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

GREENTHREAD, LLC **Plaintiff,** **vs.** **OMNIVISION TECHNOLOGIES INC.,** **Defendant.**	**Civil Action No. 2:23-cv-212** **JURY TRIAL DEMANDED**

ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Greenthread, LLC ("Greenthread" or "Plaintiff") files this Original Complaint against OmniVision Technologies Inc., ("OmniVision" or "Defendant") and hereby alleges as follows:

THE NATURE OF THE ACTION

1. This is a patent infringement action. Two related actions are pending in this court for infringement of the same patents: *Greenthread, LLC v. OSRAM GMBH* et al., 23-cv-00179-JRG (E.D. Tex.) and *Greenthread, LLC v Texas Instruments Incorporated*, 23-cv-00157-JRG (E.D. Tex.). This Court has already construed the claims of the patents-in-suit and/or patents of the same family in *Greenthread, LLC v. Samsung Electronics Co., Ltd. et al.*, 19-cv-00147-JRG (E.D. Tex.). *See* Dkt. 67.

2. Greenthread owns a family of patents related to transistors and other components of integrated semiconductor devices. Greenthread's patented inventions describe semiconductor devices that employ graded dopants and well regions for creating electric fields for aiding and/or limiting the movement of carriers to (or from) the semiconductor surface to (or from) the

semiconductor substrate. These inventions improve semiconductor devices by (1) creating faster, more efficient, and more reliable processors, logic devices, and image sensors; and (2) allowing manufacturers to scale down the feature size of their semiconductor products.

3. Defendant has infringed and continues to infringe six Greenthread patents: U.S. Patent Nos. 8,421,195 ("the '195 Patent"), 9,190,502 ("the '502 Patent"), 10,510,842 ("the '842 Patent"), 10,734,481 ("the '481 Patent"), 11,121,222 ("the '222 Patent"), and 11,316,014 ("the '014 Patent"), (collectively "the Greenthread Patents"), copies of which are attached hereto as Exhibits 1-6, respectively. Defendant has infringed and continue to infringe the Greenthread Patents by making, using, selling, offering for sale, and/or importing into the United States, semiconductor devices with infringing graded dopant regions and/or electronic products containing the same.

THE PARTIES

4. Plaintiff Greenthread, LLC ("Greenthread") is a limited liability company organized and existing under the laws of Texas, having its principal place of business at 7424 Mason Dells Drive, Dallas, Texas 75230-3244.

5. Defendant OmniVision Technologies, Inc. is a corporation organized and existing under the laws of Delaware. Defendant may be served with process by serving its registered agent, the Corporation Trust Company, at 1209 Orange Street, Wilmington, Delaware, 19801.

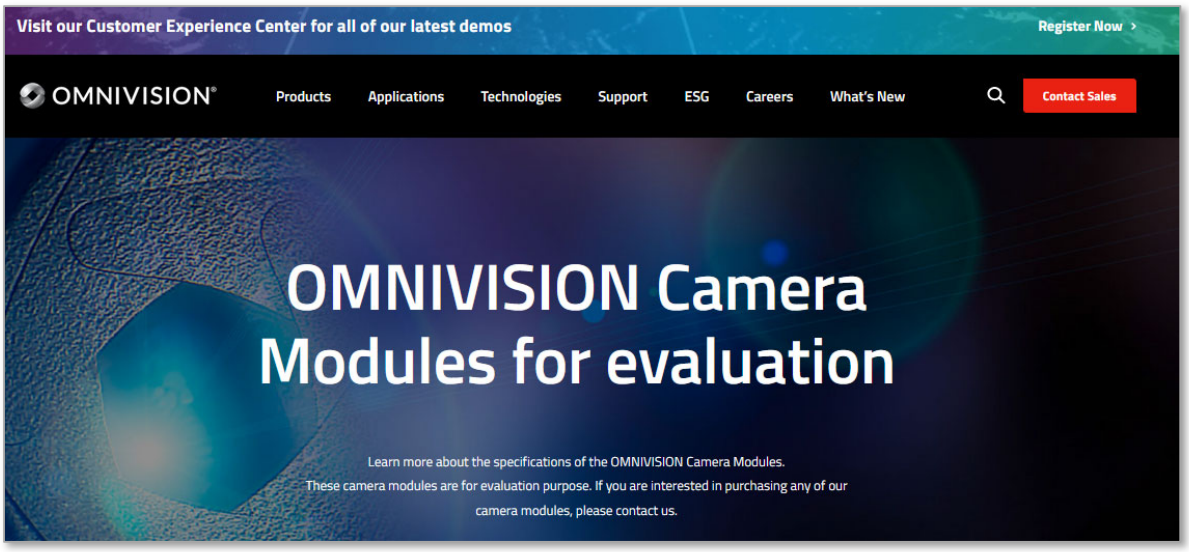
6. OmniVision designs and develops digital imaging products for use in mobile phones, security & surveillance, automotive, computing, medical, and emerging applications. OmniVision describes itself as a "global fabless semiconductor organization" who has "enabled smoother human/machine interfacing solutions within the automotive, medical, security &

surveillance, computing, mobile phone, and emerging technology spaces."[1]

