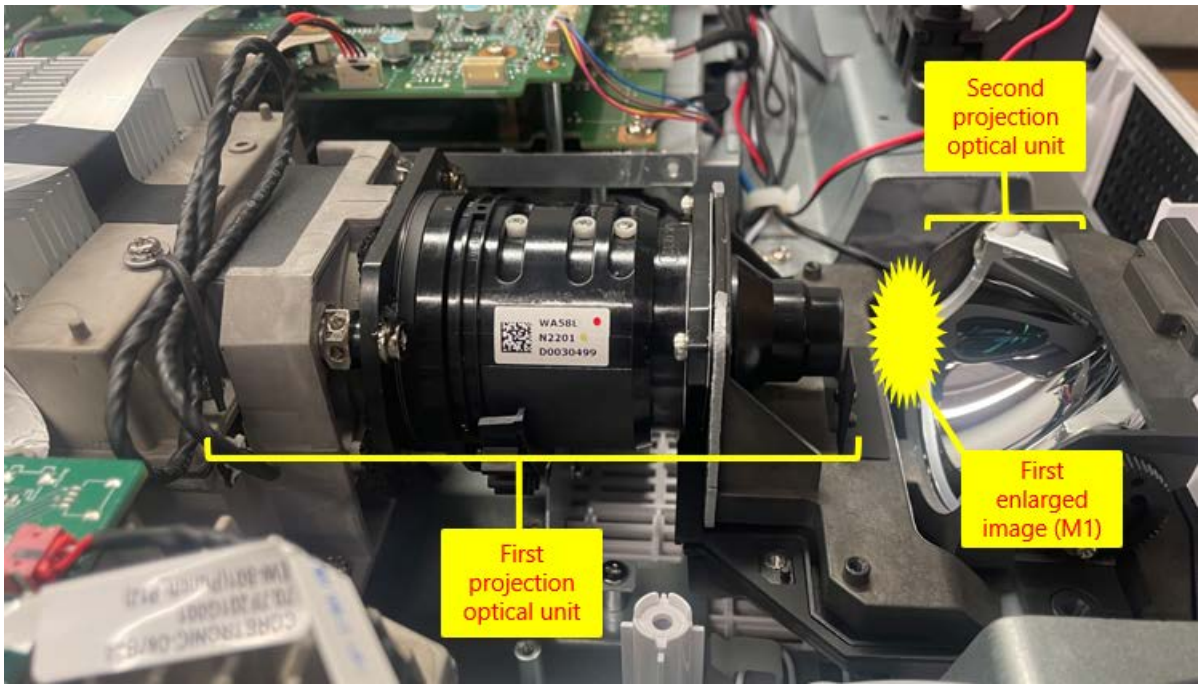


145. The CinemaX D2's second projection optical unit forms a second enlarged image by further enlarging the first enlarged image obtained by the first projection optical unit.

146. The CinemaX D2's second projection optical unit has a positive refractive power.

147. In each of the '988 Accused Products, the first enlarged image is formed at the image display element side, rather than at the second projection optical unit.

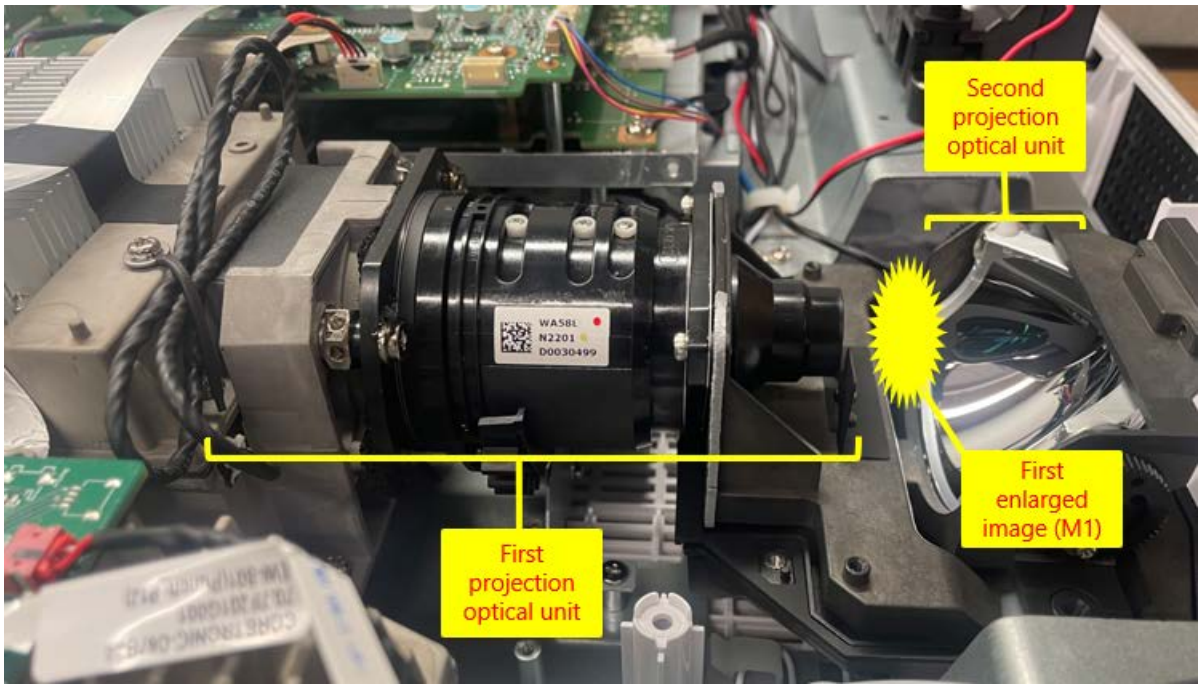
148. For example, as shown in the following photos, the CinemaX D2 forms a first enlarged image at the image display element (*e.g.*, DMD) side of the optical path, rather than at the second projection optical unit:



149. In each of the ’988 Accused Products, a magnification M1 of the first enlarged image is smaller than a magnification M2 of the second enlarged image.

150. Each of the ’988 Accused Products also includes a first projection optical unit that includes an aperture stop that defines an F-value of the entire projection optical unit.

151. For example, the identified first projection optical unit in the CinemaX D2 includes an aperture stop that defines an F-value of the entire projector, as shown in the following photo:



152. On information and belief, and as confirmed by the products' user manuals, technical specifications, marketing materials, and other publicly available information, the remaining '988 Accused Products include the same or similar components as the CinemaX D2. Moreover, based on the same, each of the remaining '988 Accused Products function the same or similarly as the CinemaX D2.

153. Accordingly, each of the remaining '988 Accused Products infringe for the same or similar reasons.

154. The foregoing features and capabilities of the '988 Accused Products and Defendants' description and/or demonstration thereof, including in user manuals and advertising, reflect Defendants' direct infringement by satisfying every element of at least claim 1 of the '988 Patent, under 35 U.S.C. § 271(a).

155. In addition, Defendants have indirectly infringed at least claim 1 of the '988 Patent in this District and elsewhere in the United States by, among other things, actively inducing their affiliates to make, use, sell, and/or offer to sell and/or to import at least the '988 Accused Products.

Defendants committed these acts of inducement with knowledge of the ’988 Patent and their infringement thereof, as described earlier.

156. Thus, Defendants are further liable for infringement of the ’988 Patent pursuant to 35 U.S.C. § 271(b).

157. Defendants have also contributorily infringed the ’988 Patent. For example, the ’988 Accused Products include hardware that by its arrangement at least meets all elements of claim 1. These are components of a patented machine, manufacture, or combination. Further, these components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use.

158. Thus, Defendants are also liable for infringement of the ’988 Patent pursuant to 35 U.S.C. § 271(c).

159. Defendants had notice of the ’988 Patent and their infringement thereof by no later than April 27, 2023. By the time of trial, Defendants will thus have known and intended (since receiving this notice) that their continued actions would actively induce and contribute to actual infringement of at least claim 1 of the ’988 Patent.

160. Defendants undertook and continued their infringing actions despite an objectively high likelihood that they infringed the ’988 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least April 27, 2023, Defendants have been aware of an objectively high likelihood that their actions constituted and continue to constitute infringement of the ’988 Patent, and that the ’988 Patent is valid.

161. On information and belief, Defendants could not reasonably, subjectively believe that their actions do not constitute infringement of the ’988 Patent, nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and

the objectively high likelihood that their actions constitute infringement, Defendants continued their infringing activities with knowledge of the ’988 Patent.

162. As such, Defendants have willfully infringed and continue to willfully infringe the ’988 Patent.

163. Maxell has been and continues to be damaged by Defendants’ infringement of the ’988 Patent.

COUNT 2 - INFRINGEMENT OF U.S. PATENT NO. 7,850,313

164. Maxell incorporates all prior paragraphs here by reference.

165. U.S. Patent No. 7,850,313 (the “’313 Patent,” attached hereto as Exhibit F) duly issued on March 17, 2015, and is entitled *Projection Type Image Display Apparatus*.

166. The ’313 Patent claims priority to JP 2006-166434, filed on June 15, 2006.

167. Maxell is the owner by assignment of the ’313 Patent and possesses all rights under the ’313 Patent, including the exclusive right to recover for past and future infringement.

168. Defendants have directly infringed one or more claims of the ’313 Patent in this District and elsewhere in Texas, including at least claim 1, literally and/or under the doctrine of equivalents, by or through making, using, importing, offering for sale, and/or selling their ultra short throw projectors, including at least Optoma model numbers ZH430UST, GT3500HDR, ZW410UST, L1, CinemaX D2, CinemaX D2 Smart, ZU500USTe, EH340UST, GT5600, and W340UST (the “’313 Accused Products”). Maxell reserves the right to discover and pursue any additional infringing devices that incorporate infringing functionalities, including those that Defendants’ subsidiaries make, use, import, offer for sale, and/or sell under Defendants’ control and/or direction. For the avoidance of doubt, the ’313 Accused Products are identified to describe Defendants’ infringement and in no way limit the discovery and infringement allegations against

Defendants concerning other devices that incorporate the same or reasonably similar functionalities.

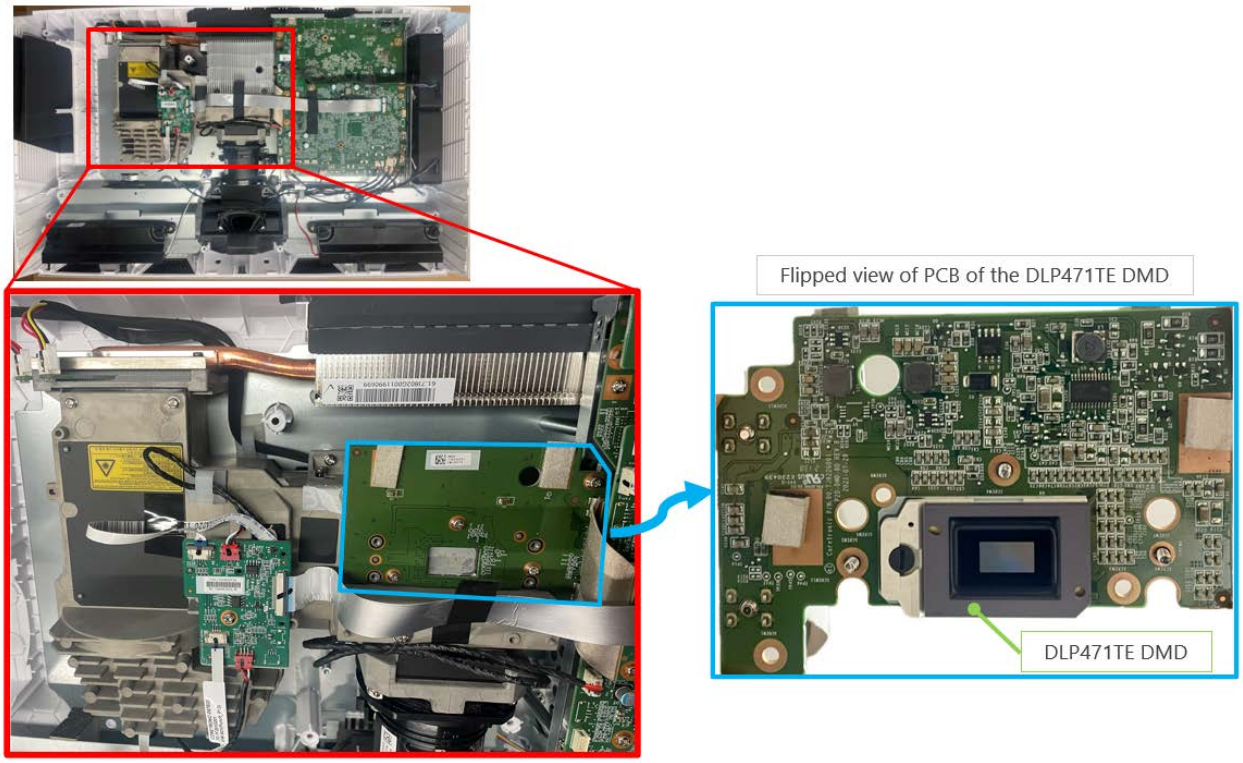
169. Each of the ’313 Accused Products is, includes, or acts as projection type image display apparatus with a first lens group and a second lens group.

170. For example, according to its user manual, the CinemaX D2 includes an image display element (*e.g.*, a DMD).

Optical	Description
Technology	Texas Instrument DMD, 0.47”(dimension)/ 4K UHD HSSI DMD X1 S451 (Packing typing), with 4-Way XPR actuator

CinemaX D2 User Manual at 49, https://www.optomausa.com/ContentStorage/Documents/04deea99-19a0-4325-883c-9efad8901bf5.pdf.

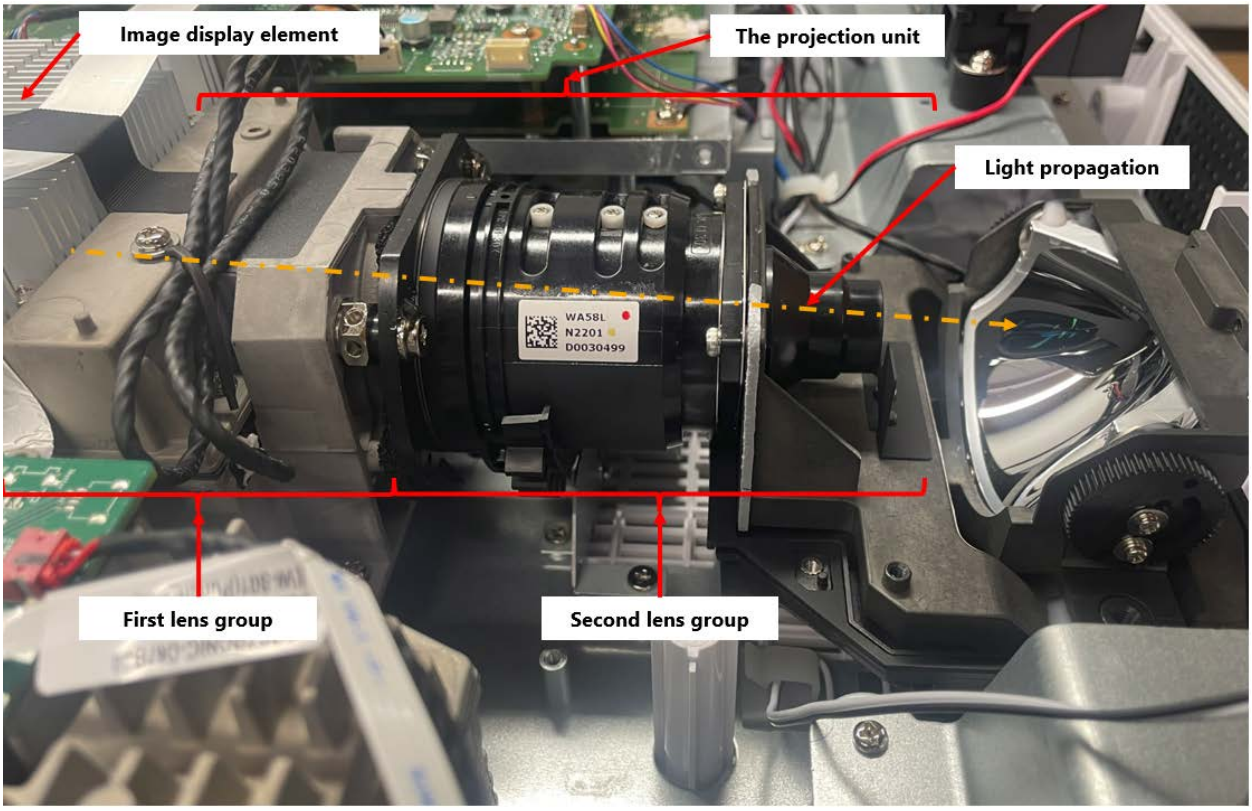
171. Further, as shown in the following photos of a disassembled sample CinemaX D2 projector, the CinemaX D2 includes an image display element (*e.g.*, a DMD):

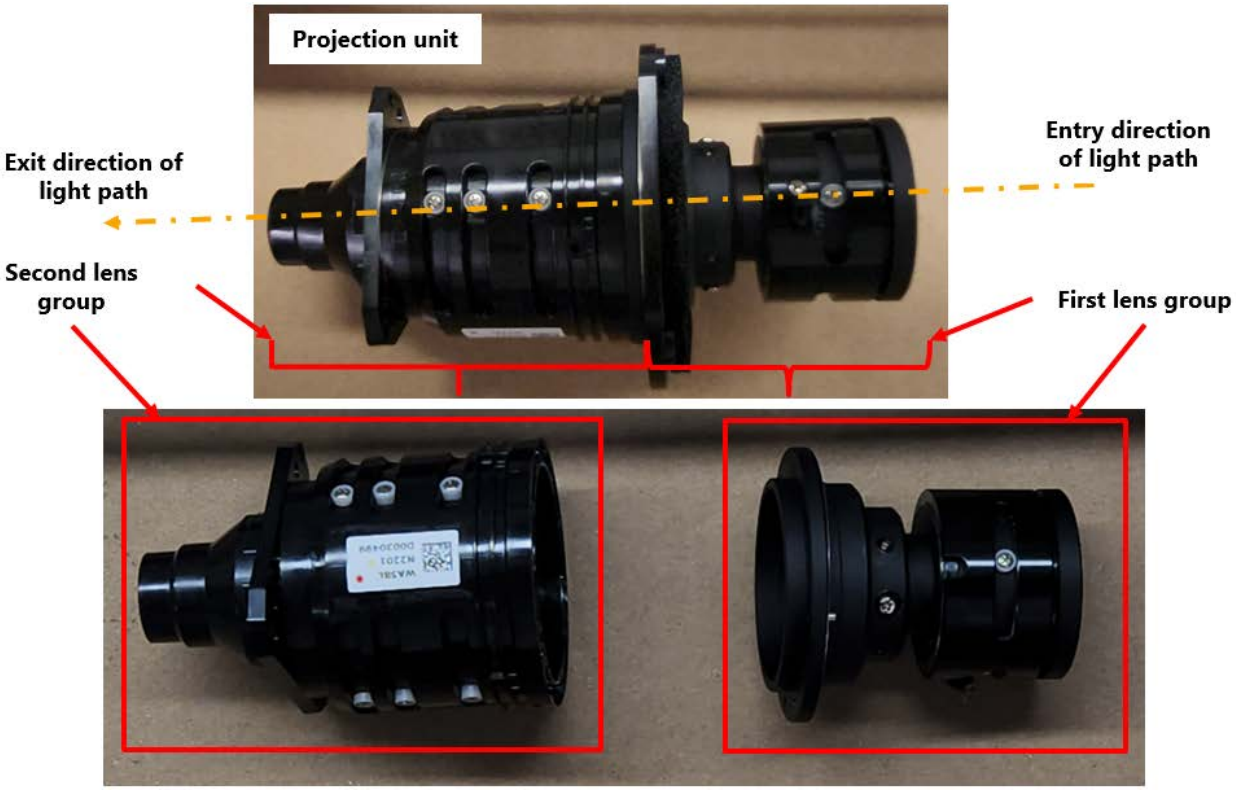


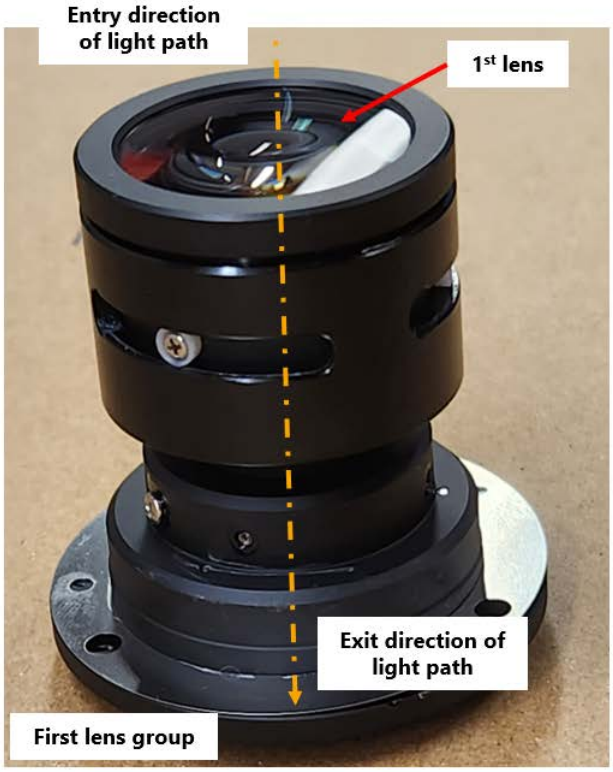
172. Each of the remaining ’313 Accused Products includes an image display element in the form of one or more DMDs that allow for the projection of images.

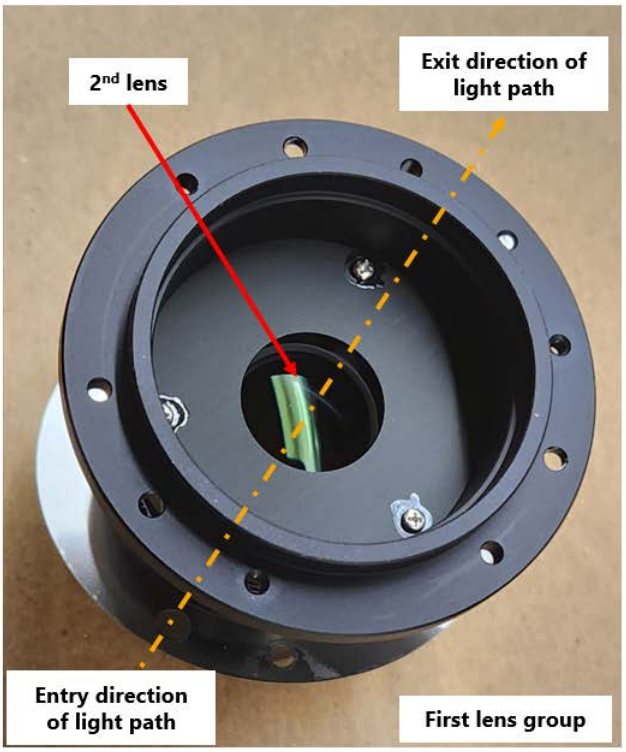
173. Each of the ’313 Accused Products includes a first lens group, being disposed in a light direction with respect to said image display element, which is configured to include a plural number of lenses.