7. OmniVision controls the www.ovt.com internet domain.

8. OmniVision designs, tests, imports into the United States, uses, sells, and offers to sell OmniVision Accused Products, which occurs in the United States. OmniVision has employees throughout the United States including responsible for these functions, including in Texas, California, Colorado, Illinois, and Michigan.[2]

9. During Omnivision's markeing, testing, and quality control, OmniVision uses and sells sample products of the Omnivision Accused Products in the United States.[3] Those uses of the OmniVision Accused Products are essential to its ability to make sales to customers world-wide, including in the United States.

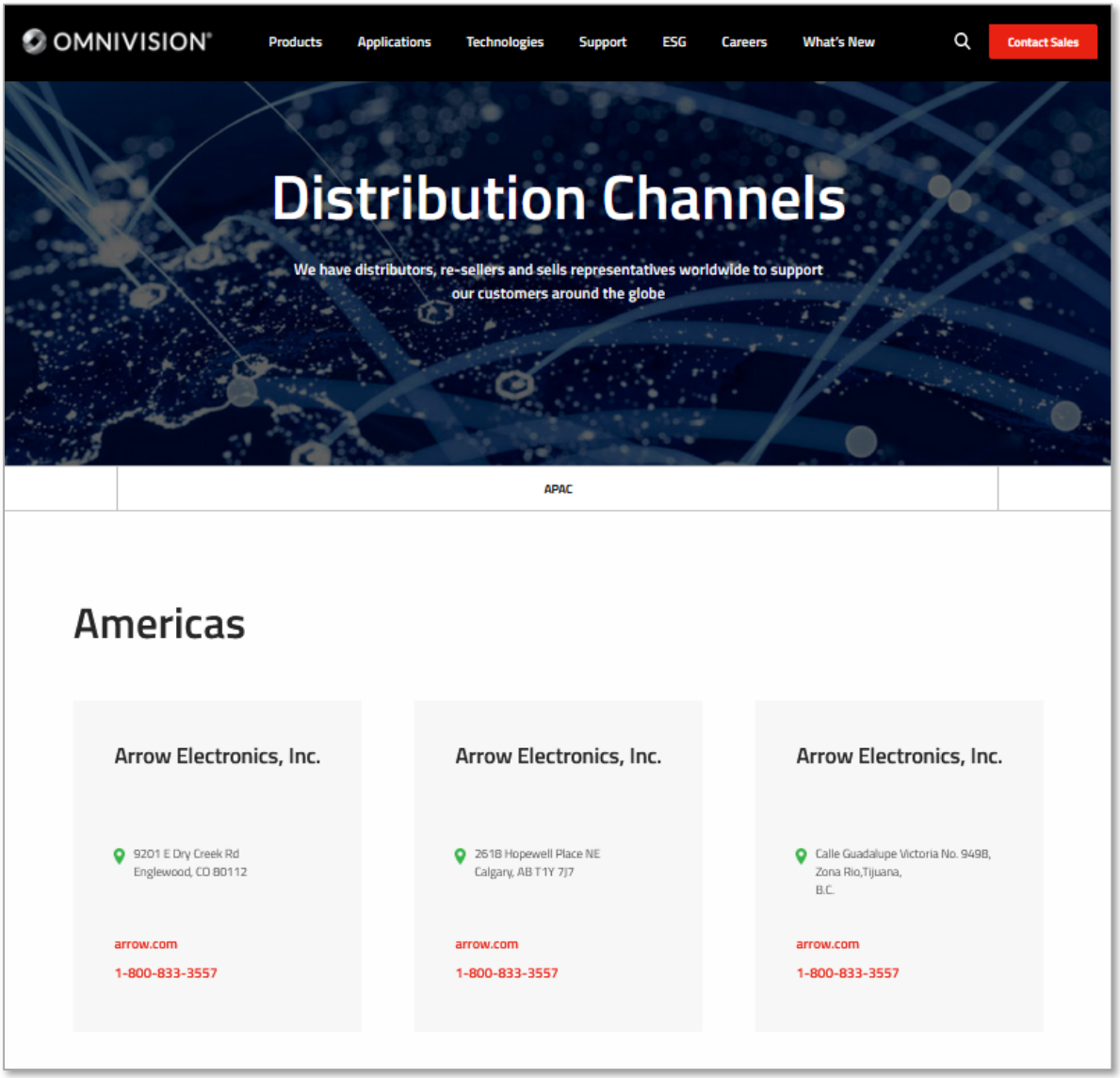


[1] https://www.ovt.com/company/about-us/

[2] https://www.ovt.com/company/contact-us/

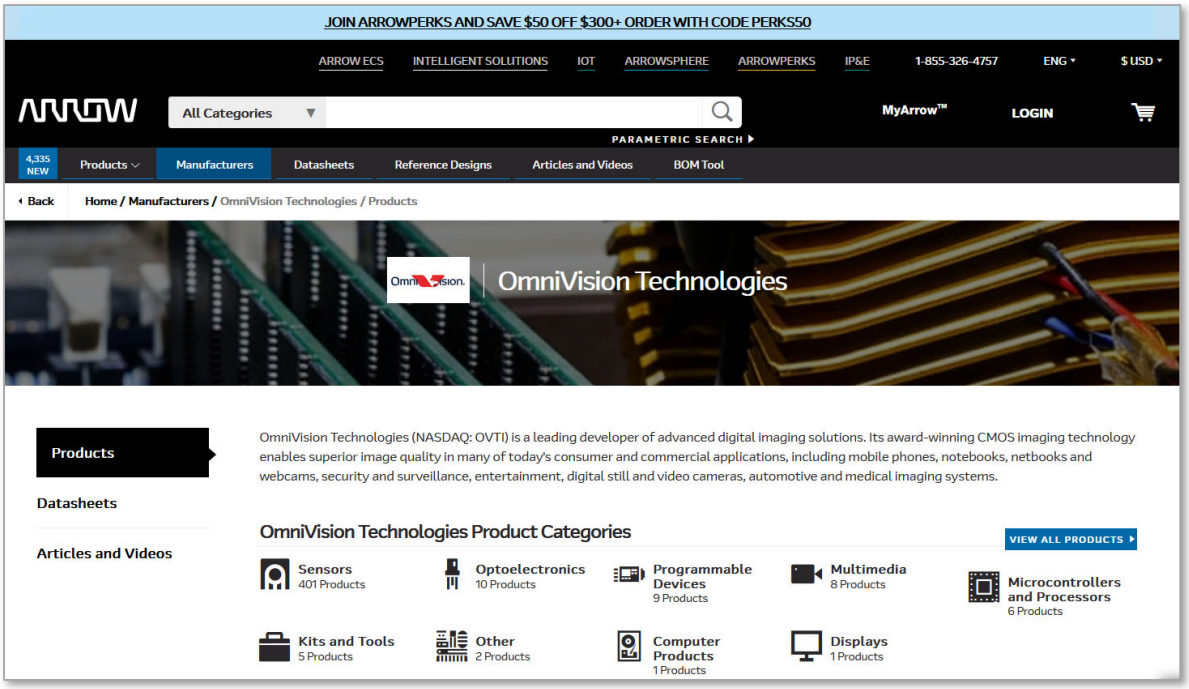
[3] https://www.ovt.com/partners/

10. Further, OmniVision partners with United States authorized distributors to sell OmniVision Accused Products in the United States and directs potential U.S. consumers to purchase OmniVision products through these U.S. distributors and "representatives" on its website.[4]



[4] *See, e.g.,* https://www.ovt.com/contact-sales/distribution-channels; *see also* https://www.arrow.com/en/manufacturers/omnivision-technologies/view-all