174. For example, the following annotated photos of a disassembled CinemaX D2 projector show one example of the claimed first lens group disposed in a light direction with respect to the image display element (*e.g.*, a DMD), and configured to include a plural number of lenses:




Projection unit
Exit direction of light path
Entry direction of light path
Second lens group
First lens group

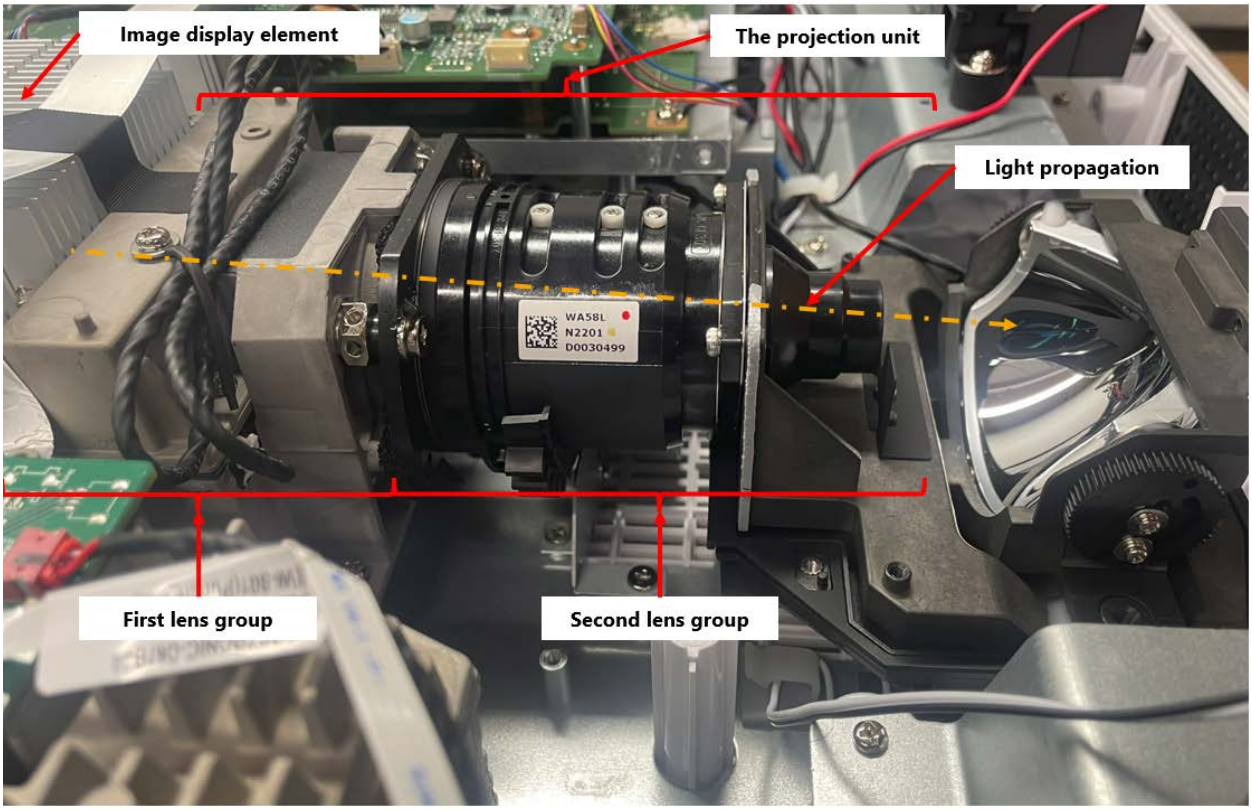

Entry direction of light path
1st lens
Exit direction of light path
First lens group

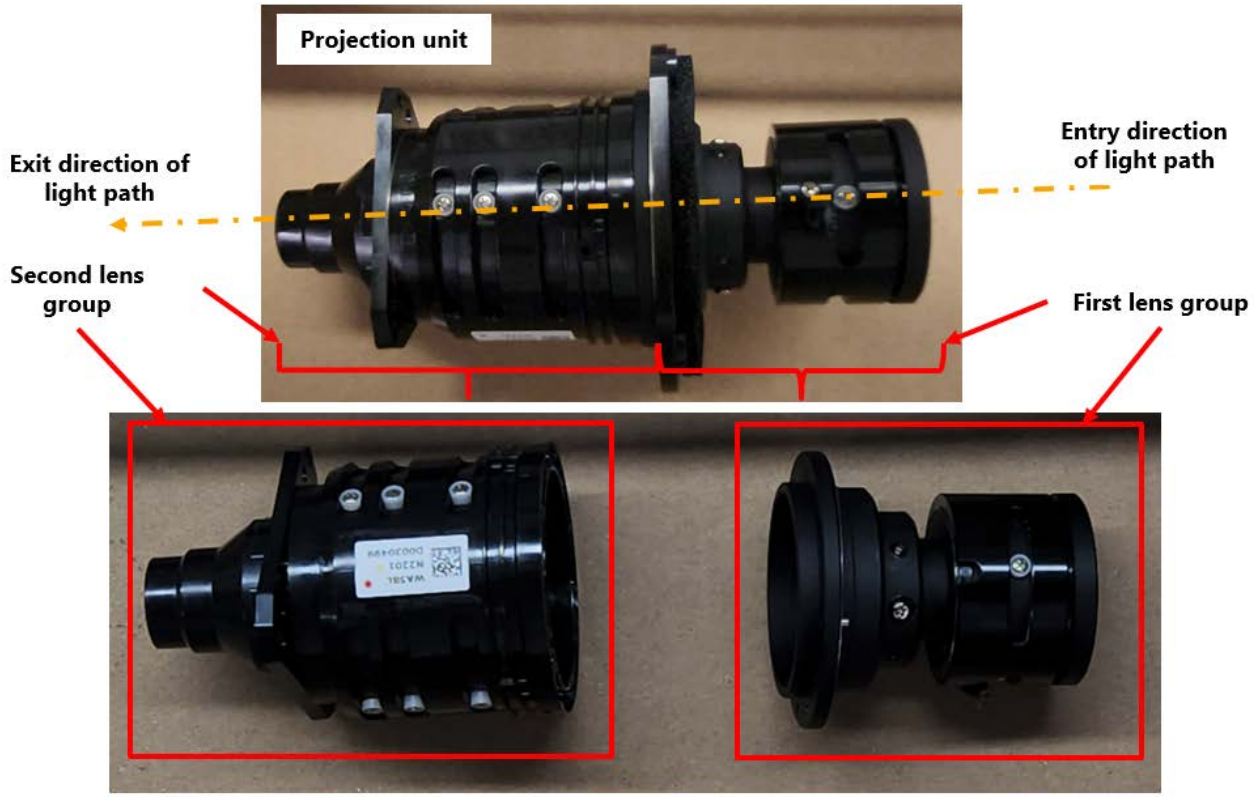

2nd lens
Exit direction of light path
Entry direction of light path
First lens group

175. On information and belief, each of the remaining ’313 Accused Products includes a first lens group disposed in a light direction with respect to said image display element, which is configured to include a plural number of lenses.

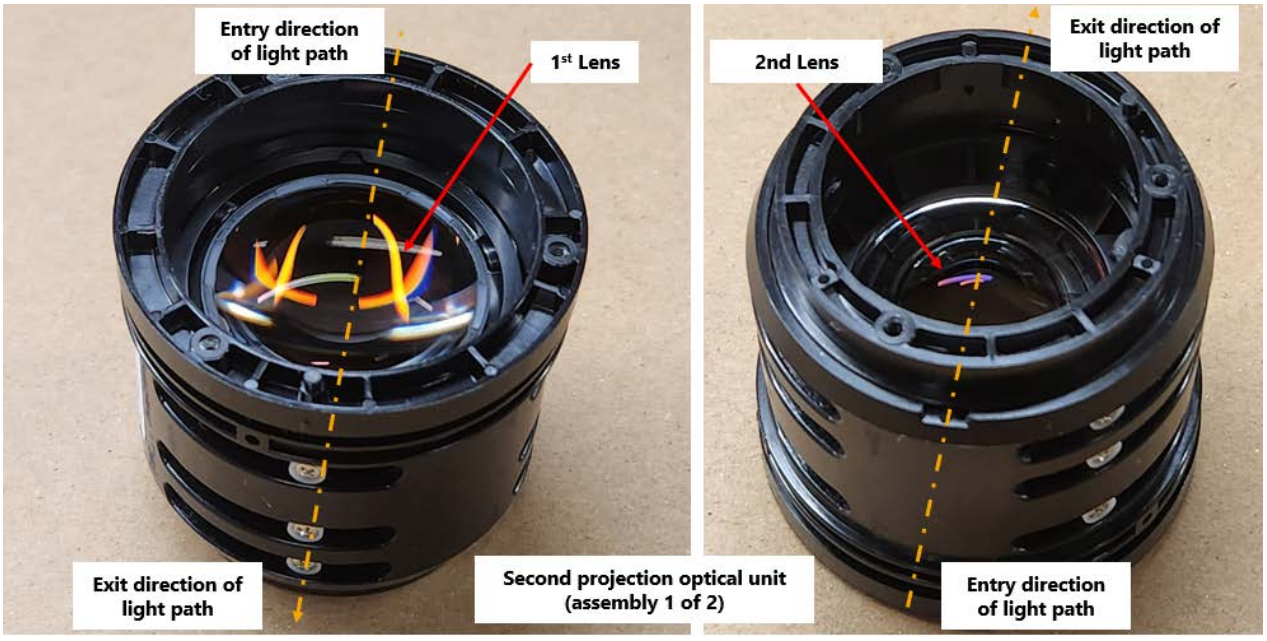
176. Each of the ’313 Accused Products includes a second lens group, being disposed in a light direction with respect to said first lens group, which is configured to include a plural number of lenses.

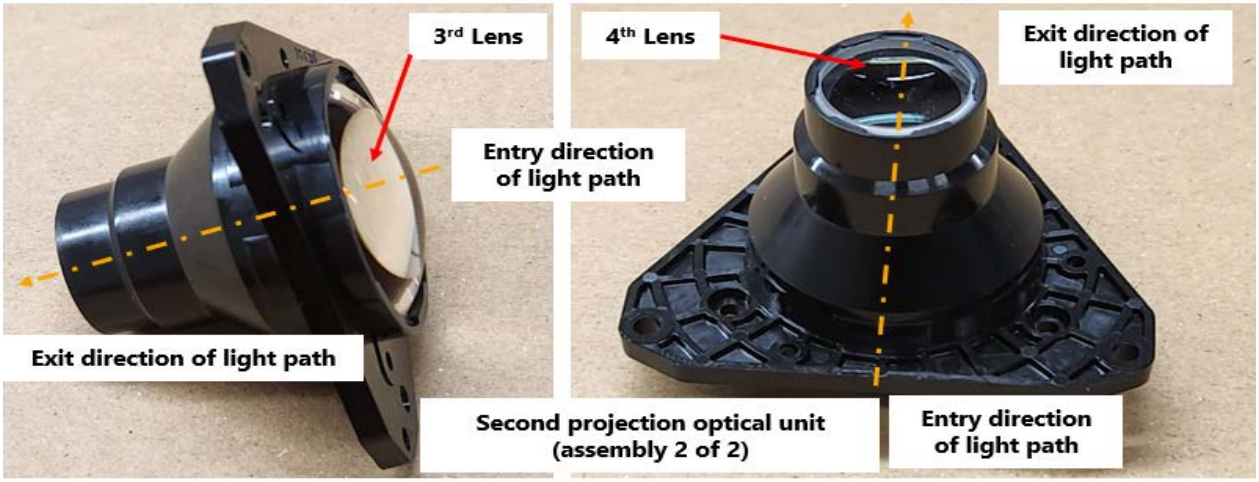
177. For example, the following annotated photos of a disassembled CinemaX D2 projector show one example of the claimed second lens group, being disposed in a light direction with respect to the first lens group:





178. In addition, the following annotated photos of a disassembled second lens group of the CinemaX D2 (see the labeled figure above, on the bottom left) show a plural number of lenses:

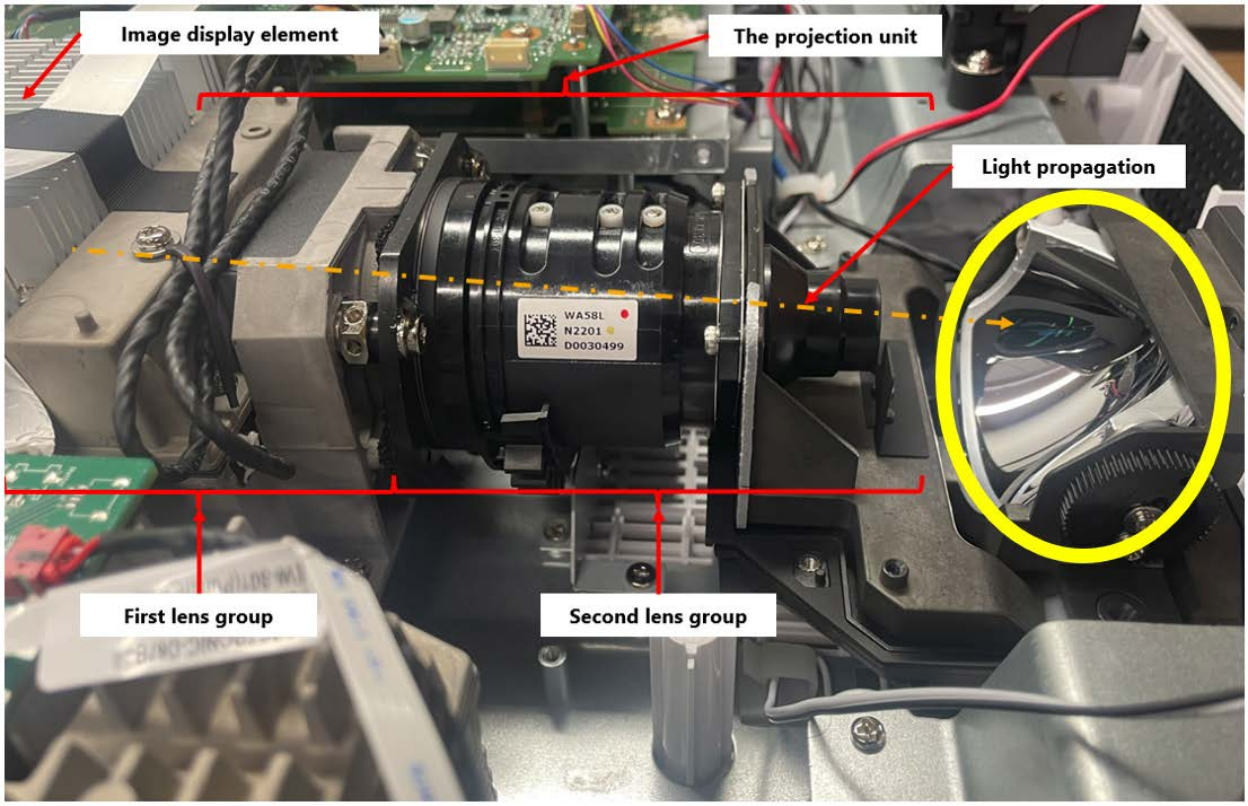




179. On information and belief, each of the remaining ’313 Accused Products includes a second lens group, being disposed in a light direction with respect to said first lens group, which is configured to include a plural number of lenses.

180. Each of the ’313 Accused Products includes a reflection mirror, which is configured to reflect lights emitted from at least one of said first and second lens groups, so as to project upon said screen obliquely.

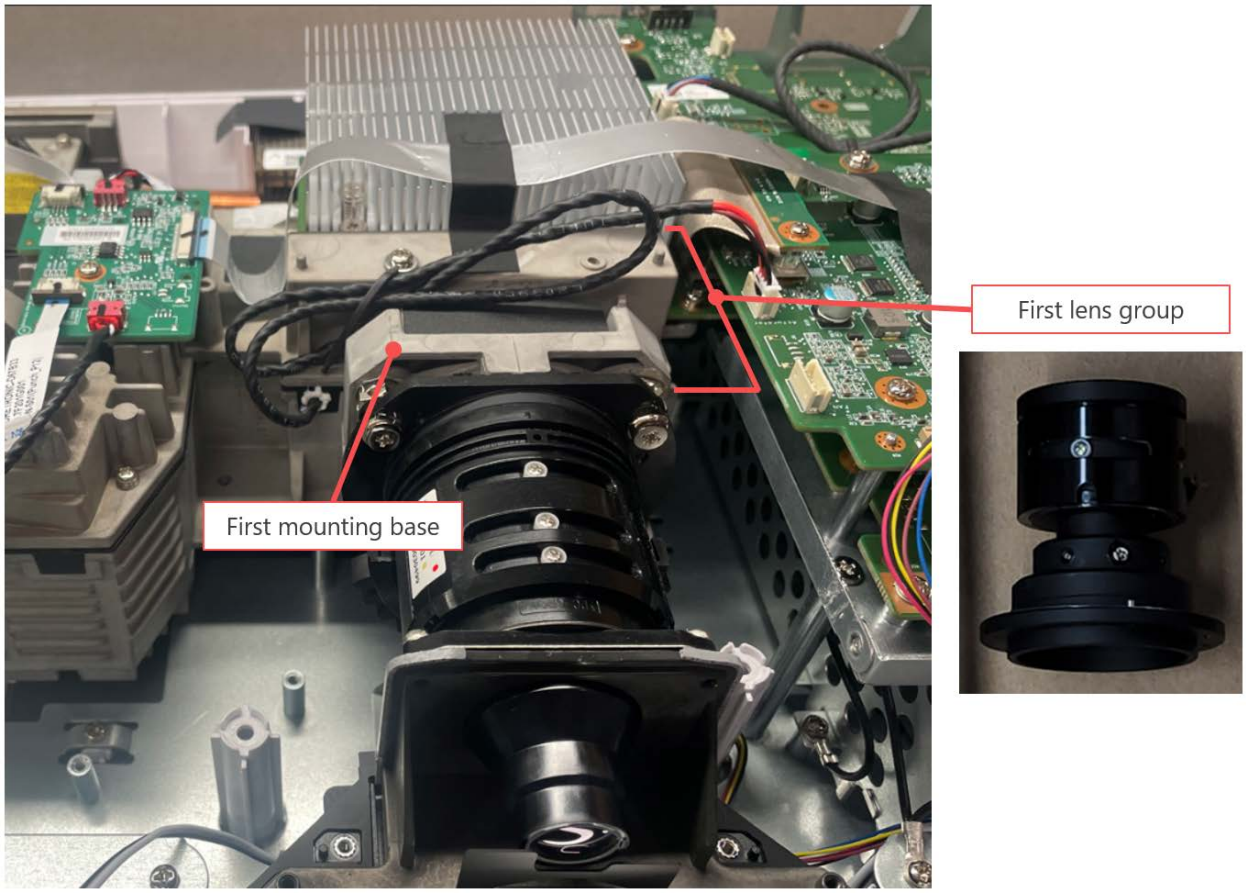
181. As an example, the following annotated photo of a disassembled CinemaX D2 shows the claimed reflection mirror (annotated in yellow), which is configured to reflect lights emitted from at least one of the first and second lens groups. On information and belief, the reflection mirror is configured as to project upon a screen obliquely:



182. On information and belief, each of the remaining ’313 Accused Products includes a reflection mirror, which is configured to reflect lights emitted from at least one of said first and second lens groups, so as to project upon said screen obliquely.

183. Each of the ’313 Accused Products includes a first mounting base, on which said first lens group is mounted.

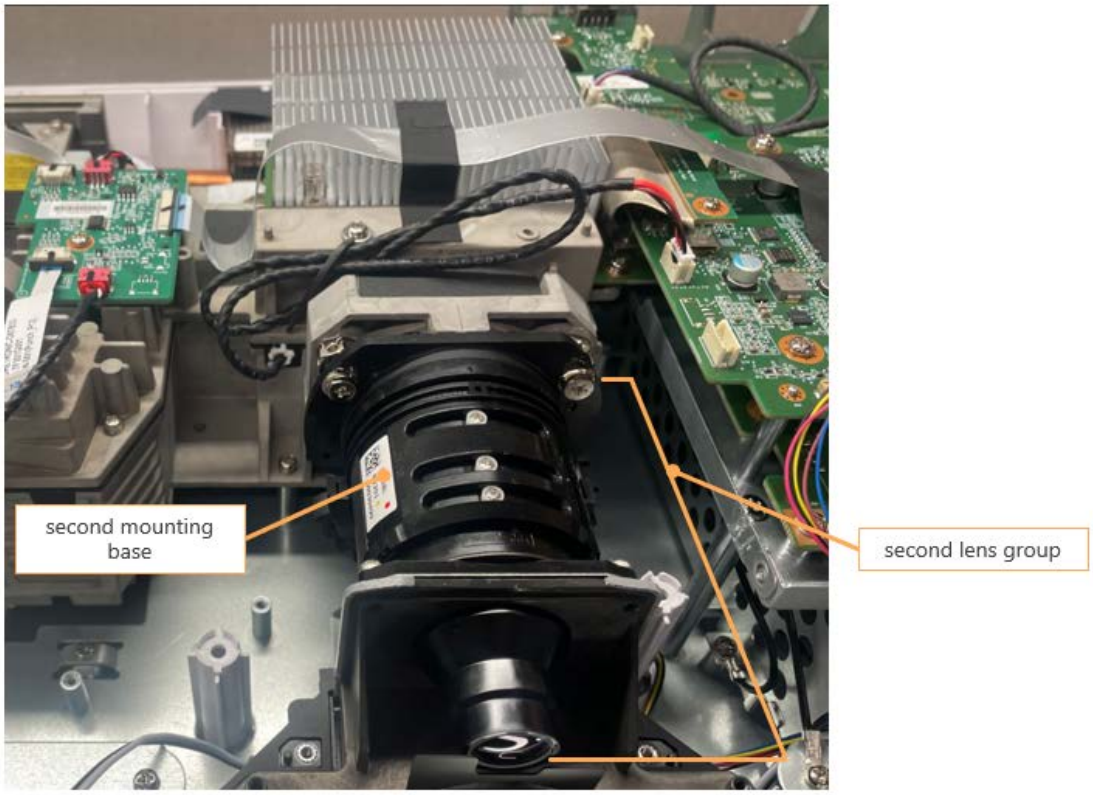
184. For example, the following annotated photo of a disassembled CinemaX D2 projector shows a first mounting base (annotated in the following photo), on which the first lens group is mounted:



185. On information and belief, each of the remaining ’313 Accused Products includes a first mounting base, on which said first lens group is mounted.

186. Each of the ’313 Accused Products includes a second mounting base, on which said second lens group is mounted.

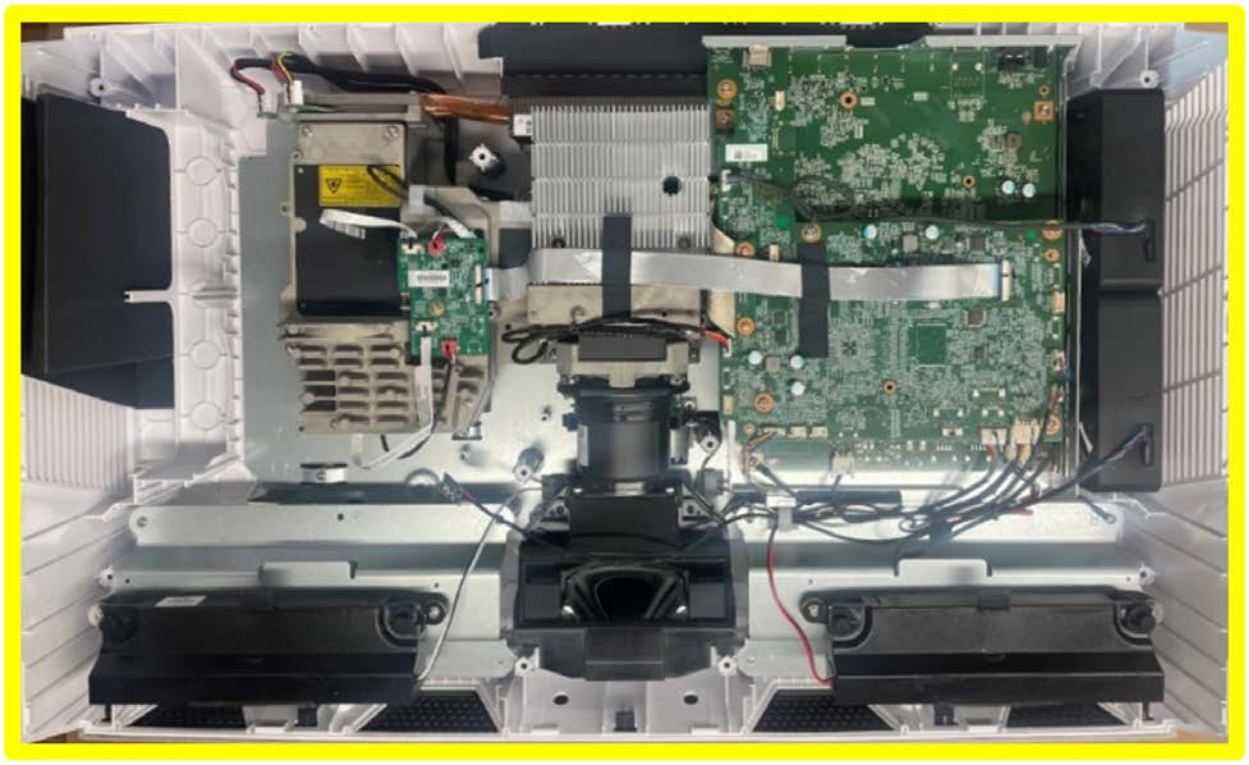
187. For example, the following annotated photo of a disassembled CinemaX D2 projector shows a second mounting base, on which said second lens group is mounted:



188. On information and belief, each of the remaining ’313 Accused Products includes a second mounting base, on which said second lens group is mounted.

189. Each of the ’313 Accused Products includes a chassis, which is configured to store said first and second lens group, said reflection mirror, and said first and second mounting bases.