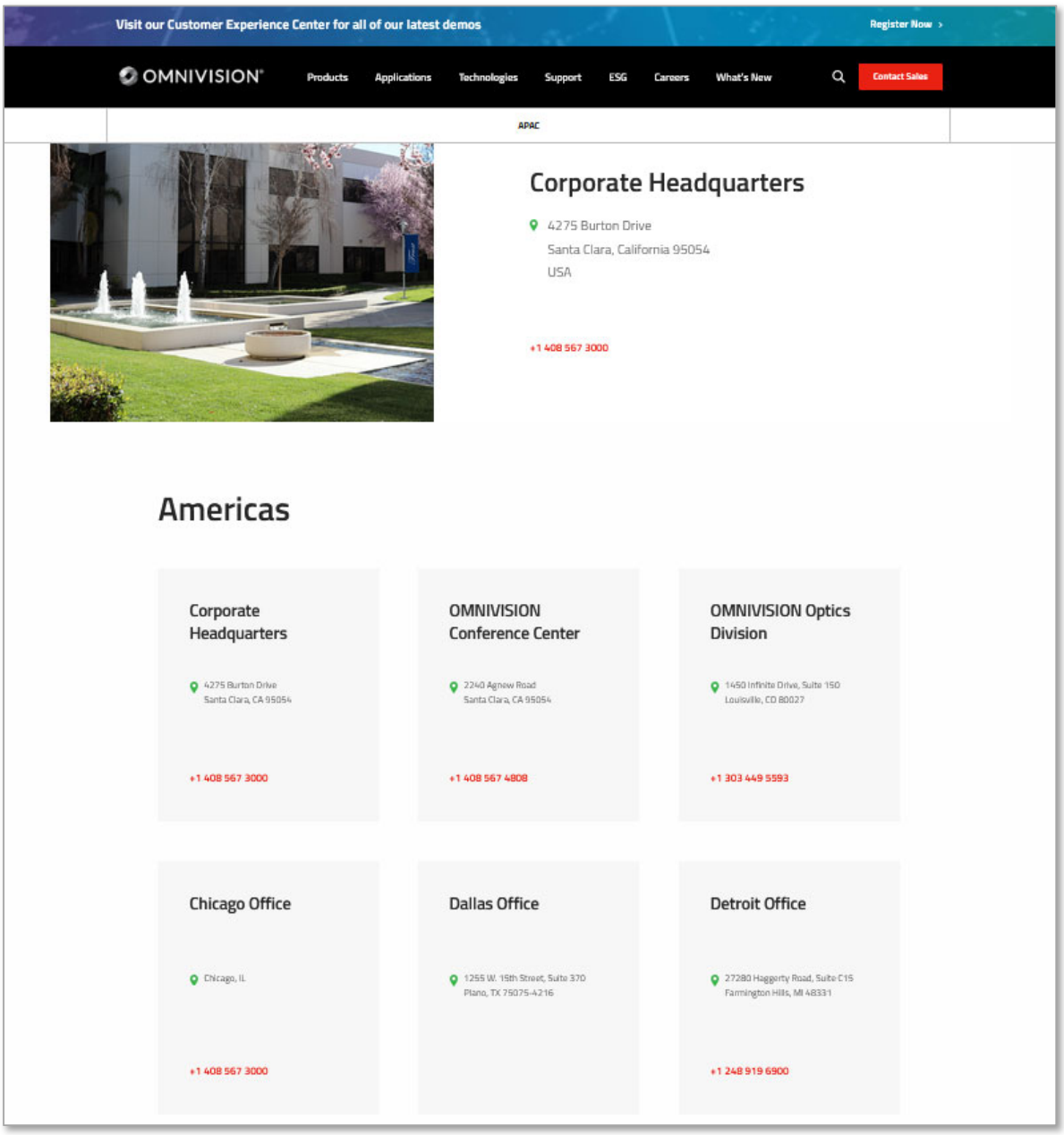
11. OmniVision sells OmniVision Accused Products in the United States through its distributors on OmniVision-branded product pages.



12. OmniVision's U.S.-based employees include personnel responsible for sales of OmniVision Accused Products to the U.S. automotive industry.

13. OmniVision maintains an office in this district at 1255 W. 15th Street, Suite 370 Plano, TX 75075-4216. On information and belief, OmniVision uses its Plano office to serve and make infringing sales of the Accused Products to its customer Texas Instruments Inc. ("Texas Instruments") in this district.[5]

[5] https://www.ti.com/about-ti/company/ti-at-a-glance/manufacturing/richardson.html#more-information



14. Texas Instruments incorporates OmniVision Accused Products into its products, including, on information and belief at Texas Instruments facilities in this district.