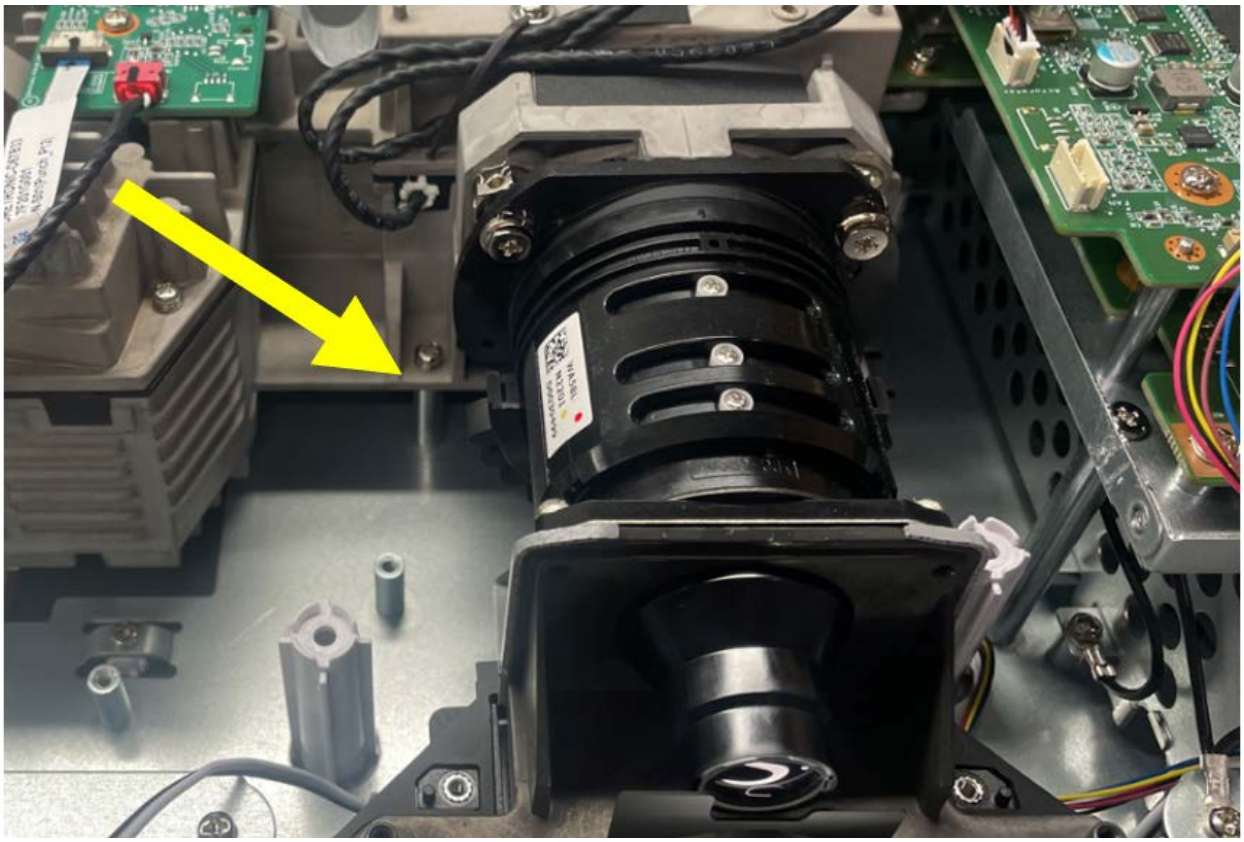
190. For example, the following annotated photo of a disassembled CinemaX D2 projector shows a chassis (*e.g.*, a housing / case, marked in yellow), which is configured to store the first and second lens group, reflection mirror, and first and second mounting bases:



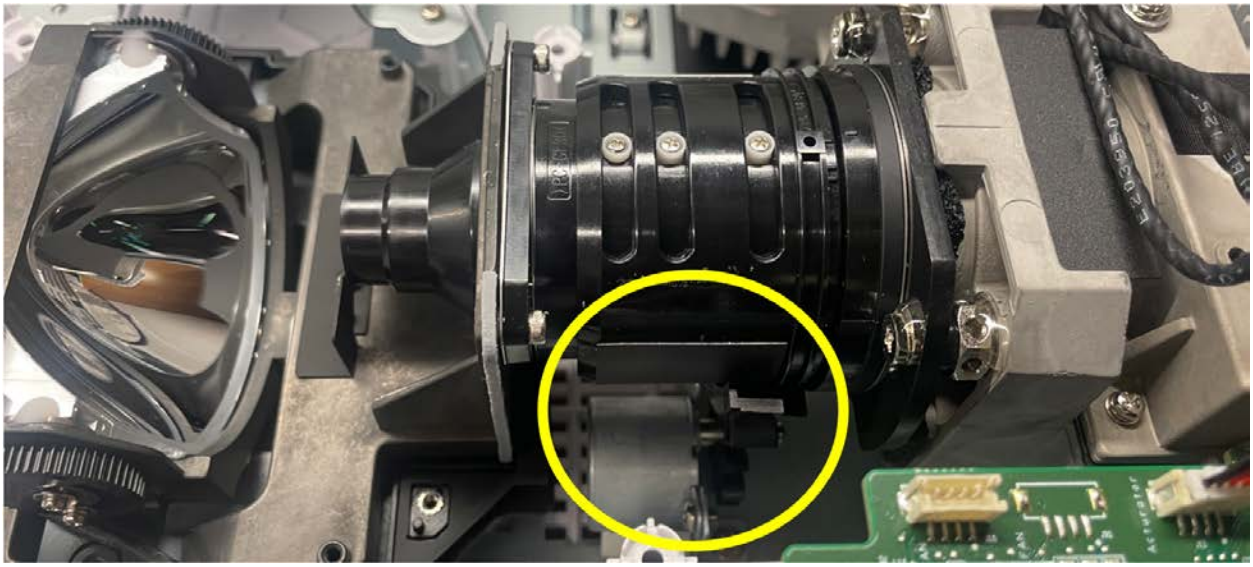
191. On information and belief, each of the remaining ’313 Accused Products includes a chassis, which is configured to store said first and second lens group, said reflection mirror, and said first and second mounting bases.

192. In each of the ’313 Accused Products, said first mounting base is fixed at a bottom of said chassis, while said second mounting base is moveable.

193. For example, the following annotated photo of a disassembled CinemaX D2 projector shows that the CinemaX D2’s first mounting base is fixed at a bottom of the chassis (yellow arrow):



194. In addition, for example, the CinemaX D2's second mounting base is moveable by way of a motorized mechanism (shown in a yellow circle), as identified in the below annotated photograph of a sample disassembled CinemaX D2 projector:



195. On information and belief, in each of the remaining ’313 Accused Products, the first mounting base is fixed at a bottom of the chassis, while the second mounting base is moveable.

196. On information and belief, and as confirmed by the products’ user manuals, technical specifications, marketing materials, and other publicly available information, the remaining ’313 Accused Products include the same or similar components as the CinemaX D2. Moreover, based on the same, each of the remaining ’313 Accused Products function the same or similarly as the CinemaX D2.

197. Accordingly, each of the remaining ’313 Accused Products infringe for the same or similar reasons.

198. The foregoing features and capabilities of the ’313 Accused Products and Defendants’ description and/or demonstration thereof, including in user manuals and advertising, reflect Defendants’ direct infringement by satisfying every element of at least claim 1 of the ’313 Patent, under 35 U.S.C. § 271(a).

199. In addition, Defendants have indirectly infringed at least claim 1 of the ’313 Patent in this District and elsewhere in the United States by, among other things, actively inducing their affiliates to make, use, sell, and/or offer to sell and/or to import at least the ’313 Accused Products. Defendants committed these acts of inducement with knowledge of the ’313 Patent and their infringement thereof, as described earlier.

200. Thus, Defendants are further liable for infringement of the ’313 Patent pursuant to 35 U.S.C. § 271(b).

201. Defendants have also contributorily infringed the ’313 Patent. For example, the ’313 Accused Products include hardware that by its arrangements meets all elements of at least claim 1. These are components of a patented machine, manufacture, or combination. Further, these

components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use.

202. Thus, Defendants are also liable for infringement of the ’313 Patent pursuant to 35 U.S.C. § 271(c).

203. Defendants had notice of the ’313 Patent and their infringement thereof by no later than April 27, 2023. By the time of trial, Defendants will thus have known and intended (since receiving this notice) that their continued actions would actively induce and contribute to actual infringement of at least claim 1 of the ’313 Patent.

204. Defendants undertook and continued their infringing actions despite an objectively high likelihood that they infringed the ’313 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least April 27, 2023, Defendants have been aware of an objectively high likelihood that their actions constituted and continue to constitute infringement of the ’313 Patent, and that the ’313 Patent is valid.

205. On information and belief, Defendants could not reasonably, subjectively believe that their actions do not constitute infringement of the ’313 Patent, nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that their actions constitute infringement, Defendants continued their infringing activities with knowledge of the ’313 Patent.

206. As such, Defendants have willfully infringed and continue to willfully infringe the ’313 Patent.

207. Maxell has been and continues to be damaged by Defendants’ infringement of the ’313 Patent.

COUNT 3 - INFRINGEMENT OF U.S. PATENT NO. 8,593,580

208. Maxell incorporates all prior paragraphs here by reference.

209. U.S. Patent No. 8,593,580 (the "'580 Patent," attached hereto as Exhibit G) duly issued on November 26, 2013, and is entitled *Projection-type Display Apparatus*.

210. The '580 Patent claims priority to JP 2010-023911, filed on February 5, 2010.

211. Maxell is the owner by assignment of the '580 Patent and possesses all rights under the '580 Patent, including the exclusive right to recover for past and future infringement.

212. Defendants have directly infringed one or more claims of the '580 Patent in this District and elsewhere in Texas, including at least claim 10, literally and/or under the doctrine of equivalents, by or through making, using, importing, offering for sale, and/or selling their solid-state light source projectors, including at least Optoma model numbers ZU507TST, ZK708T, ZK608TST, ZH430UST, GT3500HDR, ZH340ST, ZU607TST, ZW410UST, ZK810TST, ZK810T, GT2000HDR, GT2100HDR, HZ40HDR, L1, ML1080, ML1080ST, UHZ35ST, UHZ66, ZH350ST, ZH400, ZH400ST, ZH420, ZH450, ZH450ST, ZH462, ZH507+, ZH520, ZK430ST, ZK450, ZU725TST, ZU820TST, ZW340e, ZW350e, ZW350ST, ZX350e, UHZ55, ZU607T, ZU707T, ZK1050, ZK750, UHZ65LV, ZK507-W, ZK400, UHZ45, UHZ50, CinemaX D2, CinemaX D2 Smart, ZU2200, ZU1900, ZU1700, ZU1300, ZU1100, ZU920T, ZU920TST, ZU820T, ZU860, ZU725T, ZU720TST, ZU606T-W, ZU606TST-W, ZU506T-W, ZU500USTe, ZH606-W, ZH507, ZH461, ZH406, GT1090HDR, ZH406STx, GT1090HDRx, ZH403, HZ39HDR, ZW403, ZW400, ZW350, ML1050ST+, and ZX300 (the "'580 Accused Products"). Maxell reserves the right to discover and pursue any additional infringing devices that incorporate infringing functionalities, including those that Coretronic's and/or Optoma's subsidiaries make, use, import, offer for sale, and/or sell under Coretronic's and/or Optoma's control and/or direction. For the avoidance of doubt, the '580 Accused Products are identified to describe Defendants'

infringement and in no way limit the discovery and infringement allegations against Defendants concerning other devices that incorporate the same or reasonably similar functionalities.

213. Each of the ’580 Accused Products (including the CinemaX D2) is, includes, or acts as a projection-type display apparatus.

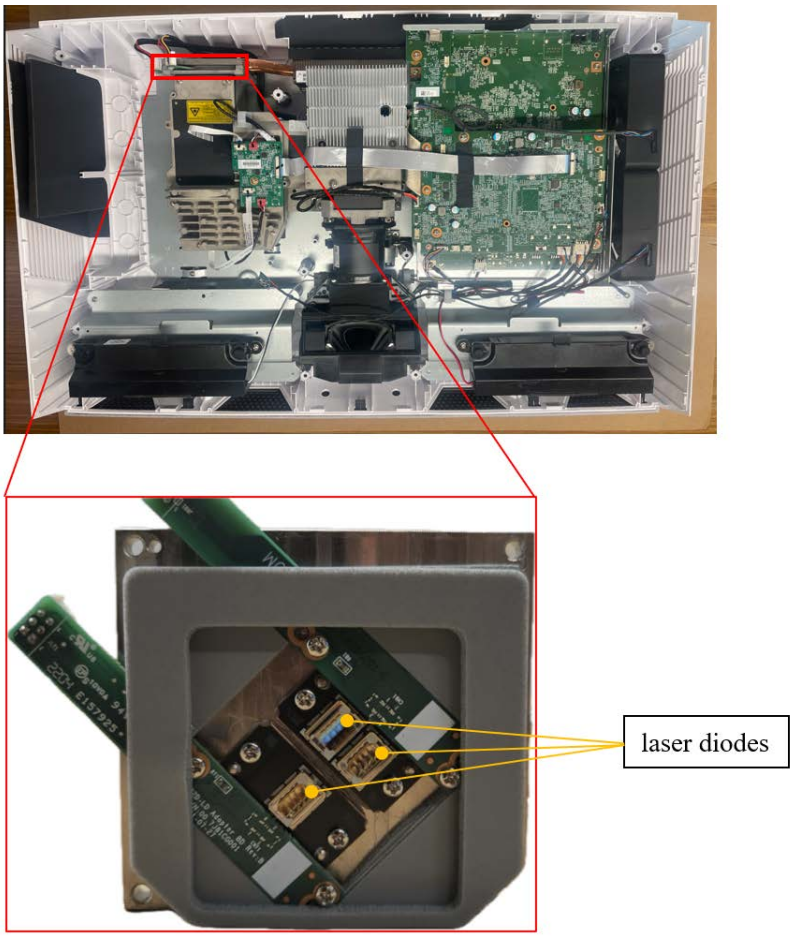
214. Each of the ’580 Accused Products includes a light source, including a solid-state light emitting element for emitting an excitation light therein.

215. For example, the product detail of the CinemaX D2 on its Datasheet shows the information regarding the light source (*e.g.*, a laser diode) included within the projector:

Lamp info	
Light source type	Laser
LASER life	30,000 hours

CinemaX D2 – Datasheets English US [auto]; https://www.optomausa.com/product-details/cinemax-d2

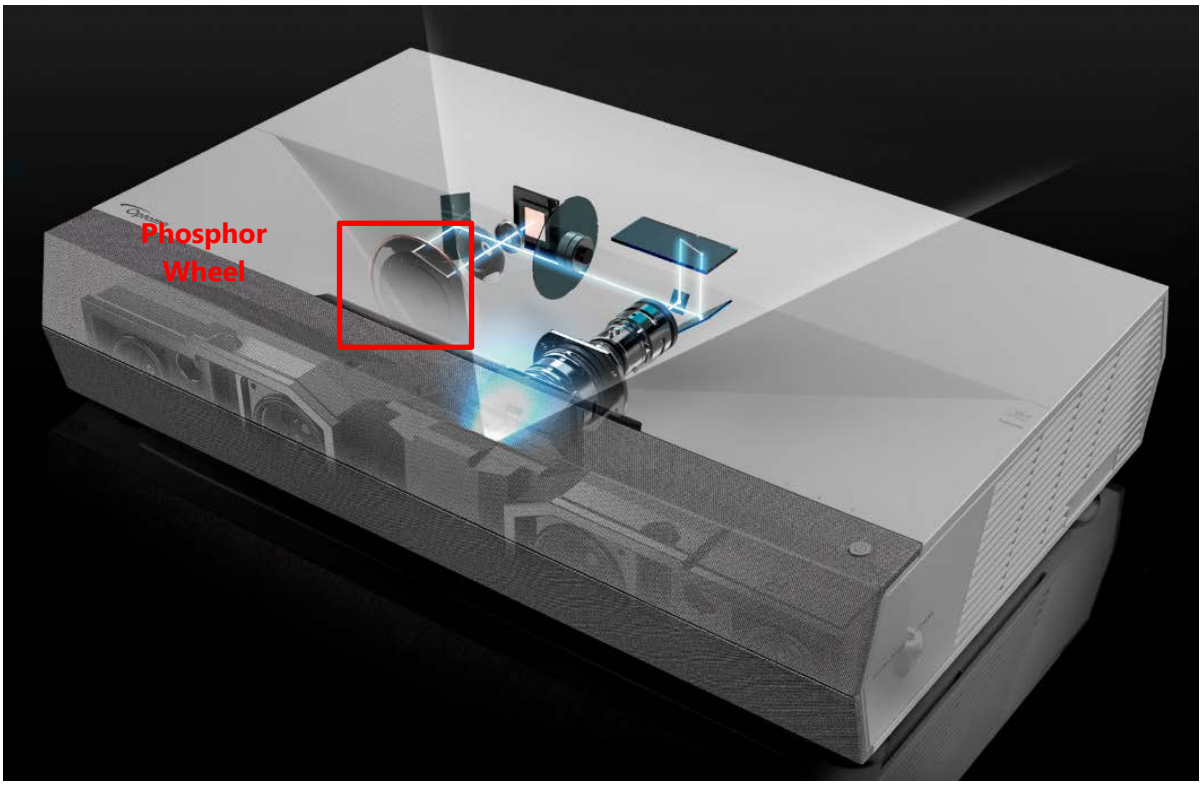
216. Further, as an example, the following annotated photos of a disassembled CinemaX D2 projector show the claimed light source, including a solid-state light emitting element for emitting an excitation light:



217. On information and belief, each of the remaining ’580 Accused Products includes a light source, including a solid-state light emitting element for emitting an excitation light therein.

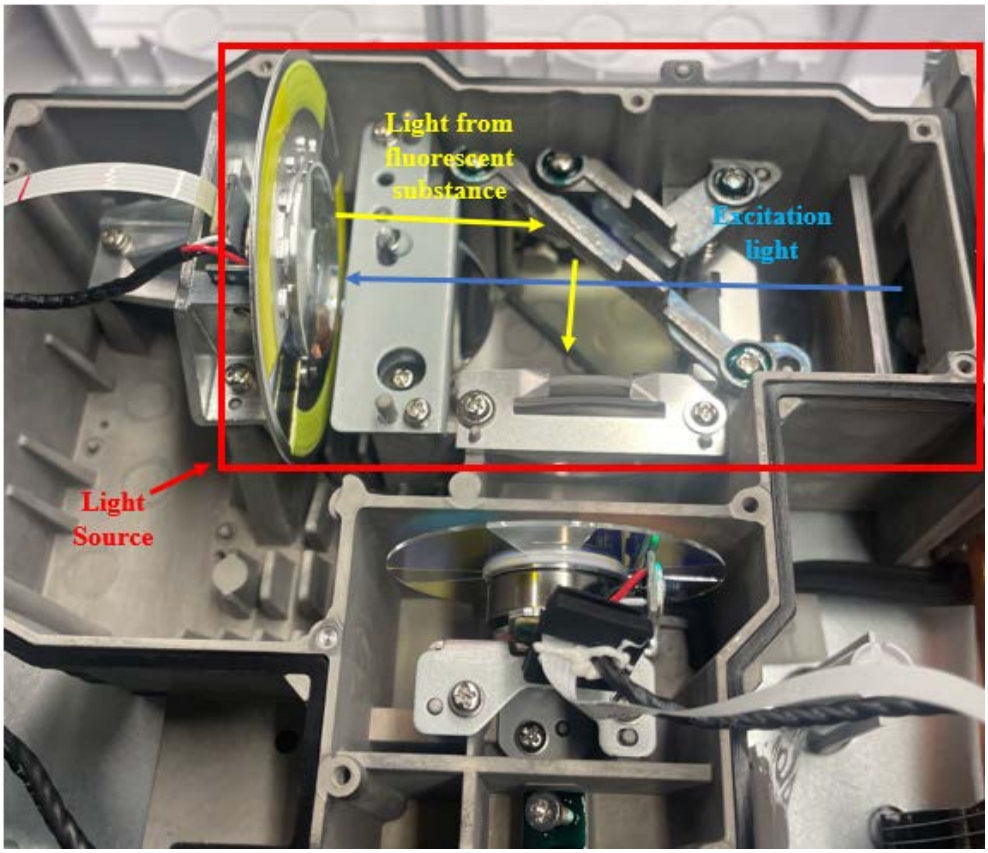
218. Each of the ’580 Accused Products includes a light source configured to emit white lights including a light emitting from a fluorescent substance, which is excited by said excitation light.

219. For example, the CinemaX D2 includes a light source (*e.g.*, laser diodes, dichroic mirror, lenses, and a phosphor wheel) configured to emit white lights including a light emitting from a fluorescent substance (*e.g.*, at least a portion of the surface of the phosphor wheel), which is excited by the excitation light (*e.g.*, light from the laser).



CinemaX D2 webpage, https://www.optomausa.com/product-details/cinemax-d2#specifications

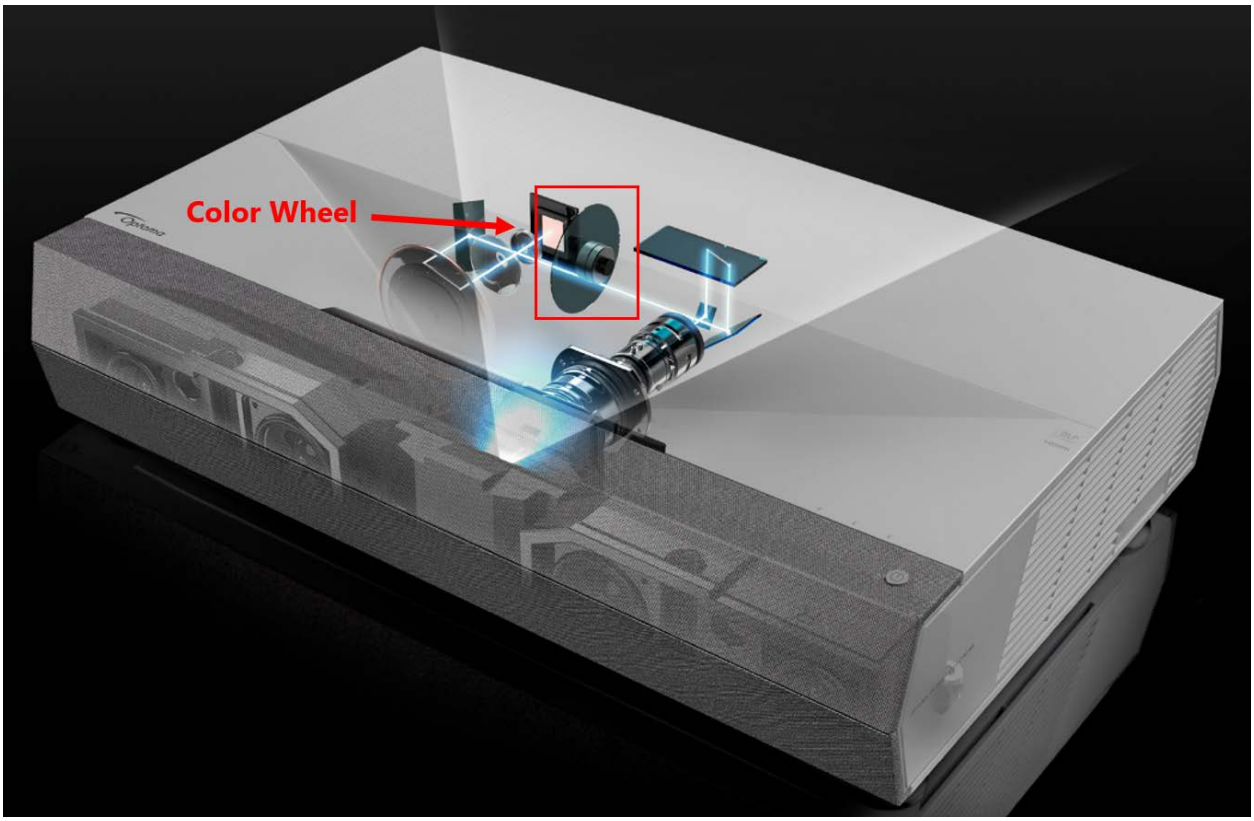
220. The following annotated photos of a disassembled CinemaX D2 projector show an example light source configured to emit white lights including a light emitting from a fluorescent substance, which is excited by the excitation light:



221. On information and belief, each of the remaining ’580 Accused Products includes a light source configured to emit white lights including a light emitting from a fluorescent substance, which is excited by said excitation light.

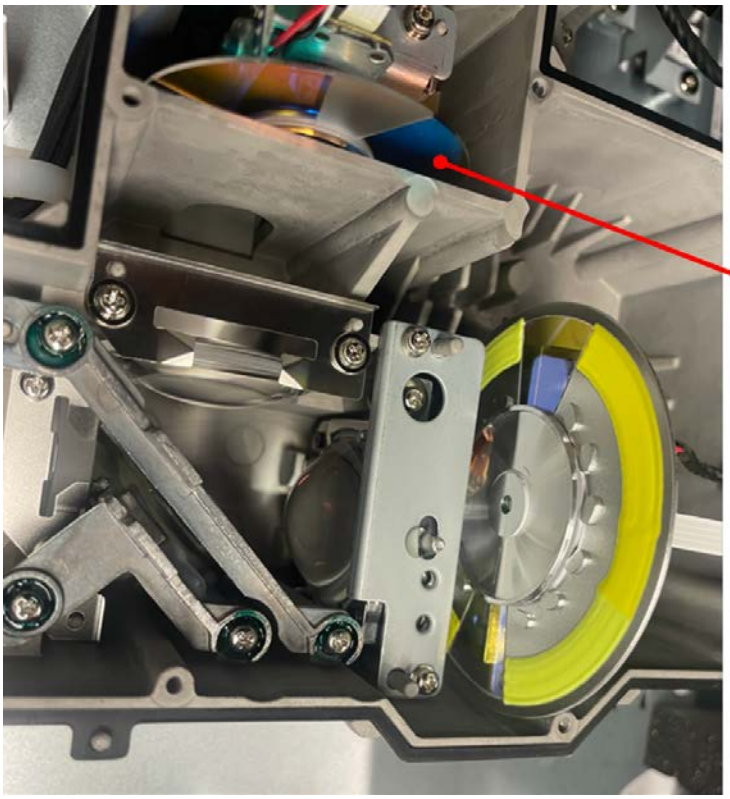
222. Each of the ’580 Accused Products includes a light separation optic system, configured to separate the white lights from said light source into red-color (R), green-color (G) and blue-color (B).

223. For example, the CinemaX D2 includes a light separation optic system *(e.g.*, a color wheel) that is configured to separate white light from the light source into R, G, and B components, as shown below:



Annotated CinemaX D2 image showing color wheel configured to separate the white light from the light source into red-color (R), green-color (G), and blue-color (B); available at https://www.optomausa.com/product-details/cinemax-d2#specifications

224. The following annotated photos of a disassembled CinemaX D2 projector show an example of the claimed light separation optic system, configured to separate white light from the light source into R, G, and B components:



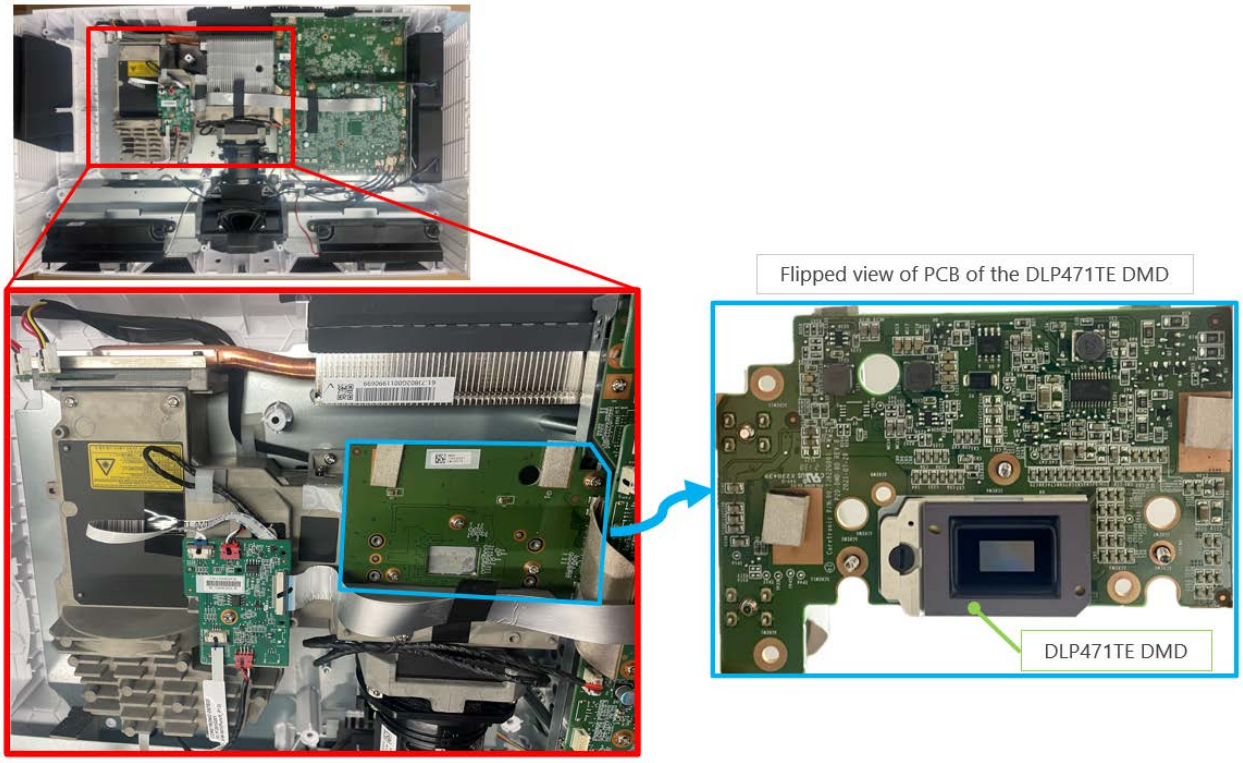
225. On information and belief, each of the remaining ’580 Accused Products includes a light separation optic system, configured to separate the white lights from said light source into red-color (R), green-color (G) and blue-color (B).

226. Each of the ’580 Accused Products includes a light modulation means (*e.g.*, a DMD), configured to make light-modulation on a respective one of the lights of the R, G and B separated, depending on a video signal (*e.g.*, video content received through HDMI).

227. For example, according to its manual and teardown photos, the CinemaX D2 includes an image display element (*e.g.*, a DMD and associated hardware).

Optical	Description
Technology	Texas Instrument DMD, 0.47”(dimension)/ 4K UHD HSSI DMD X1 S451 (Packing typing), with 4-Way XPR actuator

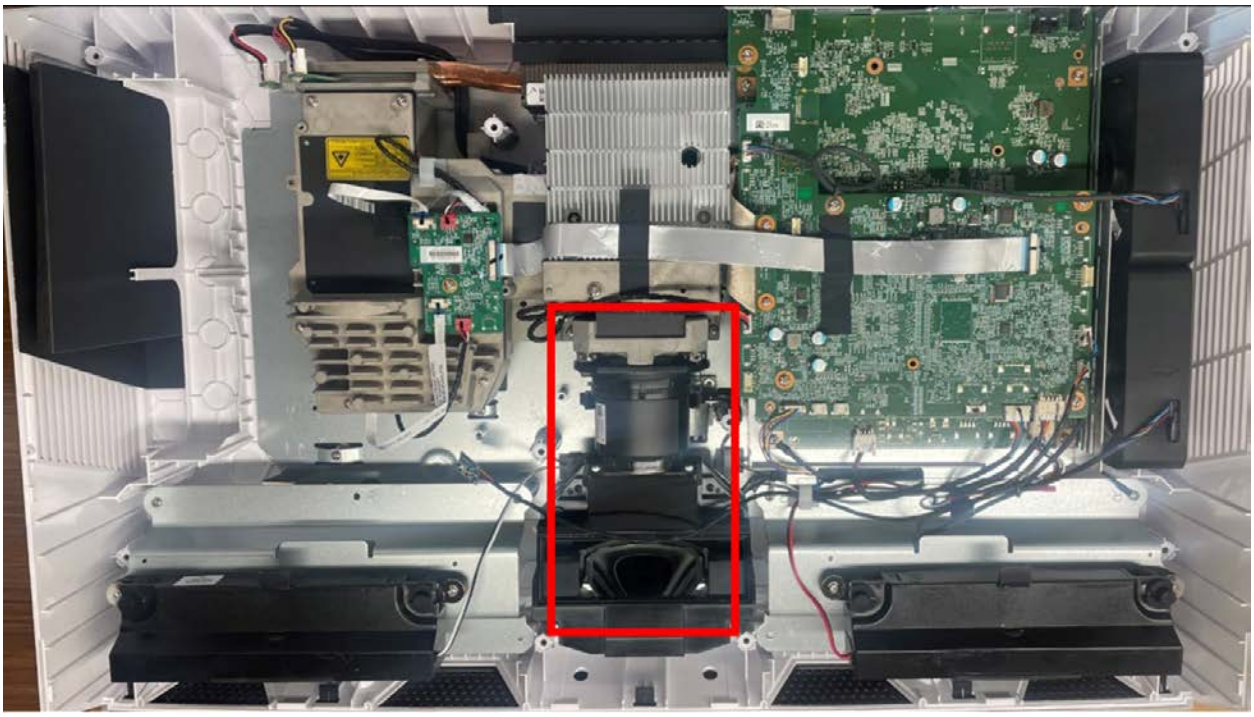
CinemaX D2 User Manual at 49, https://www.optomausa.com/ContentStorage/Documents/04deea99-19a0-4325-883c-9efad8901bf5.pdf.



228. On information and belief, each of the remaining ’580 Accused Products includes a light modulation means, configured to make light-modulation on a respective one of the lights of the R, G and B separated, depending on a video signal.

229. Each of the ’580 Accused Products includes a projection means configured to enlargedly project a respective one of optical images, which are formed by said light modulation means.

230. The following annotated photo of a disassembled CinemaX D2 projector shows one example of the claimed projection means (*e.g.*, a projection lens), configured to enlargedly project optical images:

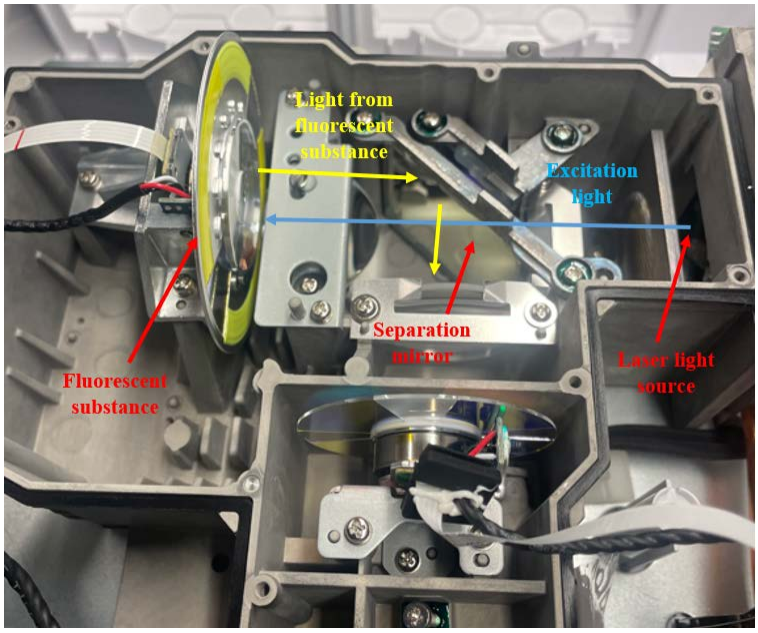


231. Further, as shown below, the projection lens of the CinemaX D2 enlarges an optical image, which is formed by the DMD:

232. On information and belief, each of the remaining ’580 Accused Products includes a projection means configured to enlargedly project a respective one of optical images, which are formed by the light modulation means.

233. Each of the ’580 Accused Products includes a separation mirror that is disposed between the solid-state light emitting element and the fluorescent substance and configured to pass the excitation light therethrough, as well as, to reflect the light from the fluorescent substance thereon.

234. For example, the following annotated photo of a CinemaX D2 projector shows the separation mirror disposed between the solid-state emitting light element (*e.g.*, one or more laser diodes) and fluorescent substance (*e.g.*, at least a portion of the surface of the phosphor wheel):



235. On information and belief, each of the remaining ’580 Accused Products includes a separation mirror, being disposed between the solid-state light emitting element and the fluorescent substance and configured to pass excitation light therethrough, as well as to reflect the light from the fluorescent substance thereon.

236. On information and belief, and as confirmed by the products' user manuals, technical specifications, marketing materials, and other publicly available information, the remaining '580 Accused Products include the same or similar components as the CinemaX D2. Moreover, based on the same, each of the remaining '580 Accused Products function the same or similarly as the CinemaX D2.

237. Accordingly, each of the remaining '580 Accused Products infringe for the same or similar reasons.

238. The foregoing features and capabilities of the '580 Accused Products and Defendants' description and/or demonstration thereof, including in user manuals and advertising, reflect Defendants' direct infringement by satisfying every element of at least claim 10 of the '580 Patent, under 35 U.S.C. § 271(a).

239. In addition, Defendants have indirectly infringed at least claim 10 of the '580 Patent in this District and elsewhere in the United States by, among other things, actively inducing their affiliates to make, use, sell, and/or offer to sell and/or to import at least the '580 Accused Products. Defendants committed these acts of inducement with knowledge of the '580 Patent and their infringement thereof, as described earlier.

240. Thus, Defendants are further liable for infringement of the '580 Patent pursuant to 35 U.S.C. § 271(b).

241. Defendants have also contributorily infringed the '580 Patent. For example, the '580 Accused Products include hardware that by its arrangement at least meets all elements of claim 10. These are components of a patented machine, manufacture, or combination. Further, these components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use.

242. Thus, Defendants are also liable for infringement of the ’580 Patent pursuant to 35 U.S.C. § 271(c).

243. Defendants had notice of the ’580 Patent and their infringement thereof by no later than April 27, 2023. By the time of trial, Defendants will thus have known and intended (since receiving this notice) that their continued actions would actively induce and contribute to actual infringement of at least claim 10 of the ’580 Patent.

244. Defendants undertook and continued their infringing actions despite an objectively high likelihood that they infringed the ’580 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least April 27, 2023, Defendants have been aware of an objectively high likelihood that their actions constituted and continue to constitute infringement of the ’580 Patent, and that the ’580 Patent is valid.

245. On information and belief, Defendants could not reasonably, subjectively believe that their actions do not constitute infringement of the ’580 Patent, nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that their actions constitute infringement, Defendants continued their infringing activities with knowledge of the ’580 Patent.

246. As such, Defendants have willfully infringed and continue to willfully infringe the ’580 Patent.

247. Maxell has been and continues to be damaged by Defendants’ infringement of the ’580 Patent.

COUNT 4 - INFRINGEMENT OF U.S. PATENT NO. 9,322,530

248. Maxell incorporates all prior paragraphs here by reference.

249. U.S. Patent No. 9,322,530 (the "'530 Patent," attached hereto as Exhibit H) duly issued on April 26, 2016, and is entitled *Light Source Device*.

250. The '530 Patent claims priority to PCT/JP2011/005358, filed on September 26, 2011.

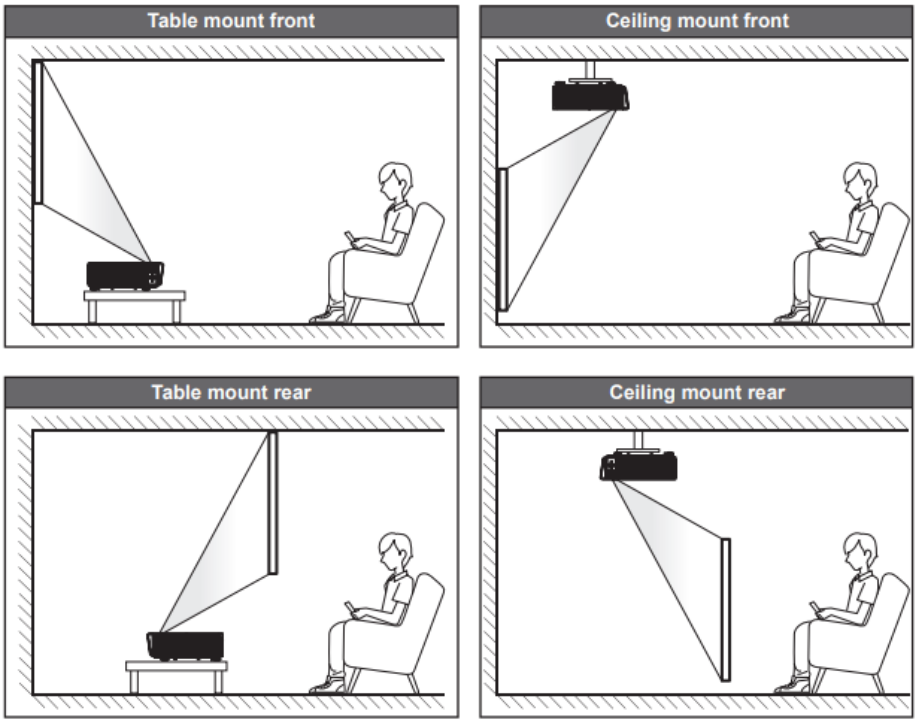
251. Maxell is the owner by assignment of the '530 Patent and possesses all rights under the '530 Patent, including the exclusive right to recover for past and future infringement.

252. Defendants have directly infringed one or more claims of the '530 Patent in this District and elsewhere in Texas, including at least claim 1, literally and/or under the doctrine of equivalents, by or through making, using, importing, offering for sale, and/or selling their laser and LED projectors, including at least Optoma model numbers ZU507TST, ZK708T, ZK608TST, ZH430UST, GT3500HDR, ZH340ST, ZU607TST, ZW410UST, ZK810T, ZK810TST, ZK708T, ZH430UST, GT3500HDR, ZH340ST, ZU607TST, ZW410UST, ZK810TST, ZK810T, GT2000HDR, GT2100HDR, HZ40HDR, L1, ML1080, ML1080ST, UHZ35ST, UHZ66, ZH350ST, ZH400, ZH400ST, ZH420, ZH450, ZH450ST, ZH462, ZH507+, ZH520, ZK430ST, ZK450, ZU725TST, ZU820TST, ZW340e, ZW350e, ZW350ST, ZX350e, UHZ55, ZU607T, ZU707T, ZK1050, ZK750, UHZ65LV, ZK507-W, ZK400, UHZ45, UHZ50, CinemaX D2, CinemaX D2 Smart, ZU2200, ZU1900, ZU1700, ZU1300, ZU1100, ZU920T, ZU920TST, ZU820T, ZU860, ZU725T, ZU720TST, ZU606T-W, ZU606TST-W, ZU506T-W, ZU500USTe, ZH606-W, ZH507, ZH461, ZH406, GT1090HDR, ZH406STx, GT1090HDRx, ZH403, HZ39HDR, ZW403, ZW400, ZW350, ML1050ST+, and ZX300 (the "'530 Accused Products"). Maxell reserves the right to discover and pursue any additional infringing devices that incorporate infringing functionalities, including those that Coretronic's and/or Optoma's subsidiaries make, use, import, offer for sale, and/or sell under Coretronic's and/or Optoma's control and/or direction.

For the avoidance of doubt, the ’530 Accused Products are identified to describe Defendants’ infringement and in no way limit the discovery and infringement allegations against Defendants concerning other devices that incorporate the same or reasonably similar functionalities.

253. Each of the ’530 Accused Products is, includes, or acts as a light-source device.

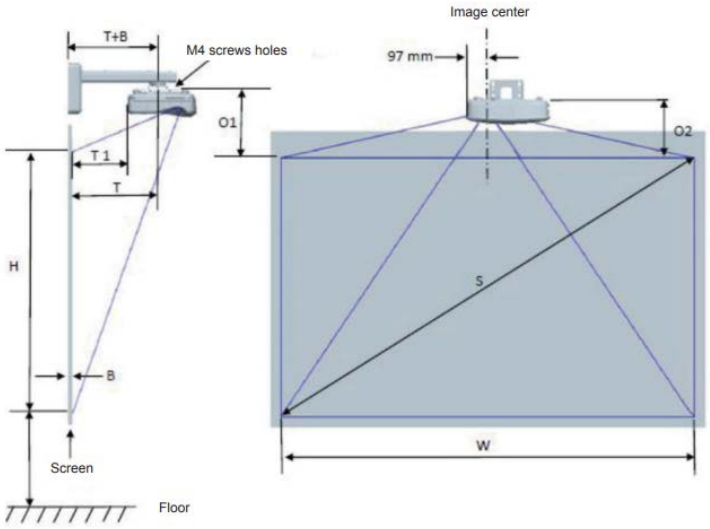
254. For example, the Optoma ZU500USTe projector is, includes, or acts as a light source device. Indeed, the user manual for the ZU500USTe confirms that the device projects images via a light source:



Optama ZU500USTe Manual at 14, https://www.optomausa.com/ContentStorage/Documents/b79db040-9ffd-4f59-892d-cbbed63daaed.pdf

Adjusting Projection Image Size (Diagonal)

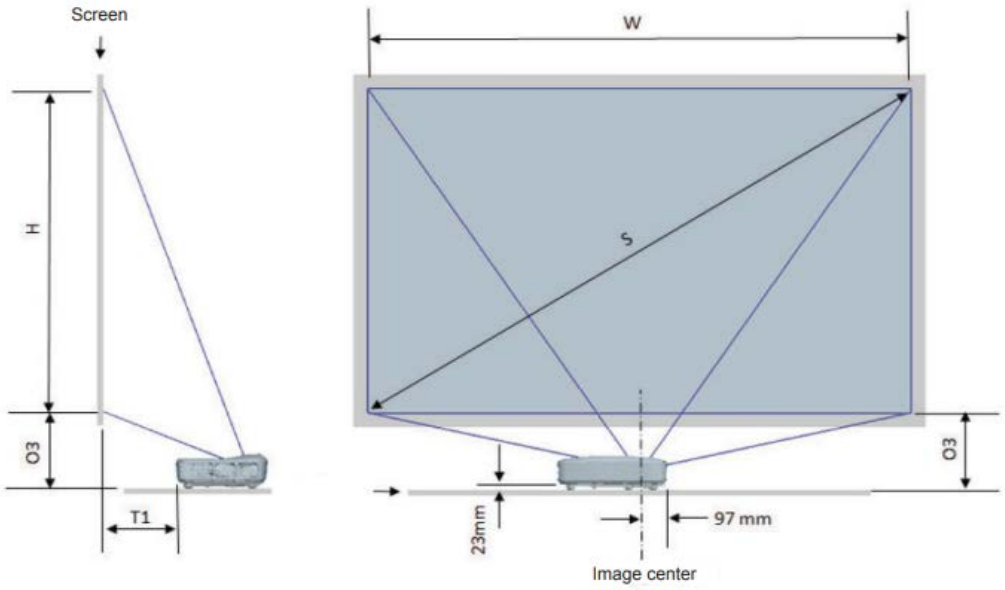
- Projection Image Size from 132" to 155" (3.353 to 3.937 meters)



WUXGA (16:10) Wall mount installation measurement chart										
Diagonal image size (S) in inch	Diagonal image size (S) in mm	Image Width (W) in mm	Image height (H) in mm	Throw distance	Offset	Offset tolerance (+/-)	Distance from surface of whiteboard to center of projector mount (T) in mm	Distance from surface of whiteboard to back of projector (T1) in mm	Distance from top of image to top of interface boss (O1) in mm	Distance from top of image to top of projector (O2) in mm
132	3353	2843	1777	719	298	36	594	457	361	341
135	3429	2908	1817	736	304	36	611	474	367	347
140	3556	3015	1885	763	316	38	638	501	379	359
145	3683	3123	1952	790	327	39	665	528	390	370
150	3810	3231	2019	817	338	40	692	555	401	381
155	3937	3339	2087	845	349	42	720	583	412	392

Note: *This table is for user's reference only.*

Id. at 61.



WUXGA (16:10) Table mount installation measurement chart						
diagonal image size(S) in inch	diagonal image size(S) in mm	Image width (W) in mm	Image height (H) in mm	Trow distance in mm	Distance from surface of whiteboard to back of projector (T1) in mm	Distance from bottom of image to top of table (O3) in mm
132	3353	2843	1777	719	457	364
135	3429	2908	1817	736	474	370
140	3556	3015	1885	763	501	382
145	3683	3123	1952	790	528	393
150	3810	3231	2019	817	555	404
155	3937	3339	2087	845	583	415

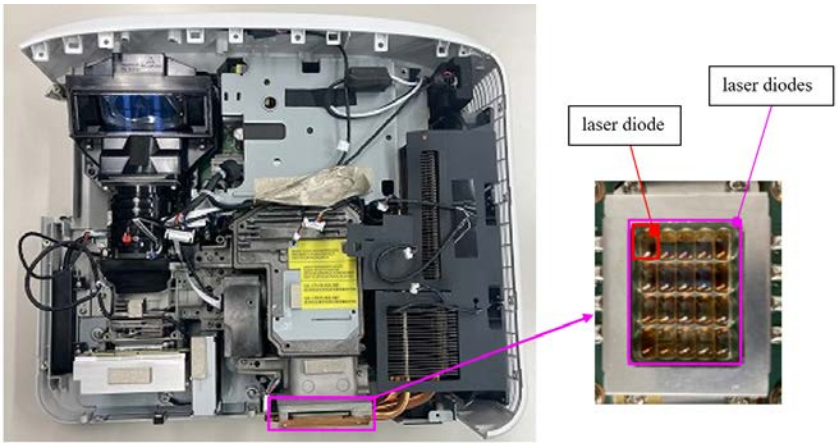
Id. at 62.

255. On information and belief, each of the remaining ’530 Accused Products are light-source devices.

256. Each of the ’530 Accused Products includes a plurality of excitation light sources which emit excitation light.

257. For example, the Optoma ZU500USTe light source device includes a plurality of excitation light sources (*e.g.*, LED, laser, etc.), which emit excitation light. The following

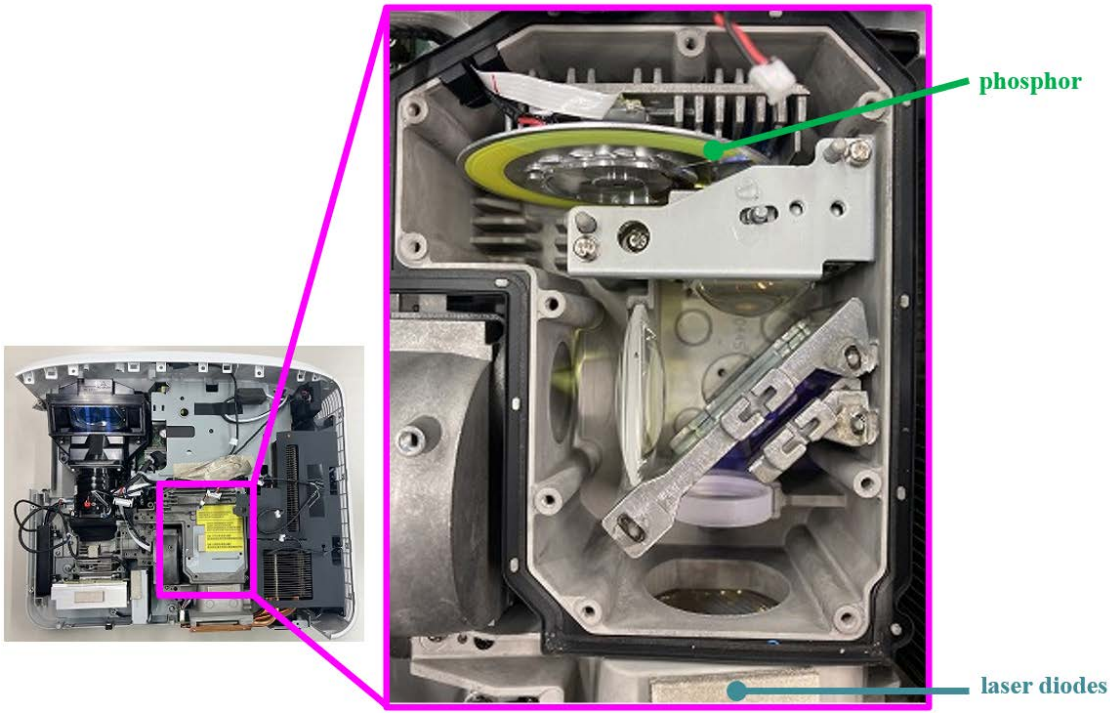
annotated photo of the ZU500USTe device shows one example of the claimed plurality of excitation light sources in the form of laser diodes, which emit excitation light:



258. On information and belief, each of the remaining ’530 Accused Products includes a plurality of excitation light sources which emit excitation light.

259. Each of the ’530 Accused Products includes a phosphor which changes the excitation light to fluorescent light.

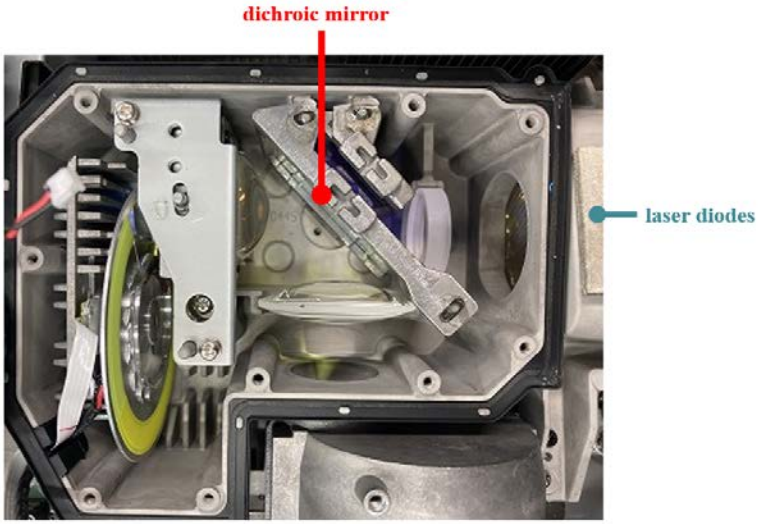
260. For example, the ZU500USTe light source device includes a phosphor that changes the excitation light (*e.g.*, laser diodes, LEDs) to fluorescent light. The following annotated photo of the ZU500USTe device shows one example of the claimed phosphor, which changes the excitation light (*e.g.*, light emitted by the laser diodes) to fluorescent light:



261. On information and belief, each of the remaining ’530 Accused Products includes a phosphor which changes the excitation light to fluorescent light.

262. Each of the ’530 Accused Products includes a dichroic mirror which transmits the excitation light and reflects the fluorescent light.

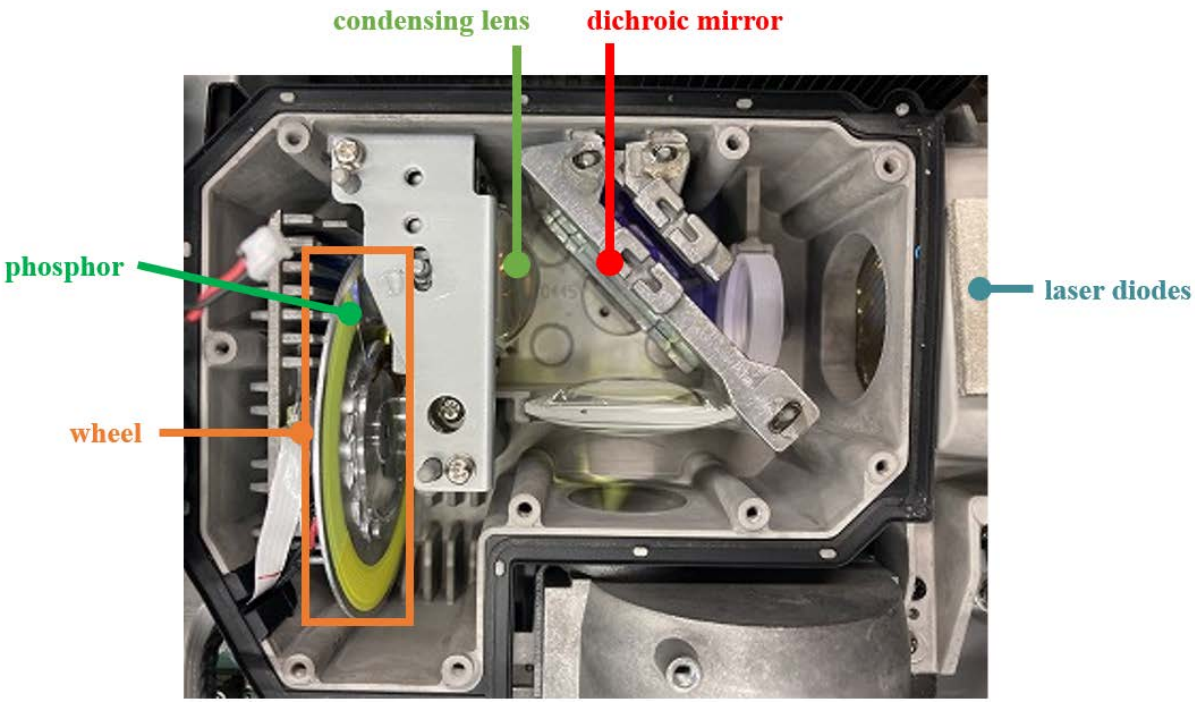
263. For example, the ZU500USTe light source device includes a dichroic mirror that transmits the excitation light and reflects the fluorescent light. The following annotated view of the ZU500USTe device (without its cover) shows a dichroic mirror that transmits the excitation light and reflects the fluorescent light:



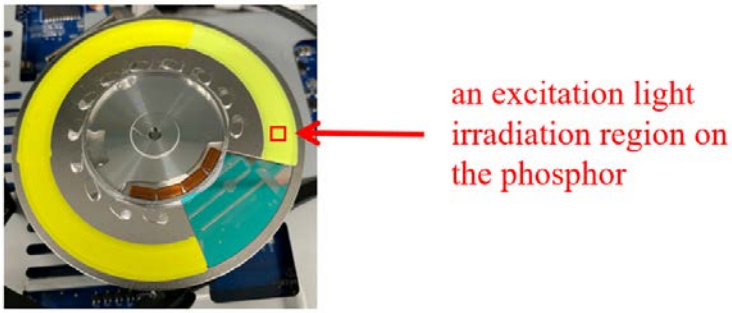
264. On information and belief, each of the remaining ’530 Accused Products includes a dichroic mirror which transmits the excitation light and reflects the fluorescent light.

265. Each of the ’530 Accused Products includes a condensing lens which condenses the excitation light transmitted through the dichroic mirror in an excitation light irradiation region on the phosphor.

266. For example, the ZU500USTe light source device includes a condensing lens that condenses the excitation light transmitted through the dichroic mirror in an excitation light irradiation region on the phosphor. The following annotated top view photograph of a ZU500USTe device without its cover shows one example of the claimed condensing lens, which condenses the excitation light (*e.g.*, light from the laser diodes) transmitted through the dichroic mirror in an excitation light irradiation region (*e.g.*, at least a portion of the phosphor) on the phosphor (*e.g.*, the fluorescent substance on the wheel):



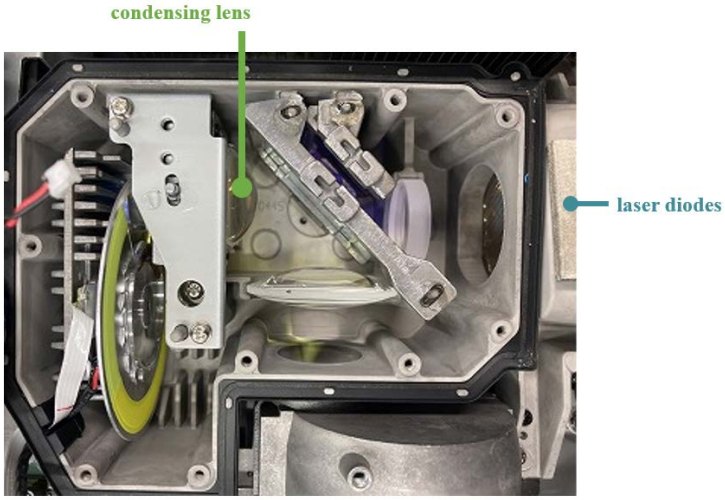
267. Further, as one example of Defendants' infringement, the following annotated photograph of a disassembled portion of the ZU500USTe device shows that the phosphor (*i.e.*, the fluorescent substance on the wheel) has an excitation light irradiation region (*i.e.*, at least a portion of the phosphor):



268. On information and belief, each of the remaining '530 Accused Products includes a condensing lens which condenses the excitation light transmitted through the dichroic mirror in an excitation light irradiation region on the phosphor.

269. In each of the ’530 Accused Products, a plurality of light sources are arranged so that each excitation light emitted from each of the plurality of light sources enters asymmetrically to a center of the condensing lens.

270. For example, in the ZU500USTe light source device, the plurality of light sources (*e.g.*, laser diodes) are arranged so that each excitation light emitted from each of the plurality of light sources enters asymmetrically to a center of the condensing lens. The following annotated photo of a disassembled ZU500USTe device shows one example of the claimed arrangement of plurality of light sources (*e.g.*, laser diodes) relative to the condensing lens:



271. On information and belief, the arrangement of hardware in the ZU500USTe device causes excitation light emitted from each of the laser diodes to enter the center of the condensing lens asymmetrically.

272. On information and belief, in each of the remaining ’530 Accused Products, a plurality of light sources are arranged so that each excitation light emitted from each of the plurality of light sources enters asymmetrically to a center of the condensing lens.

273. In each of the ’530 Accused Products, when the excitation light irradiation region is a center and an incident angle to the excitation light irradiation region of any excitation light of each of the excitation light is an elevation angle θ, $\theta \neq 0$ is satisfied.

274. For example, in the ZU500USTe light source device, when the excitation light irradiation region is a center, and an incident angle to the excitation light irradiation region of any excitation light of each of the excitation light is an elevation angle θ, $\theta \neq 0$ is satisfied. Testing of the ZU500USTe device shows that the excitation light irradiation region is a center and an incident angle to the excitation light irradiation region of any excitation light of each of the excitation light is an elevation angle θ, $\theta \neq 0$ is satisfied.

275. On information and belief, in each of the remaining ’530 Accused Products, when the excitation light irradiation region is a center and an incident angle to the excitation light irradiation region of any excitation light of each of the excitation light is an elevation angle θ, $\theta \neq 0$ is satisfied.

276. On information and belief, and as confirmed by the products’ user manuals, technical specifications, marketing materials, and other publicly available information, the remaining ’530 Accused Products include the same or similar components as the ZU500USTe device. Moreover, based on the same, each of the remaining ’530 Accused Products function the same or similarly as the ZU500USTe device.

277. Accordingly, each of the remaining ’530 Accused Products infringe for the same or similar reasons.

278. The foregoing features and capabilities of the ’530 Accused Products and Defendants’ description and/or demonstration thereof, including in user manuals and advertising,

reflect Defendants' direct infringement by satisfying every element of at least claim 1 of the '530 Patent, under 35 U.S.C. § 271(a).

279. In addition, Defendants have indirectly infringed at least claim 1 of the '530 Patent in this District and elsewhere in the United States by, among other things, actively inducing their affiliates to make, use, sell, and/or offer to sell and/or to import at least the '530 Accused Products. Defendants committed these acts of inducement with knowledge of the '530 Patent and their infringement thereof, as described earlier.

280. Thus, Defendants are further liable for infringement of the '530 Patent pursuant to 35 U.S.C. § 271(b).

281. Defendants have also contributorily infringed the '530 Patent. For example, the '530 Accused Products include hardware that, at least by its arrangement, meets all elements of claim 1. These are components of a patented machine, manufacture, or combination. Further, these components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use.

282. Thus, Defendants are also liable for infringement of the '530 Patent pursuant to 35 U.S.C. § 271(c).

283. Defendants had notice of the '530 Patent and their infringement thereof by no later than April 27, 2023. By the time of trial, Defendants will thus have known and intended (since receiving this notice) that their continued actions would actively induce and contribute to actual infringement of at least claim 1 of the '530 Patent.

284. Defendants undertook and continued their infringing actions despite an objectively high likelihood that they infringed the '530 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least April 27, 2023, Defendants have been aware of an

objectively high likelihood that their actions constituted and continue to constitute infringement of the ’530 Patent, and that the ’530 Patent is valid.

285. On information and belief, Defendants could not reasonably, subjectively believe that their actions do not constitute infringement of the ’530 Patent, nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that their actions constitute infringement, Defendants continued their infringing activities with knowledge of the ’530 Patent.

286. As such, Defendants have willfully infringed and continue to willfully infringe the ’530 Patent.

287. Maxell has been and continues to be damaged by Defendants’ infringement of the ’530 Patent.

COUNT 5 - INFRINGEMENT OF U.S. PATENT NO. 9,547,226

288. Maxell incorp orates all prior paragraphs here by reference.

289. U.S. Patent No. 9,547,226 (the “’226 Patent,” attached hereto as Exhibit I) duly issued on January 17, 2017, and is entitled *Light Source Device and Projection-type Image Display Device*.

290. The ’226 Patent claims priority to PCT/JP2012/078280, filed on November 1, 2012.

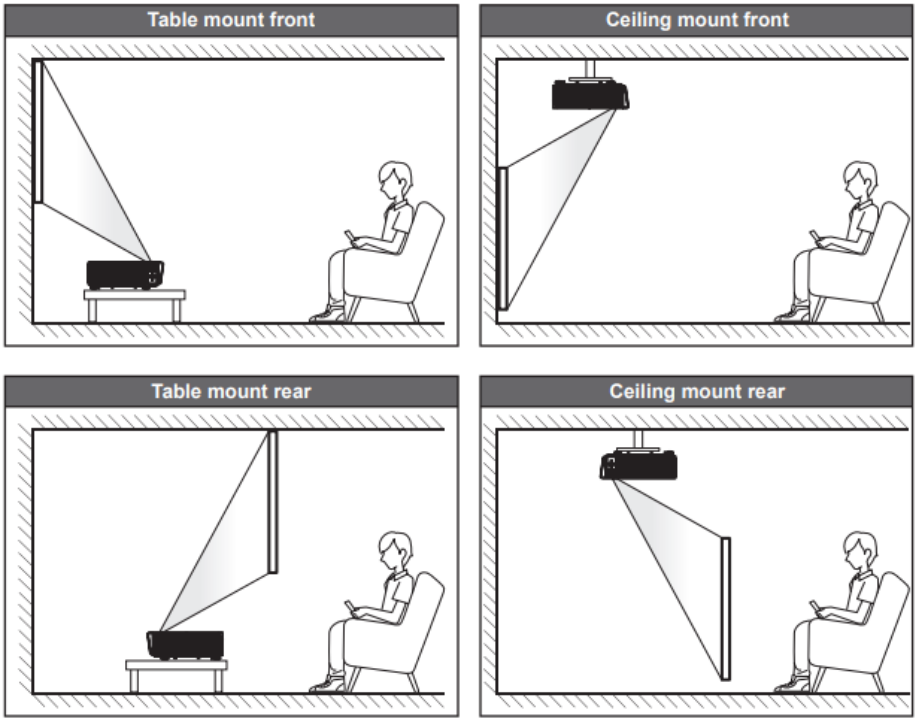
291. Maxell is the owner by assignment of the ’226 Patent and possesses all rights under the ’226 Patent, including the exclusive right to recover for past and future infringement.

292. Defendants have directly infringed one or more claims of the ’226 Patent in this District and elsewhere in Texas, including at least claim 8, literally and/or under the doctrine of equivalents, by or through making, using, importing, offering for sale, and/or selling their solid-state light source projectors, including at least Optoma model numbers ZU507TST, ZK708T,

ZK608TST, ZH340ST, ZU607TST, GT2000HDR, GT2100HDR, HZ40HDR, L1, ML1080, ML1080ST, UHZ35ST, UHZ66, ZH350ST, ZH400, ZH400ST, ZH420, ZH450, ZH450ST, ZH462, ZH507+, ZH520, ZK430ST, ZK450, ZU725TST, ZU820TST, ZW340e, ZW350e, ZW350ST, ZX350e, UHZ55, ZU607T, ZU707T, ZK1050, ZK750, UHZ65LV, ZK507-W, ZK400, UHZ45, UHZ50, CinemaX D2, CinemaX D2 Smart, ZU2200, ZU1900, ZU1700, ZU1300, ZU1100, ZU920T, ZU920TST, ZU820T, ZU860, ZU725T, ZU720TST, ZU606T-W, ZU606TST-W, ZU506T-W, ZU500USTe, ZH606-W, ZH507, ZH461, ZH406, GT1090HDR, ZH406STx, GT1090HDRx, ZH403, HZ39HDR, ZW403, ZW400, ZW350, ML1050ST+, and ZX300 (the "'226 Accused Products"). Maxell reserves the right to discover and pursue any additional infringing devices that incorporate infringing functionalities, including those that Coretronic's and/or Optoma's subsidiaries make, use, import, offer for sale, and/or sell under Coretronic's and/or Optoma's control and/or direction. For the avoidance of doubt, the '226 Accused Products are identified to describe Defendants' infringement and in no way limit the discovery and infringement allegations against Defendants concerning other devices that incorporate the same or reasonably similar functionalities.

293. Each of the '226 Accused Products is, includes, or acts as a projection-type image display device.

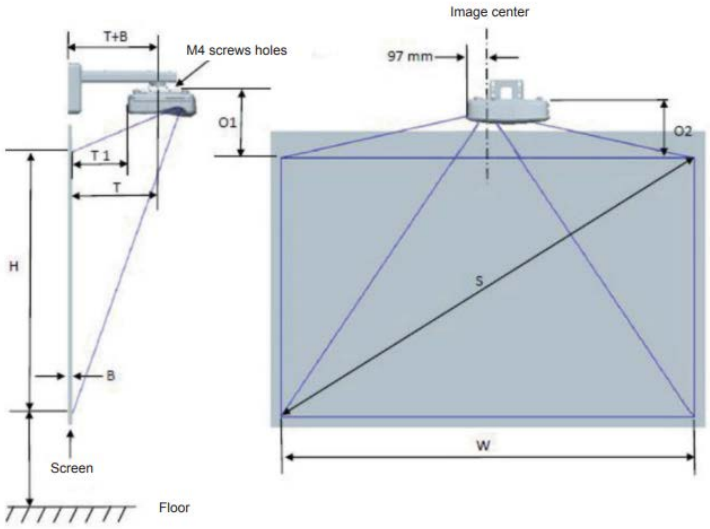
294. For example, the ZU500USTe projector is, includes, or acts as a projection type image display apparatus. Indeed, the user manual for the ZU500USTe confirms that the device is capable of enlarged projection of images through a projection optical unit:



Optama ZU500USTe Manual at 14, https://www.optomausa.com/ContentStorage/Documents/b79db040-9ffd-4f59-892d-cbbed63daaed.pdf

Adjusting Projection Image Size (Diagonal)

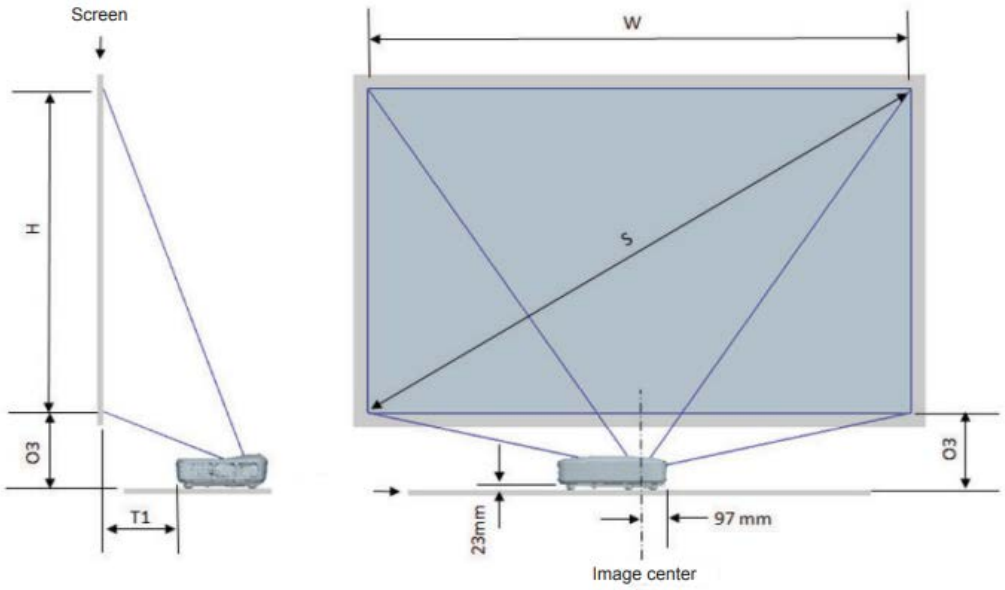
- Projection Image Size from 132" to 155" (3.353 to 3.937 meters)



WUXGA (16:10) Wall mount installation measurement chart										
Diagonal image size (S) in inch	Diagonal image size (S) in mm	Image Width (W) in mm	Image height (H) in mm	Throw distance	Offset	Offset tolerance (+/-)	Distance from surface of whiteboard to center of projector mount (T) in mm	Distance from surface of whiteboard to back of projector (T1) in mm	Distance from top of image to top of interface boss (O1) in mm	Distance from top of image to top of projector (O2) in mm
132	3353	2843	1777	719	298	36	594	457	361	341
135	3429	2908	1817	736	304	36	611	474	367	347
140	3556	3015	1885	763	316	38	638	501	379	359
145	3683	3123	1952	790	327	39	665	528	390	370
150	3810	3231	2019	817	338	40	692	555	401	381
155	3937	3339	2087	845	349	42	720	583	412	392

Note: *This table is for user's reference only.*

Id. at 61.



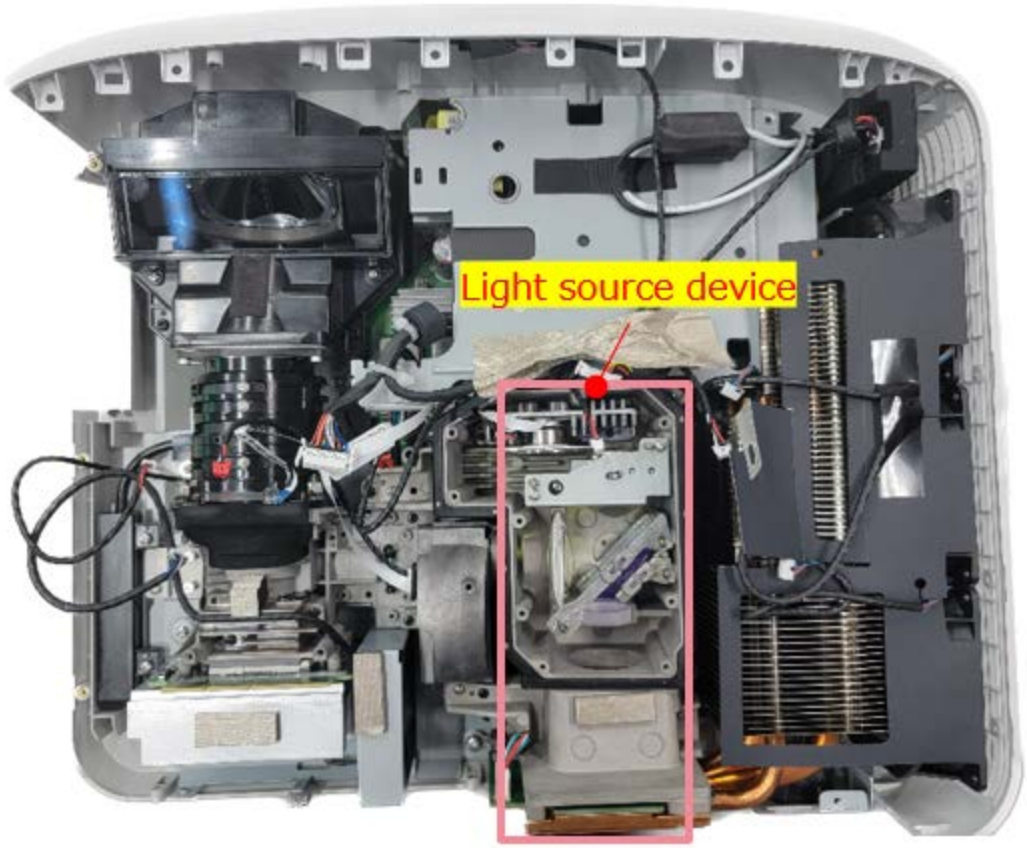
WUXGA (16:10) Table mount installation measurement chart						
diagonal image size(S) in inch	diagonal image size(S) in mm	Image width (W) in mm	Image height (H) in mm	Trow distance in mm	Distance from surface of whiteboard to back of projector (T1) in mm	Distance from bottom of image to top of table (O3) in mm
132	3353	2843	1777	719	457	364
135	3429	2908	1817	736	474	370
140	3556	3015	1885	763	501	382
145	3683	3123	1952	790	528	393
150	3810	3231	2019	817	555	404
155	3937	3339	2087	845	583	415

Id. at 62.

295. On information and belief, each of the remaining ’226 Accused Products are projection-type image display devices.

296. Each of the ’226 Accused Products includes a light source device.

297. For example, the following annotated photo of the ZU500USTe projector shows one example of the claimed light source device:



298. On information and belief, each of the remaining ’226 Accused Products includes a light source device.

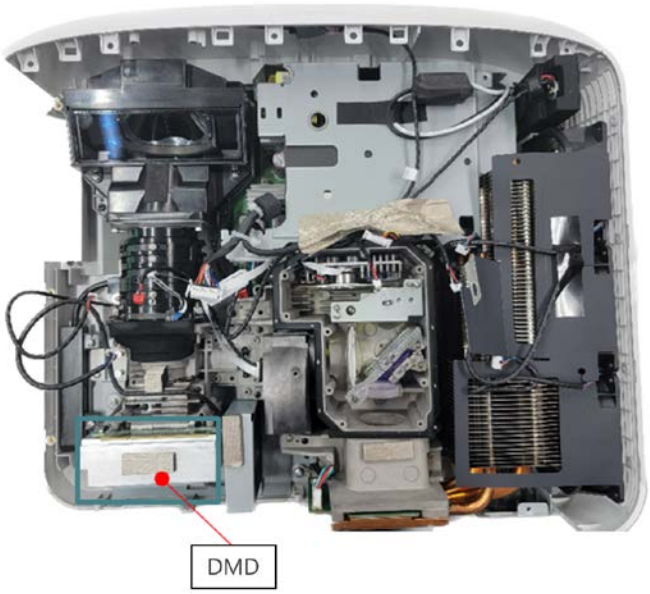
299. Each of the ’226 Accused Products includes an image display element.

300. For example, the following specifications and annotated photo of the ZU500USTe projector show one example of the claimed image display element (*e.g.*, a DMD):

Specifications

Display/image	
Display technology	DLP™
Resolution	WUXGA (1920x1200)
Brightness	5,000 lumens
Contrast ratio	100,000:1
Native aspect ratio	16:9
Aspect ratio - compatible	16:9,16:10
Uniformity	85%
Screen size	93" ~ 120" diagonal
Lamp info	
Light source type	Laser
LASER life	30,000 hours

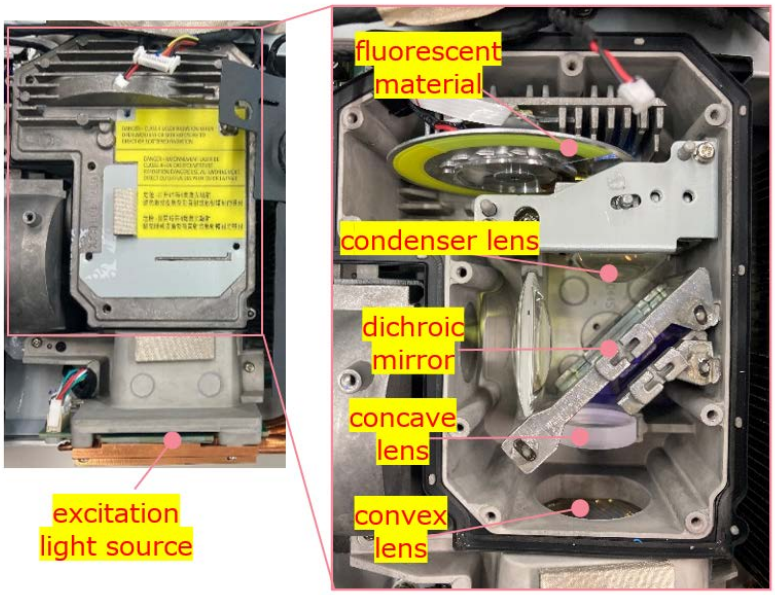
Optoma ZU500USTe Datasheet (https://www.optomausa.com/ContentStorage/Documents/89f24ab4-f1e8-4ec9-a223-2eaeb2b6b348.pdf).



301. On information and belief, each of the remaining ’226 Accused Products includes an image display element.

302. Each of the ’226 Accused Products includes an illumination optical system having a plurality of optical elements for irradiating the image display element (*e.g.*, a DMD) with light from the light source device (*e.g.*, excitation light source, fluorescent material, optical member (convex lens, and concave lens), dichroic mirror, and condenser lens).

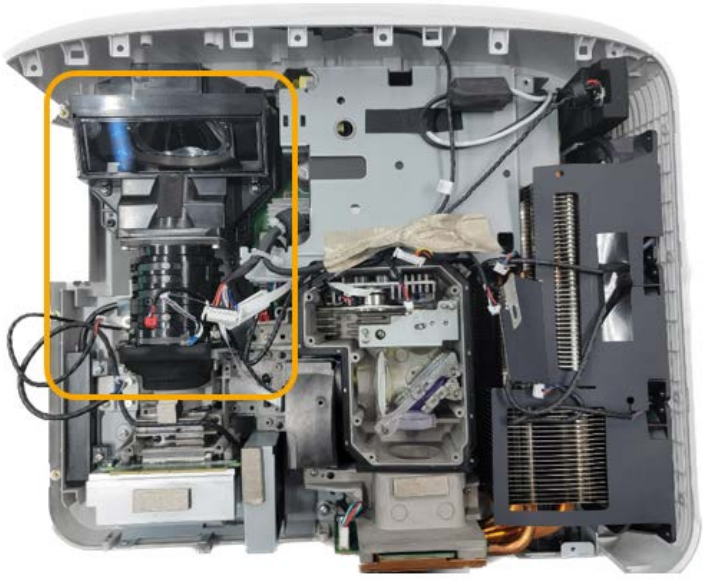
303. For example, the following annotated view of ZU500USTe (without cover) shows the light source and optical elements, such as mirrors, lenses, and a color wheel:



304. On information and belief, each of the remaining ’226 Accused Products includes an illumination optical system having a plurality of optical elements for irradiating the image display element with light from the light source device.

305. Each of the ’226 Accused Products includes a projection lens for enlarging an optical image formed by the image display element to project the resulting image.

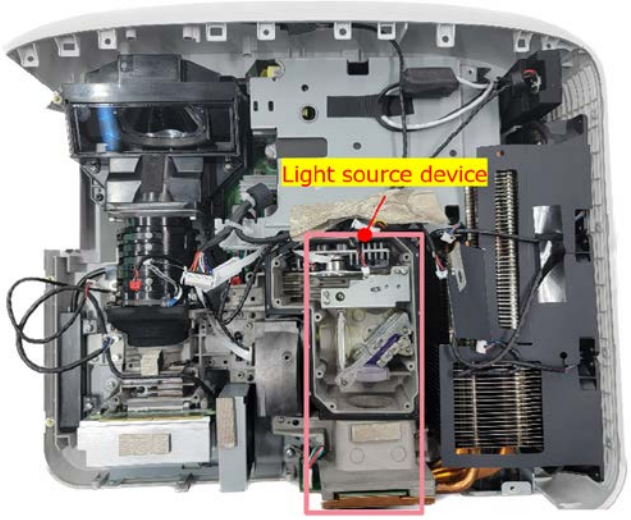
306. For example, the following annotated top view photograph of a ZU500USTe projector without its cover shows one example of the claimed projection lens (marked in the following image) for enlarging an optical image formed by the image display element to project the resulting image:



307. On information and belief, each of the remaining ’226 Accused Products includes a projection lens for enlarging an optical image formed by the image display element to project the resulting image.

308. In each of the ’226 Accused Products, the light source device includes an excitation light source for emitting excitation light.

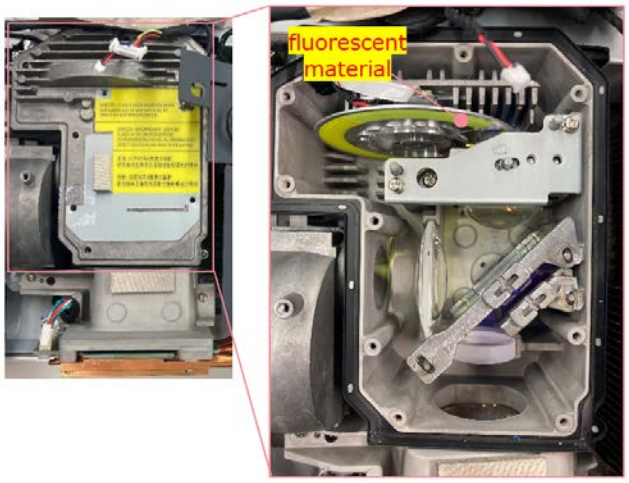
309. For example, the following annotated photo of a disassembled ZU500USTe projector shows one example of the claimed light source device (*e.g.*, a laser light source, lenses, dichroic mirror, and fluorescent material) that includes an excitation light source (*e.g.*, a laser light source) for emitting excitation light:



310. On information and belief, in each of the remaining ’226 Accused Products, the light source device includes an excitation light source for emitting excitation light.

311. Each of the ’226 Accused Products includes a fluorescent material for emitting fluorescent light when excited by the excitation light.

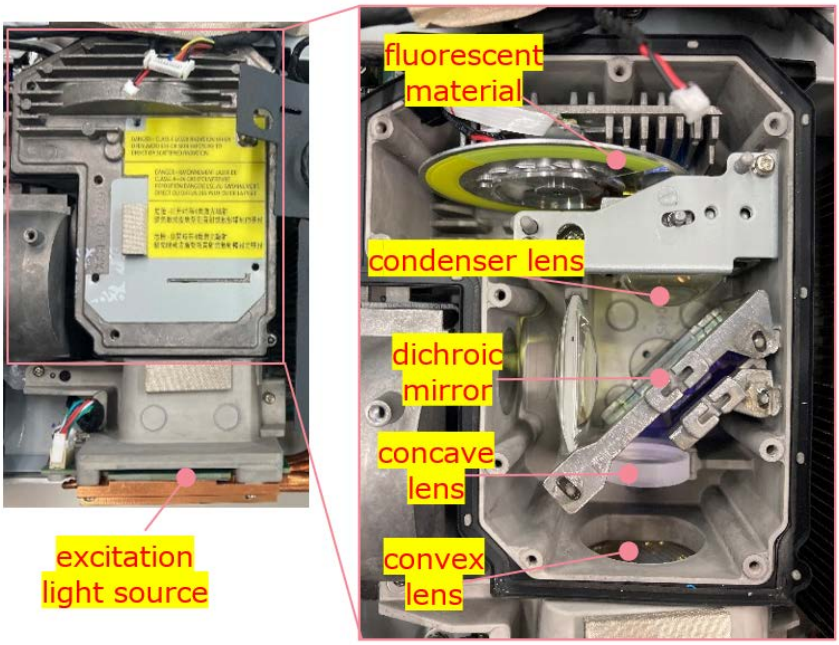
312. For example, the following annotated photo of a disassembled ZU500USTe projector shows one example of the claimed fluorescent material for emitting fluorescent light when excited by the excitation light:



313. On information and belief, each of the remaining ’226 Accused Products includes a fluorescent material for emitting fluorescent light when excited by the excitation light.

314. Each of the ’226 Accused Products includes an optical member for directing the excitation light to the fluorescent material.

315. For example, the following annotated photo of a disassembled ZU500USTe projector shows one example of the claimed optical member (*e.g.*, a convex lens, concave lenses, a dichroic mirror, and/or a condenser lens) for directing the excitation light to the fluorescent material:

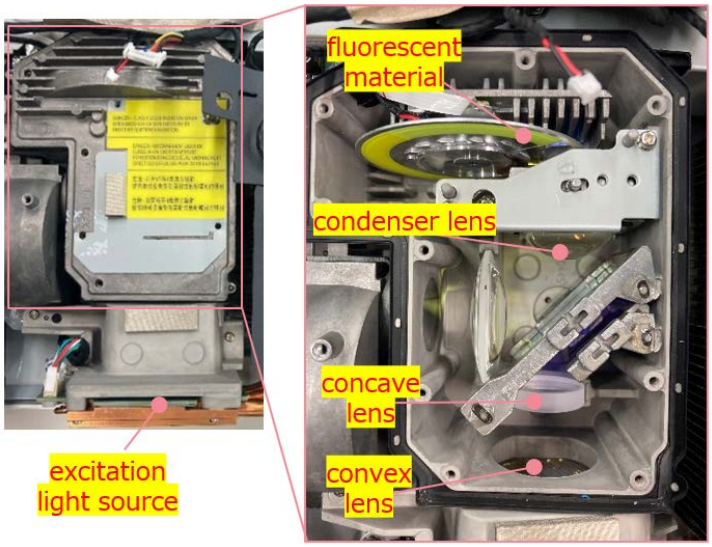


316. On information and belief, each of the remaining ’226 Accused Products includes an optical member for directing the excitation light to the fluorescent material.

317. In each of the ’226 Accused Products, the optical member has a curvature that is set such that a light-condensing position of the excitation light is positioned on an emission side of the excitation light relative to the fluorescent material.

318. For example, the following annotated photo of a disassembled ZU500USTe projector shows one example of the claimed optical member (*e.g.*, convex and concave lenses)

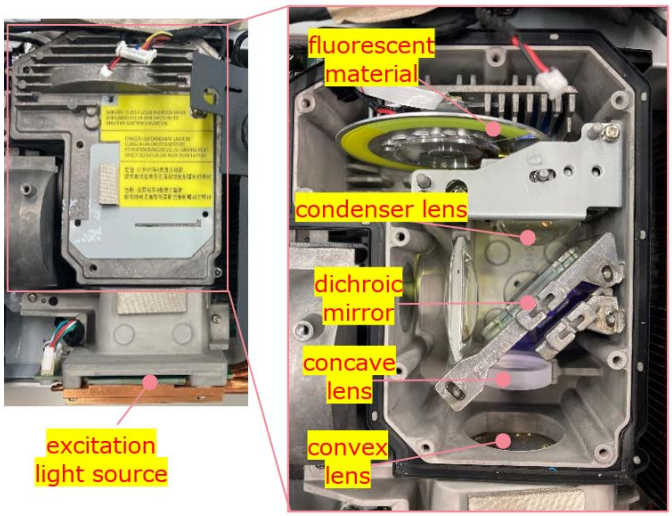
having a curvature that is set such that a light-condensing position of the excitation light is positioned on an emission side of the excitation light relative to the fluorescent material:



319. On information and belief, in each of the remaining ’226 Accused Products, the optical member has a curvature that is set such that a light-condensing position of the excitation light is positioned on an emission side of the excitation light relative to the fluorescent material.

320. Each of the ’226 Accused Products includes a dichroic mirror disposed between the excitation light source and the fluorescent material.

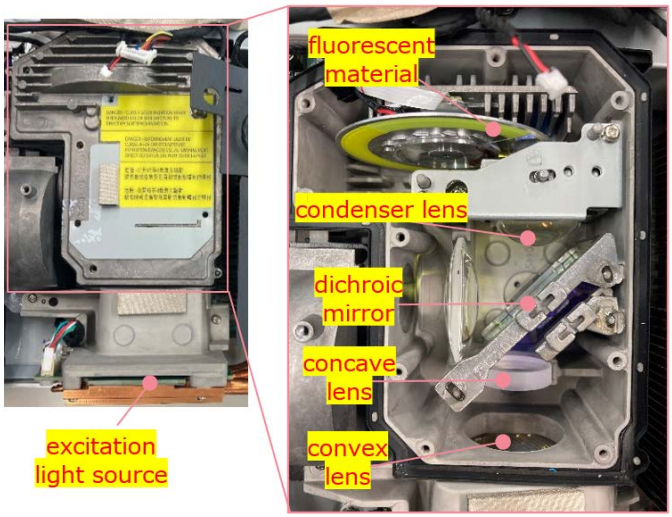
321. For example, the following annotated photo of a disassembled ZU500USTe projector shows one example of the claimed dichroic mirror disposed between the excitation light source and the fluorescent material:



322. On information and belief, each of the remaining ’226 Accused Products includes a dichroic mirror disposed between the excitation light source and the fluorescent material.

323. Each of the ’226 Accused Products includes a condenser lens for condensing the excitation light disposed between the fluorescent material and the dichroic mirror.

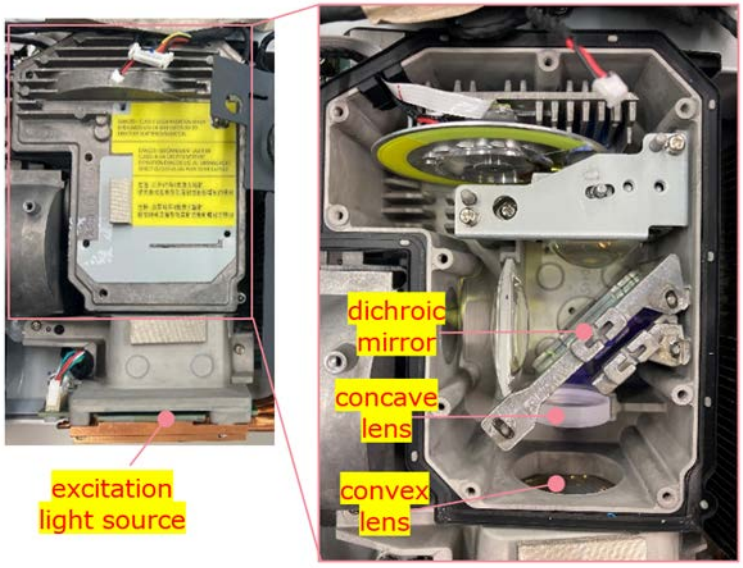
324. For example, the following annotated photo of a disassembled ZU500USTe projector shows one example of the claimed condenser lens disposed between the fluorescent material and the dichroic mirror:



325. On information and belief, each of the remaining ’226 Accused Products includes a condenser lens disposed between the fluorescent material and the dichroic mirror.

326. In each of the ’226 Accused Products, the optical member is disposed between the excitation light source and the dichroic mirror.

327. For example, the following annotated photo of a disassembled ZU500USTe projector shows that the optical member is disposed between the excitation light source and the dichroic mirror:

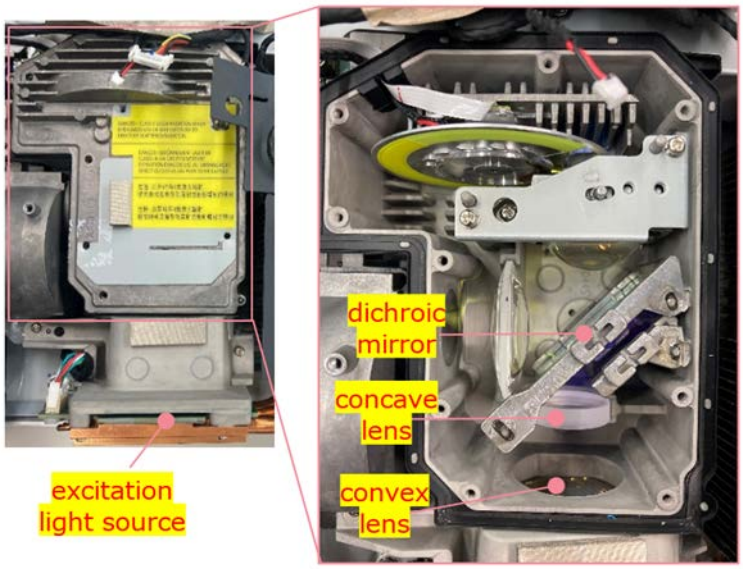


328. On information and belief, in each of the remaining ’226 Accused Products, the optical member is disposed between the excitation light source and the dichroic mirror.

329. In each of the ’226 Accused Products, the optical member is a convex lens and a concave lens, with the convex lens and the concave lens being disposed in this order from the excitation light source toward the dichroic mirror.

330. For example, the following annotated photo of a disassembled ZU500USTe projector shows that the optical member is a convex lens and a concave lens, with the convex lens

and the concave lens being disposed in this order from the excitation light source toward the dichroic mirror:



331. On information and belief, in each of the remaining ’226 Accused Products, the optical member is a convex lens and a concave lens, with the convex lens and the concave lens being disposed in this order from the excitation light source toward the dichroic mirror.

332. On information and belief, and as confirmed by the products’ user manuals, technical specifications, marketing materials, and other publicly available information, the remaining ’226 Accused Products include the same or similar components as the ZU500USTe. Moreover, based on the same, each of the remaining ’226 Accused Products function the same or similarly as the ZU500USTe.

333. Accordingly, each of the remaining ’226 Accused Products infringe for the same or similar reasons.

334. The foregoing features and capabilities of the ’226 Accused Products and Defendants’ description and/or demonstration thereof, including in user manuals and advertising,

reflect Defendants' direct infringement by satisfying every element of at least claim 8 of the '226 Patent, under 35 U.S.C. § 271(a).

335. In addition, Defendants have indirectly infringed at least claim 8 of the '226 Patent in this District and elsewhere in the United States by, among other things, actively inducing their affiliates to make, use, sell, and/or offer to sell and/or to import at least the '226 Accused Products. Defendants committed these acts of inducement with knowledge of the '226 Patent and their infringement thereof, as described earlier.

336. Thus, Defendants are further liable for infringement of the '226 Patent pursuant to 35 U.S.C. § 271(b).

337. Defendants have also contributorily infringed the '226 Patent. For example, the '226 Accused Products include hardware that by its arrangement at least meets all elements of claim 8. These are components of a patented machine, manufacture, or combination. Further, these components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use.

338. Thus, Defendants are also liable for infringement of the '226 Patent pursuant to 35 U.S.C. § 271(c).

339. Defendants had notice of the '226 Patent and their infringement thereof by no later than April 27, 2023. By the time of trial, Defendants will thus have known and intended (since receiving this notice) that their continued actions would actively induce and contribute to actual infringement of at least claim 8 of the '226 Patent.

340. Defendants undertook and continued their infringing actions despite an objectively high likelihood that they infringed the '226 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least April 27, 2023, Defendants have been aware of an

objectively high likelihood that their actions constituted and continue to constitute infringement of the ’226 Patent, and that the ’226 Patent is valid.

341. On information and belief, Defendants could not reasonably, subjectively believe that their actions do not constitute infringement of the ’226 Patent, nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that their actions constitute infringement, Defendants continued their infringing activities with knowledge of the ’226 Patent.

342. As such, Defendants have willfully infringed and continue to willfully infringe the ’226 Patent.

343. Maxell has been and continues to be damaged by Defendants’ infringement of the ’226 Patent.

COUNT 6 - INFRINGEMENT OF U.S. PATENT NO. 9,565,388

344. Maxell incorporates all prior paragraphs here by reference.

345. U.S. Patent No. 9,565,388 (the “’388 Patent,” attached hereto as Exhibit J) duly issued on February 17, 2017, and is entitled *Video Display Device*.

346. The ’388 Patent claims priority to PCT/JP2013/060149, filed on April 3, 2013.

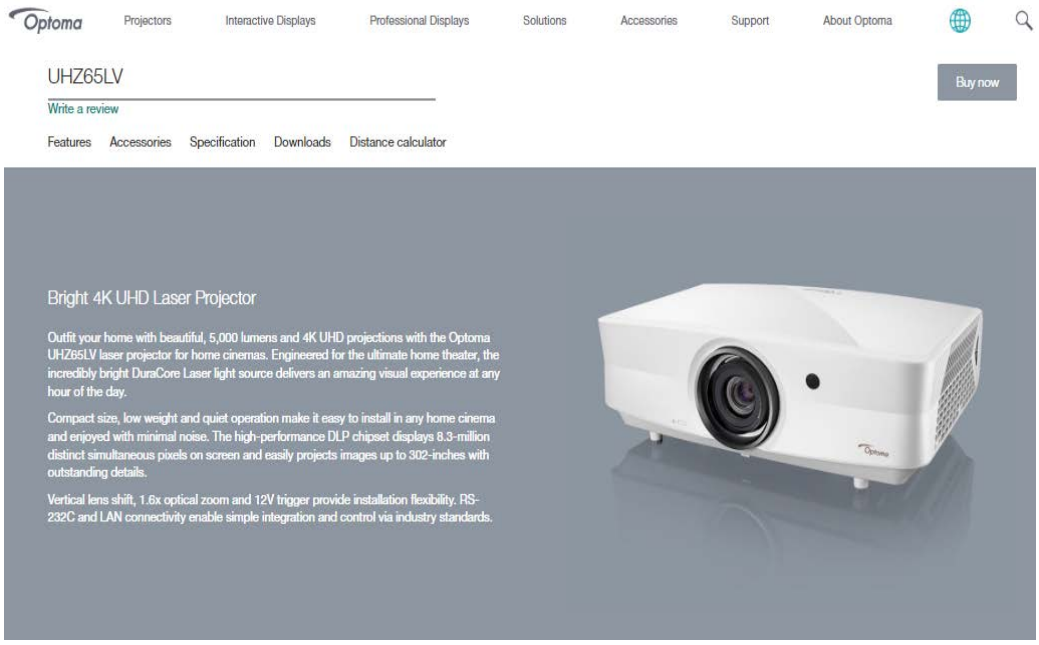
347. Maxell is the owner by assignment of the ’388 Patent and possesses all rights under the ’388 Patent, including the exclusive right to recover for past and future infringement.

348. Defendants have directly infringed one or more claims of the ’388 Patent in this District and elsewhere in Texas, including at least claim 4, literally and/or under the doctrine of equivalents, by or through making, using, importing, offering for sale, and/or selling their 4K projectors, including at least Optoma model numbers UHZ65LV, ZK507-W, UHD55, and UHZ55 (the “’388 Accused Products”). Maxell reserves the right to discover and pursue any additional

infringing devices that incorporate infringing functionalities, including those that Coretronic's and/or Optoma's subsidiaries make, use, import, offer for sale, and/or sell under Coretronic's and/or Optoma's control and/or direction. For the avoidance of doubt, the '388 Accused Products are identified to describe Defendants' infringement and in no way limit the discovery and infringement allegations against Defendants concerning other devices that incorporate the same or reasonably similar functionalities.

349. Each of the '388 Accused Products is, includes, or acts as a video display device.

350. For example, the UHZ65LV projector is, includes, or acts as a video display device. Indeed, the website of the UHZ65LV confirms that the device is a 4K projector capable of displaying video:

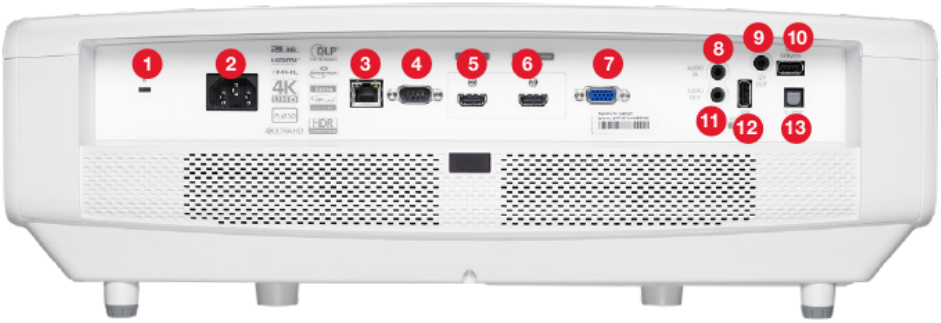


https://www.optomausa.com/product/uhz65lv

351. On information and belief, each of the remaining '388 Accused Products are, include, or act as a video display device.

352. Each of the Accused '388 Accused Products includes a video input unit.

353. For example, the UHZ65LV includes a video input unit that receives video (in the form of 4K UHD, HDTV, HDR, etc.) via one or more input ports, such as an HDMI input port. The following photo of the UHZ65LV device shows one example of the claimed video input unit (for example, labeled as items 5 and 6 in the following image):



1. Kensington™ Lock	6. HDMI2 In	11. Audio Out
2. AC Power	7. VGA In	12. USB Power
3. RJ-45	8. Audio In	13. Optical S/PDIF
4. RS-232	9. 12V trigger	
5. HDMI1 In	10. USB (service)	

UHZ65LV Datasheet (https://www.optomausa.com/ContentStorage/Documents/d797e370-515b-406d-960e-84958e24a5f2.pdf).

Video Compatibility	PAL, SECAM, 576i/p, NTSC, 480i/p, HDTV 720p/1080i/1080p, 4K UHD (3840 x 2160) 4K (DCI) (4096 x 2160)
3D Compatibility†	Supports all HDMI 1.4a mandatory 3D formats (Frame pack, side-by-side, top-bottom) and up converts frame rate from 60Hz to 120Hz or 24Hz to 144Hz (i.e. 60 or 72 frames per eye). 3D glasses are needed and are sold separately. Refer to user manual for details.)
Vertical Scan Rate	Vertical: 24Hz to 120Hz (120 Hz for 1080p 3D)
Horizontal Scan Rate	Horizontal: 31 to 135 KHz
User Controls	RS-232, RJ45
I/O Connection Ports	1x HDMI 2.0 (HDCP 2.2, MHL), 1x HDMI 1.4, 1x VGA (D-sub 15pin) (VGA or component), 1x audio in, 1x optical S/PDIF (2 channel PCM), 1X audio out, 1x 12v trigger, 1x USB-A (power 5V/1.5a), 1xUSB-A (service)

UHZ65LV Datasheet (https://www.optomausa.com/ContentStorage/Documents/d797e370-515b-406d-960e-84958e24a5f2.pdf).

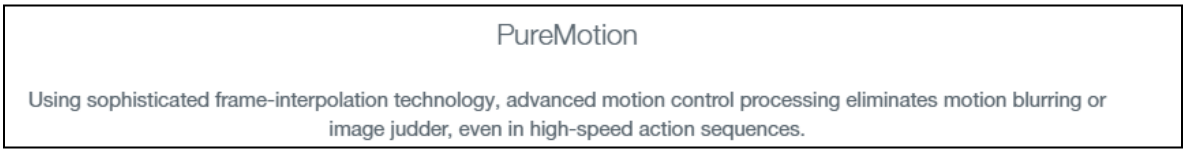
354. On information and belief, each of the remaining ’388 Accused Products includes a video input unit.

355. Each of the Accused ’388 Accused Products includes a first Retinex processing unit which performs a first Retinex process on a video input from the video input unit.

356. As an example, the UHZ65LV incorporates a first Retinex processing unit (*e.g.*, at least one processor and/or display controller or portion thereof) that performs a first Retinex process (*e.g.*, PureMotion) on a video input from the video input unit.

357. On information and belief, Defendants’ PureMotion image processing has been adapted to take advantage of advanced processing capabilities of the at least one processor and/or display controller to improve the video performance when displaying modern 4K UHD video. In particular, Defendants’ PureMotion process for modern 4K UHD video has been adapted to perform sophisticated frame-interpolation and advanced motion control processing to eliminate motion blurring or image judder when displaying modern 4K UHD video involving high-speed action sequences.

UHZ65LV Datasheet (annotated) (https://www.optomausa.com/ContentStorage/Documents/d797e370-515b-406d-960e-84958e24a5f2.pdf).



https://www.optomausa.com/product/uhz65lv

https://www.optomausa.com/product/uhz65lv

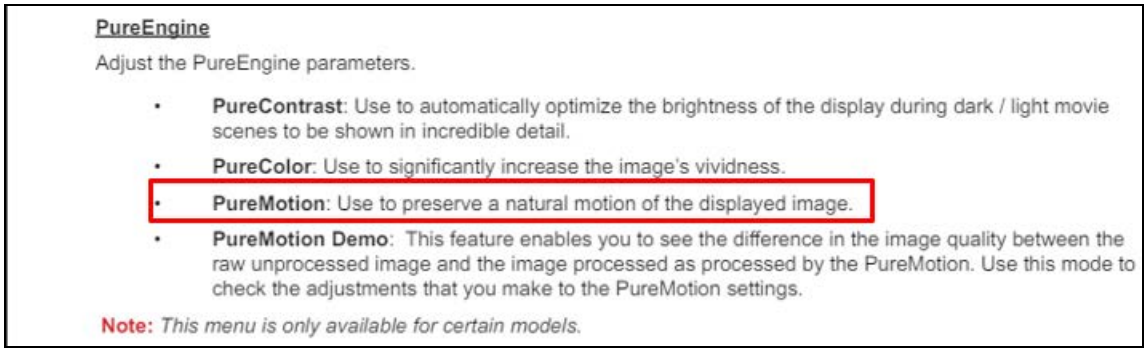
PureMotion II

PureMotion II technology ensures you see all the detail in fast moving sequences. Traditional projection systems often suffer from "motion blur" or "judder" in moving images. These issues are not just distracting they also lower the resolution of the image – PureMotion eliminates these issues and ensures all of the detail from any source, especially High Definition, is preserved leaving a crystal clear image with pure natural motion.

https://www.c3itxperts.com/optoma-projectors

PureEngine	PureContrast		Off
			On
	PureColor		Off
			1
			2
			3
			4
			5
	PureMotion		Off
			1
			2
			3
	PureMotion Demo		Off [Default]
			H Split
			V Split

UHZ65LV User Manual at 27 (annotated) (https://www.optomausa.com/ContentStorage/Documents/4dcf6f0a-8c53-480d-8e23-173a8f35fd12.pdf).


PureEngine

Adjust the PureEngine parameters.

- **PureContrast**: Use to automatically optimize the brightness of the display during dark / light movie scenes to be shown in incredible detail.
- **PureColor**: Use to significantly increase the image's vividness.
- **PureMotion**: Use to preserve a natural motion of the displayed image.
- **PureMotion Demo**: This feature enables you to see the difference in the image quality between the raw unprocessed image and the image processed as processed by the PureMotion. Use this mode to check the adjustments that you make to the PureMotion settings.

Note: *This menu is only available for certain models.*

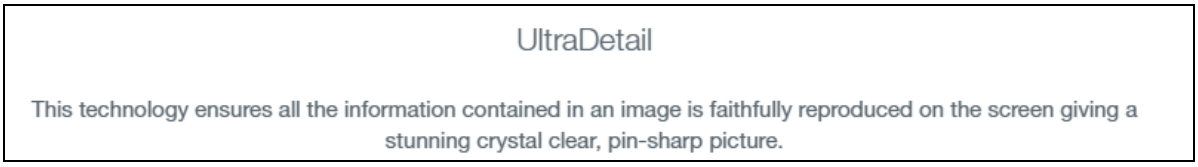
UHZ65LV User Manual at 36 (annotated) (https://www.optomausa.com/ContentStorage/Documents/4dcf6f0a-8c53-480d-8e23-173a8f35fd12.pdf).

358. On information and belief, each of the remaining '388 Accused Products includes a first Retinex processing unit which performs a first Retinex process on a video input from the video input unit.

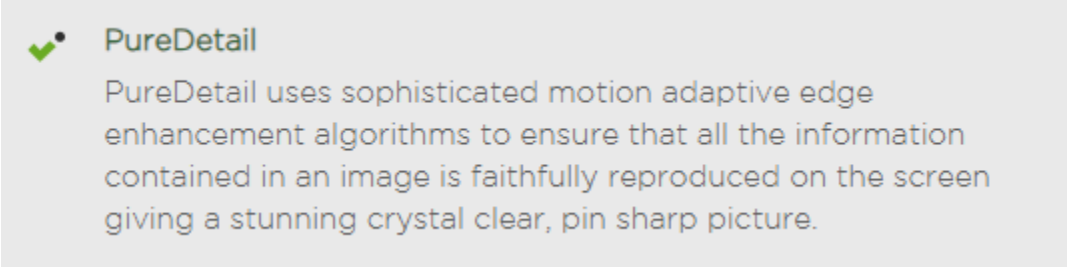
359. Each of the Accused '388 Accused Products includes a second Retinex processing unit which performs a second Retinex process, which is different from the first Retinex process, on the video input from the video input unit.

360. As an example, the UHZ65LV incorporates a second Retinex processing unit (*e.g.*, at least one processor and/or display controller or portion thereof) that performs a second Retinex process (*e.g.*, PureDetail/UltraDetail), which is different from the first Retinex process, on the video input from the video input unit.

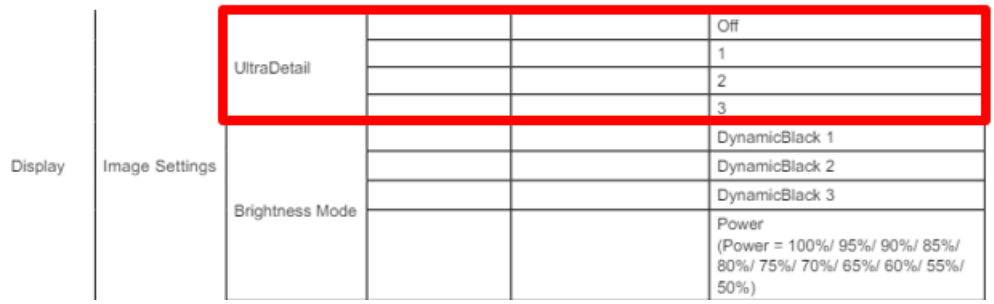
361. On information and belief, Defendants' PureDetail/UltraDetail image processing has been adapted to take advantage of advanced processing capabilities of the at least one processor and/or display controller to improve the video performance when displaying modern 4K UHD video. In particular, Defendants' PureDetail/UltraDetail has been adapted to perform sophisticated motion adaptive edge enhancement algorithms to provide sharp pictures when displaying modern 4K UHD video.



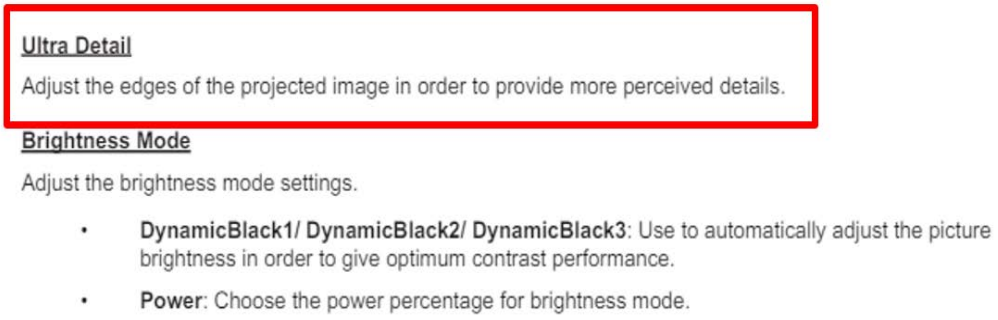
https://www.optomausa.com/product/uhz65lv



https://www.c3itxperts.com/optoma-projectors



UHZ65LV User Manual at 27 (annotated) (https://www.optomausa.com/ContentStorage/Documents/4dcf6f0a-8c53-480d-8e23-173a8f35fd12.pdf).



UHZ65LV User Manual at 35 (annotated) (https://www.optomausa.com/ContentStorage/Documents/4dcf6f0a-8c53-480d-8e23-173a8f35fd12.pdf).

362. On information and belief, each of the remaining ’388 Accused Products includes a second Retinex processing unit which performs a second Retinex process, which is different from the first Retinex process, on the video input from the video input unit.

363. Each of the ’388 Accused Products includes a video composing unit which composes a video processed by the first Retinex processing unit and a video processed by the second Retinex processing unit in accordance with a feature of the video input from the video input unit.

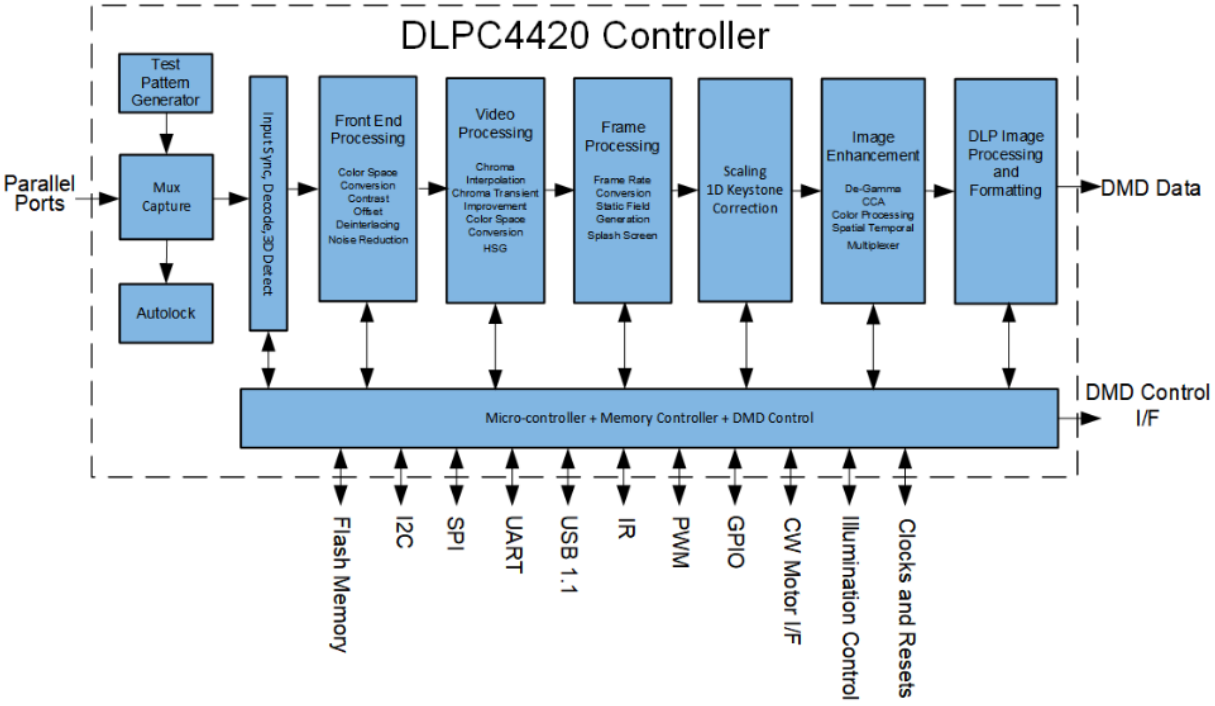
364. For example, the UHZ65LV includes a video composing unit (*e.g.*, one or more processors and/or display controllers or a portion thereof) that composes a video processed by the first Retinex processing unit (*e.g.*, running Defendants’ PureMotion process on modern 4K UHD video) and a video processed by the second Retinex processing unit (*e.g.*, running Defendants’ PureDetail/UltraDetail process on modern 4K UHD video) in accordance with a feature of the video input from the video input unit.

365. As an example, at least a portion of the DLPC4420 controller coupled to the Texas Instruments DLP660TE DMD chip in the UHZ65LV and/or Defendants’ PureMotion and PureDetail/UltraDetail processor(s), or at least one processor configured to perform sophisticated image or video processing algorithms, blends the result of the multiple image or video processing algorithms such as Defendants’ PureMotion and PureDetail/UltraDetail in accordance with several features of the video input, such as fast or slow motion, presence or absence of edges or details, luminance/brightness information, color information, contrast information, scale/detail information, and frame rate information.

OPTICAL/TECHNICAL SPECIFICATIONS

Display Technology	Texas Instruments 0.66" 4K UHD DMD
Color Wheel	4 segment
Native Resolution	4K UHD (3840 x 2160) @ 60Hz w/ XPR technology
Maximum Resolution	4K (4096 x 2160) @ 60Hz
Brightness	5,000 ANSI lumens
Contrast Ratio	2,000,000:1 (Dynamic Black enabled)
Displayable Colors	1.07 billion
Light Source Life up to	Up to 30,000 hrs (Eco), 20,000 hrs (Normal)
Light Source*	DuraCore Laser

Optoma UHZ65LV Datasheet (annotated)
(https://www.optomausa.com/ContentStorage/Documents/d797e370-515b-406d-960e-84958e24a5f2.pdf).



Functional Block Diagram of a Texas Instruments DLPC4420 Controller at pg. 25
(https://www.ti.com/lit/ds/symlink/dlpc4420.pdf?ts=1716946733177&ref_url=https%253A%252F%252Fwww.ti.com%252Fproduct%252FDLPC4420).

366. On information and belief, each of the remaining ’388 Accused Products includes a video composing unit which composes a video processed by the first Retinex processing unit and a video processed by the second Retinex processing unit in accordance with a feature of the video input from the video input unit.

367. Each of the Accused ’388 Accused Products includes a display unit which displays the composed video composed by the video composing unit.

368. For example, the UHZ65LV projector includes a display unit in the form of a DMD chip (*e.g.*, the TI DLP660TE DMD), which displays the composed video composed by the video

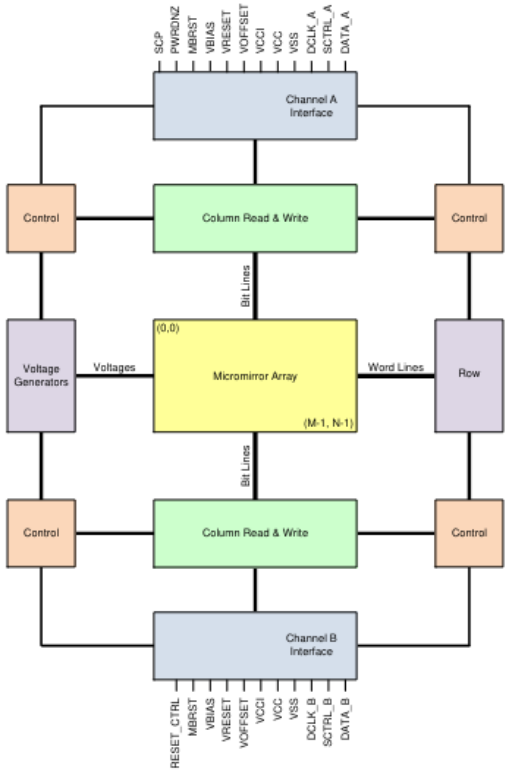
composing unit (*e.g.*, the TI DLPC4420 controller and/or one or more processors running Defendants' PureMotion and PureDetail/UltraDetail processes).

Compact size, low weight and quiet operation make it easy to install in any home cinema and enjoyed with minimal noise. The high-performance DLP chipset displays 8.3-million distinct simultaneous pixels on screen and easily projects images up to 302-inches with outstanding details.

https://www.optomausa.com/product/uhz65lv

Display Technology	Texas Instruments 0.66" 4K UHD DMD
Color Wheel	4 segment
Native Resolution	4K UHD (3840 x 2160) @ 60Hz w/ XPR technology
Maximum Resolution	4K (4096 x 2160) @ 60Hz
Brightness	5,000 ANSI lumens
Contrast Ratio	2,000,000:1 (Dynamic Black enabled)
Displayable Colors	1.07 billion
Light Source Life up to	Up to 30,000 hrs (Eco), 20,000 hrs (Normal)
Light Source*	DuraCore Laser

UHZ65LV Datasheet (https://www.optomausa.com/ContentStorage/Documents/d797e370-515b-406d-960e-84958e24a5f2.pdf).



Functional Block Diagram of Texas Instruments DLP660TE DMD at 23 (https://www.ti.com/lit/ds/symlink/dlp660te.pdf?ts=1716945836410&ref_url=https%253A%252F%252Fwww.ti.com%252Fproduct%252FDLP660TE).

369. On information and belief, each of the remaining ’388 Accused Products include a display unit which displays the composed video composed by the video composing unit.

370. In each of the ’388 Accused Products, a scale in the first Retinex process and a scale in the second Retinex process are different from each other.

371. As one non-limiting example, the first Retinex process (*e.g.*, Defendants’ PureMotion processing for modern 4K UHD video) involves regions of the image such as moving objects, people, and still or slow moving backgrounds. Such regions of the image may implicate multiple blocks of pixels representing medium to large scale components. In contrast, the second Retinex process (*e.g.*, Defendants’ PureDetail/UltraDetail processing for modern 4K UHD video) implicates edges within the image and fine details, which represent small scale components.

372. In another example, Defendants’ PureMotion processing may be applied to the still or slow moving scene background as a whole (*e.g.*, a large scale), while Defendants’ PureDetail/UltraDetail processing may be applied to the trees and foliage within the scene background (*e.g.*, a small scale). Similarly, using the image shown below as an example, Defendants’ PureMotion processing may be applied to the flying motorcycle in the scene as a whole (*e.g.*, a large scale), while Defendants’ PureDetail/UltraDetail processing may be applied to the wheel of the motorcycle (*e.g.*, a small scale) to increase sharpness.

https://www.optomausa.com/product/uhz65lv

373. On information and belief, in each of the remaining ’388 Accused Products, a scale in the first Retinex process and a scale in the second Retinex process are different from each other.

374. In each of the ’388 Accused Products, the video composing unit changes a composition ratio between the video subjected to the first Retinex process and the video subjected to the second Retinex process in accordance with luminance information or frequency information of the video input from the video input unit.

375. For example, as explained earlier, the UHZ65LV device has a video composing unit (*e.g.*, at least a portion of the TI DLPC4420 controller and/or some other processor(s)). The UHZ65LV’s video composing unit changes a composition ratio between the video subjected to the first Retinex process and the video subjected to the second Retinex process in accordance with luminance information or frequency information of the video input from the video input unit.

376. For example, the video composing unit of the UHZ65LV can apply different ratios to the first and the second Retinex processes prior to combining them. For example, the UHZ65LV may apply a setting (*e.g.*, Off, 1, 2, or 3) using Defendants’ PureMotion processing for modern 4K

UHD video. Similarly, the UHZ65LV may apply a setting (*e.g.*, Off, 1, 2, or 3) to the effects of Defendants' PureDetail/UltraDetail, as confirmed by the UHZ65LV's user manual.

377. Moreover, on information and belief, the video composing unit performs adaptive image processing and is configured to change any or all of the parameters and/or settings in accordance with luminance information and frequency information such as spatial frequency (*e.g.*, number pixels in the area being processed) or temporal frequency (*e.g.*, frame rates such as 24Hz, 50Hz, 60Hz).

378. On information and belief, in each of the remaining '388 Accused Products, the video composing unit changes a composition ratio between the video subjected to the first Retinex process and the video subjected to the second Retinex process in accordance with luminance information or frequency information of the video input from the video input unit.

379. On information and belief, and as confirmed by the products' user manuals, technical specifications, marketing materials, and other publicly available information, the remaining '388 Accused Products include the same or similar components as the UHZ65LV device. Moreover, based on the same, each of the remaining '388 Accused Products function the same or similarly as the UHZ65LV device.

380. Accordingly, each of the remaining '388 Accused Products infringe for the same or similar reasons.

381. The foregoing features and capabilities of the '388 Accused Products and Defendants' description and/or demonstration thereof, including in user manuals and advertising, reflect Defendants' direct infringement by satisfying every element of at least claim 4 of the '388 Patent, under 35 U.S.C. § 271(a).

382. In addition, Defendants have indirectly infringed at least claim 4 of the ’388 Patent in this District and elsewhere in the United States by, among other things, actively inducing their affiliates to make, use, sell, and/or offer to sell and/or to import at least the ’388 Accused Products. Defendants committed these acts of inducement with knowledge of the ’388 Patent and their infringement thereof, as described earlier.

383. Thus, Defendants are further liable for infringement of the ’388 Patent pursuant to 35 U.S.C. § 271(b).

384. Defendants have also contributorily infringed the ’388 Patent. For example, the ’388 Accused Products include hardware and software that meet all elements of claim 4. These are components and software of a patented machine, manufacture, or combination. Further, these components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use.

385. Thus, Defendants are also liable for infringement of the ’388 Patent pursuant to 35 U.S.C. § 271(c).

386. Defendants had notice of the ’388 Patent and their infringement thereof by no later than April 27, 2023. By the time of trial, Defendants will thus have known and intended (since receiving this notice) that their continued actions would actively induce and contribute to actual infringement of at least claim 4 of the ’388 Patent.

387. Defendants undertook and continued their infringing actions despite an objectively high likelihood that they infringed the ’388 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least April 27, 2023, Defendants have been aware of an objectively high likelihood that their actions constituted and continue to constitute infringement of the ’388 Patent, and that the ’388 Patent is valid.

388. On information and belief, Defendants could not reasonably, subjectively believe that their actions do not constitute infringement of the ’388 Patent, nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that their actions constitute infringement, Defendants continued their infringing activities with knowledge of the ’388 Patent.

389. As such, Defendants have willfully infringed and continue to willfully infringe the ’388 Patent.

390. Maxell has been and continues to be damaged by Defendants’ infringement of the ’388 Patent.

COUNT 7 - INFRINGEMENT OF U.S. PATENT NO. 9,900,569

391. Maxell incorporates all prior paragraphs here by reference.

392. U.S. Patent No. 9,900,569 (the “’569 Patent,” attached hereto as Exhibit K) duly issued on February 20, 2018, and is entitled *Projection-type Display Device*.

393. The ’569 Patent claims priority to PCT/JP2014/067922, filed on July 4, 2014.

394. Maxell is the owner by assignment of the ’569 Patent and possesses all rights under the ’569 Patent, including the exclusive right to recover for past and future infringement.

395. Defendants have directly infringed one or more claims of the ’569 Patent in this District and elsewhere in Texas, including at least claim 1, literally and/or under the doctrine of equivalents, by or through making, using, importing, offering for sale, and/or selling their lamp projectors, including at least Optoma model numbers EH401, HD30LV, UHD38x, 4K400x, 4K400STx, UHD55, UHD35x, UHD35STx, UHD50X, EH412x, EH340UST, HD39HDR, EH412STx, HD39HDRx, GT1080HDR, GT1080HDRx, EH335, HD146X, DH351, HD28HDR, GT5600, EH200ST, W340UST, W400LVe, W319ST, H190X, W309ST, GT780, GT770,

X400LVe, X309ST, and S336 (the "'569 Accused Products"). Maxell reserves the right to discover and pursue any additional infringing devices that incorporate infringing functionalities, including those that Coretronic's and/or Optoma's subsidiaries make, use, import, offer for sale, and/or sell under Coretronic's and/or Optoma's control and/or direction. For the avoidance of doubt, the '569 Accused Products are identified to describe Defendants' infringement and in no way limit the discovery and infringement allegations against Defendants concerning other devices that incorporate the same or reasonably similar functionalities.

396. Each of the '569 Accused Products is, includes, or acts as a projection-type image display device including a discharge lamp as a light source.

397. For example, the GT1080HDRx projector is, includes, or acts as a projection-type image display device including a discharge lamp as a light source. Indeed, the datasheet for the GT1080HDRx confirms that the device is a projection-type image display device including a discharge lamp as a light source:

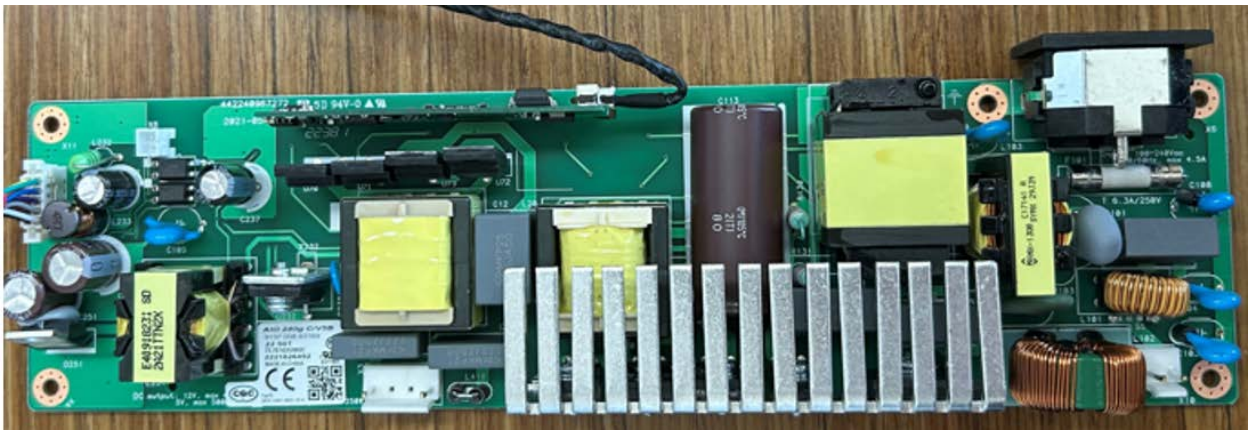
Lamp info	
Light source type	Lamp
Lamp watts	240
Lamp life hours (up to)	4000 (Bright), 12000 (Dynamic), 10000 (Eco), 15000 (Eco+)

Optoma GT1080HDRx Datasheet, (https://www.optomausa.com/ContentStorage/Documents/fce617c8-db30-44f5-a3ff-2ebc330ae636.pdf).

398. On information and belief, each of the remaining '569 Accused Products is a projection-type image display device including a discharge lamp as a light source.

399. Each of the '569 Accused Products includes a lamp driving unit configured to drive the discharge lamp.

400. The following photo of a portion of a disassembled GT1080HDRx projector shows one example of the claimed lamp driving unit configured to drive the discharge lamp:

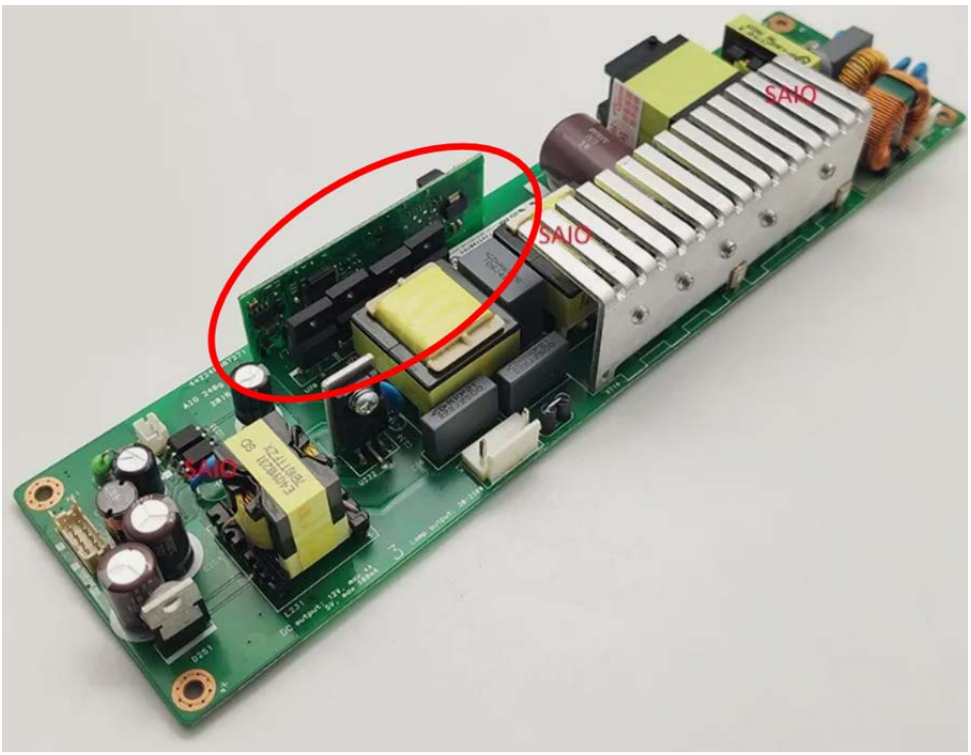


401. On information and belief, each of the remaining ’569 Accused Products includes a lamp driving unit configured to drive the discharge lamp.

402. Each of the ’569 Accused Products includes a lamp voltage detection unit configured to detect a voltage between electrodes (hereinafter, a lamp voltage) of the discharge lamp.

403. For example, the GT1080HDRx projector includes one or more processors that detect a voltage between electrodes of the discharge lamp.

404. On information and belief, the lamp ballast in the GT1080HDRx projector includes one or more processors (annotated in red below) mounted on a circuit board and configured to detect a voltage between electrodes of the discharge lamp:



405. On information and belief, each of the remaining ’569 Accused Products includes a lamp voltage detection unit configured to detect a lamp voltage of the discharge lamp.

406. Each of the ’569 Accused Products includes an image correction processing unit configured to perform image quality correction of an image signal supplied to an image display element.

407. For example, the GT1080HDRx projector includes an image correction processing unit (*e.g.*, at least a portion of the TI DLP4422 display controller) configured to perform an image quality correction of an image signal supplied to an image display element (*e.g.*, the TI DLP660TE DMD). The following is an image of the TI DLP4422 display controller included within the GT1080HDRx projector:

408. On information and belief, each of the remaining ’569 Accused Products includes an image correction processing unit configured to perform image quality correction of an image signal supplied to an image display element.

409. Each of the ’569 Accused Products includes a control unit configured to control an amount of correction for the image correction processing unit based on the lamp voltage detected by the lamp voltage detection unit.

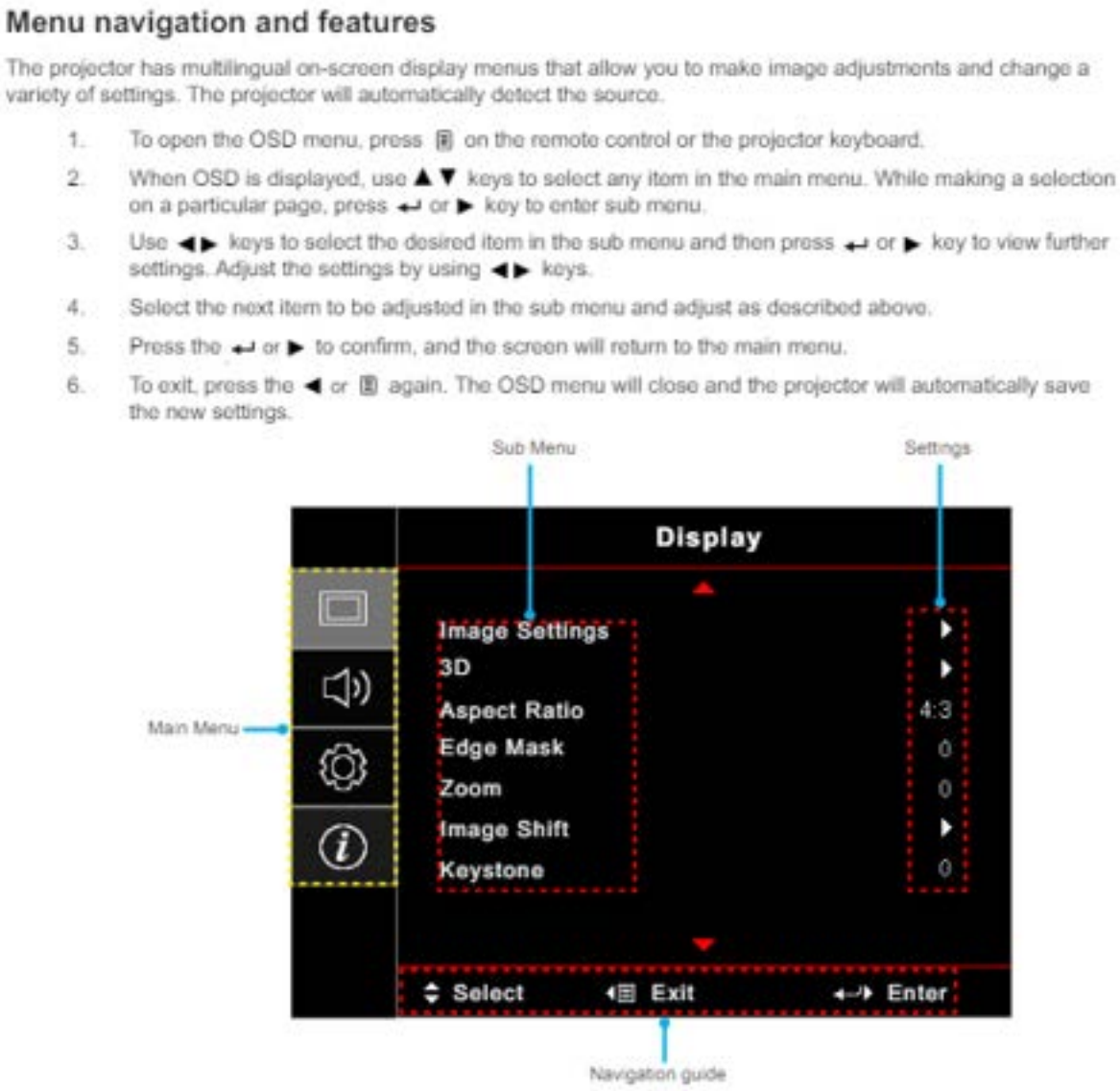
410. For example, the GT1080HDRx projector includes one or more processors, such as the TI DLPC4422 display controller, at least a portion of which controls an amount of correction based on the lamp voltage.

411. On information and belief, each of the remaining ’569 Accused Products includes a control unit configured to control an amount of correction for the image correction processing unit based on the lamp voltage detected by the lamp voltage detection unit.

412. Each of the ’569 Accused Products includes a menu screen creating unit.

413. For example, the GT1080HDRx projector includes a menu screen creating unit in the form of at least a portion of one or more processors and/or at least a portion of the DLPC4422

display controller. This is confirmed, for example, by the user guide of the GT1080HDRx projector, showing the ability of the device to create a menu:



GT1080HDRx, User Guide at 21, https://www.optomausa.com/ContentStorage/Documents/0a9ab9a0-2c74-4792-821f-e503479f3289.pdf.

414. On information and belief, each of the remaining ’569 Accused Products includes a menu screen creating unit.

415. In each of the ’569 Accused Products, via a menu screen created by the menu screen creating unit, both a first setting item regarding an image quality adjustment and a second setting item regarding an image quality adjustment are settable.

416. For example, the GT1080HDRx projector uses a menu screen for setting a first setting item and a second setting item regarding an image quality adjustment, both of which are created by the aforementioned menu screen creating unit (*e.g.*, a portion of the DLPC4422 display controller).

417. In one non-limiting example of Defendants’ infringement, via a menu screen, the first setting item regarding an image quality adjustment may be one of the Brightness Mode settings (*e.g.*, Bright, Eco, Dynamic, and Eco+) and the second setting item may be another one of the Brightness Mode settings, as shown in the following user manual:

Main Menu	Sub Menu	Sub Menu 2	Sub Menu 3	Sub Menu 4	Values
	Image Settings	Signal	Automatic		Off
					On [Default]
			Frequency		-10 ~ 10 (depends on signal) [Default: 0]
			Phase		0~31 (depends on signal) [Default: 0]
			H. Position		-5 ~ 5 (depends on signal) [Default: 0]
			V. Position		-5 ~ 5 (depends on signal) [Default: 0]
			Exit		
		Brightness Mode			Bright
					Eco.
					Dynamic
					Eco+

GT1080HDRx User Guide, OSD Menu Tree excerpt at 24, https://www.optomausa.com/ContentStorage/Documents/0a9ab9a0-2c74-4792-821f-e503479f3289.pdf.

418. On information and belief, in each of the remaining ’569 Accused Products, via a menu screen created by the menu screen creating unit, both a first setting item regarding an image quality adjustment and a second setting item regarding an image quality adjustment are settable.

419. In each of the ’569 Accused Products, the first setting item is configured to control the amount of correction for the image correction processing unit based on the lamp voltage detected by the lamp voltage detection unit.

420. For example, the menu screen in the GT1080HDRx projector includes a first setting item with the claimed features. In one non-limiting example of Defendants’ infringement, the first setting item that controls the amount of correction based on the lamp voltage is the Dynamic setting available in Brightness Mode since this setting will “dim the lamp power which will be based on brightness level of the content and adjust lamp power consumption between 100% and 30% dynamically.” GT1080HDRx User Guide at 32.

421. On information and belief, the Dynamic setting dictates a range of illumination for the lamp (100%-30%), and the image correction processing unit controls an amount of correction (*e.g.*, brightness, contrast, sharpness, gamma, etc.) necessary to compensate for each value in the range of illumination associated with the Dynamic setting based on a detected lamp voltage.

422. On information and belief, in each of the remaining ’569 Accused Products, the menu screen includes the first setting item that is configured to control the amount of correction for the image correction processing unit based on the lamp voltage detected by the lamp voltage detection unit.

423. In each of the ’569 Accused Products, the second setting item is configured to allow a user to select a parameter regarding the amount of correction not based on the lamp voltage detected by the lamp voltage detection unit.

424. For example, the menu screen in the GT1080HDRx projector includes the second setting item with the claimed features. In one non-limiting example, on information and belief, the second setting item that controls the amount of correction not based on the lamp voltage is one of

the other three Brightness Mode settings (*e.g.*, Bright, Eco, and Eco+) that allows a user to select a parameter regarding the amount of correction not based on the lamp voltage detected by the lamp voltage unit. Instead, on information and belief, the amount of correction associated with any one of the three Brightness Mode settings is based on a predetermined value and not based on the lamp voltage.

425. On information and belief, in each of the remaining '569 Accused Products, the menu screen includes the second setting item that is configured to allow a user to select a parameter regarding the amount of correction not based on the lamp voltage detected by the lamp voltage detection unit.

426. On information and belief, and as confirmed by the products' user manuals, technical specifications, marketing materials, and other publicly available information, the remaining '569 Accused Products include the same or similar components as the GT1080HDRx. Moreover, based on the same, each of the remaining '569 Accused Products function the same or similarly as the GT1080HDRx.

427. Accordingly, each of the remaining '569 Accused Products infringe for the same or similar reasons.

428. The foregoing features and capabilities of the '569 Accused Products and Defendants' description and/or demonstration thereof, including in user manuals and advertising, reflect Defendants' direct infringement by satisfying every element of at least claim 1 of the '569 Patent, under 35 U.S.C. § 271(a).

429. In addition, Defendants have indirectly infringed at least claim 1 of the '569 Patent in this District and elsewhere in the United States by, among other things, actively inducing their affiliates to make, use, sell, and/or offer to sell and/or to import at least the '569 Accused Products.

Defendants committed these acts of inducement with knowledge of the ’569 Patent and their infringement thereof, as described earlier.

430. Thus, Defendants are further liable for infringement of the ’569 Patent pursuant to 35 U.S.C. § 271(b).

431. Defendants have also contributorily infringed the ’569 Patent. For example, the ’569 Accused Products include hardware that by its arrangement at least meets all elements of claim 1. These are components of a patented machine, manufacture, or combination. Further, these components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use.

432. Thus, Defendants are also liable for infringement of the ’569 Patent pursuant to 35 U.S.C. § 271(c).

433. Defendants had notice of the ’569 Patent and their infringement thereof by no later than April 27, 2023. By the time of trial, Defendants will thus have known and intended (since receiving this notice) that their continued actions would actively induce and contribute to actual infringement of at least claim 1 of the ’569 Patent.

434. Defendants undertook and continued their infringing actions despite an objectively high likelihood that they infringed the ’569 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least April 27, 2023, Defendants have been aware of an objectively high likelihood that their actions constituted and continue to constitute infringement of the ’569 Patent, and that the ’569 Patent is valid.

435. On information and belief, Defendants could not reasonably, subjectively believe that their actions do not constitute infringement of the ’569 Patent, nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and

the objectively high likelihood that their actions constitute infringement, Defendants continued their infringing activities with knowledge of the '569 Patent.

436. As such, Defendants have willfully infringed and continue to willfully infringe the '569 Patent.

437. Maxell has been and continues to be damaged by Defendants' infringement of the '569 Patent.

PRAYER FOR RELIEF

WHEREFORE, Maxell prays for relief as follows:

438. A judgment declaring that Defendants have infringed and are infringing one or more claims of the Asserted Patents;

439. A judgment awarding Maxell compensatory damages as a result of Defendants' infringement of one or more claims of the Asserted Patents, together with interest and costs, consistent with lost profits and in no event less than a reasonable royalty;

440. A judgment awarding Maxell treble damages and pre-judgment interest under 35 U.S.C. § 284 as a result of Defendants' willful and deliberate infringement of one or more claims of the Asserted Patents;

441. A judgment declaring that this case is exceptional and awarding Maxell its expenses, costs, and attorneys' fees in accordance with 35 U.S.C. §§ 284 and 285 and Rule 54(d) of the Federal Rules of Civil Procedure;

442. A grant of preliminary and permanent injunctions enjoining Defendants from further acts of infringement of one or more claims of the Asserted Patents; and

443. Such other and further relief as the Court deems just and proper.

JURY TRIAL DEMANDED

Maxell hereby demands a trial by jury.

Dated: July 9, 2024

By: */s/ Geoff Culbertson*

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