15. For example, Texas Instruments markets an "Automotive 1.3-MP Low-Cost Camera Module Reference Design With YUV422, PMIC, FPD-Link III, and POC" which includes

an OmniVision Accused Product, a "1.3-MP OX01F10 image sensor from Omnivision."[6]

Design Guide: TIDA-050050

Automotive 1.3-MP Low-Cost Camera Module Reference Design With YUV422, PMIC, FPD-Link III, and POC

TEXAS INSTRUMENTS

Description

This camera module reference design addresses the need for small low-cost cameras in automotive driver assistance systems (ADAS) by combining a 1.3-megapixel imager with integrated image signal processor (ISP) with a 12-bit, 100-MHz TI FPD-Link III serializer. Additionally, it provides a power-management integrated circuit (PMIC) power supply for both devices in an ultra-small form factor. This design includes a high-speed serial interface to connect a remote automotive camera module to a display or machine vision processing system with a coaxial cable transmitting both data and power. The FPD-Link III SerDes technology used in this reference

Features

- Space-optimized design with integrated power supply that fits on a single 18 mm × 18 mm PCB
- Integrated TPS650320-Q1 power supply includes three step-down converters and LDO to enable high efficiency and low noise supply generation
- P2P compatible power supplies to enable functional safety applications
- Enables camera applications up to 1 MP/60 fps using DS90UB933-Q1
- 1.3-MP OX01F10 image sensor from Omnivision providing HDR YUV422, RGB888, RAW
- Single Rosenberger Fakra coaxial connector for digital video, power, control, and diagnostics

16. For example, Texas Instruments also markets a "Low-Power Wireless Camera Reference Design for Extended Battery Life" stating that it includes an OmniVision Accused Product: "This design utilizes the OmniVision OA7000 to enable secured live video streaming with a resolution of up to 1080p at 48 FPS (1920 × 1080)."[7]

2.2.4 OmniVision® Video Encoder OA7000

This design utilizes the OmniVision OA7000 to enable secured live video streaming with a resolution of up to 1080p at 48 FPS (1920 × 1080). It interfaces with an image sensor over mobile industry processor interface (MIPI). It also allows for low-power consumption, fast and secure boot up, and image processing for advanced video analytics. It has an integrated audio codec for high-quality audio with noise reduction and echo cancellation.

Refer to the OA7000 documentation for more details.

[6] https://www.ti.com/lit/ug/tidubf0/tidubf0.pdf?ts=1683552290038

[7] https://www.ti.com/lit/ug/tiduez4/tiduez4.pdf?ts=1683652725026&ref_url=https%253A%252F%252Fwww.google.com%252F

17. For example, Texas Instruments also markets a "ADAS 8-Channel Sensor Fusion Hub Reference Design With Two 4-Gbps Quad Deserializers" which is "built around … an OmniVision OV2775 imager," which is an OmniVision Accused Product.

> **1.3.10 TIDA-01130**
>
> This reference design frequently makes references to the TIDA-01130 TI Design, which is an automotive 2-megapixel camera module built around a DS90UB953 serializer and an OmniVision OV2775 imager. For more details, see *Automotive 2-MP Camera Module Design with MIPI CSI-2 Video Output Interface and Power Over Coax*.

SUBJECT MATTER JURISDICTION

18. This action arises under the patent laws of the United States, namely 35 U.S.C. §§ 271, 281, and 284-285, among others.

19. This court has subject matter jurisdiction over the patent infringement claims asserted in this case under 28 U.S.C. §§ 1331 and 1338(a).

PERSONAL JURISDICTION AND VENUE

20. This Court has specific personal jurisdiction over Defendant because it has committed acts within this District giving rise to this action (including acts of infringement) and has established minimum contacts with this forum such that the exercise of jurisdiction over Defendant would not offend traditional notions of fair play and substantial justice. Such acts include selling, offering to sell, demonstrating, and marketing OmniVision Accused Products to Texas Instruments in this district.

21. Venue is proper under 28 U.S.C. §§ 1391(b) and 1400(b), because OmniVision has a regular and established place of business in this district, including at 1255 W. 15th Street, Suite 370 Plano, TX 75075-4216 and has committed acts of infringement in this district, including sales to Texas Instruments.

22. This Court has personal jurisdiction over OmniVision in accordance with the Texas Long Arm Statute, Tex. Civ. Prac. & Rem. Code § 17.042, because, among other things, OmniVision has (1) committed acts of infringement in Texas, including, on information and belief, selling, offering to sell, and demonstrating OmniVision Accused Products in Texas, including to Texas Instrument, and (2) recruited Texas residents for employment, including at OmniVision's facility in Plano Texas.

23. "OmniVision Accused Products" are products accused of meeting the claim limitations of a Greenthread Patent in this suit. OmniVision designs, manufactures, sells, and uses semiconductor devices containing transistors and other structures that infringe the Greenthread Patents in the United States.

24. The infringing structures within semiconductor devices identified in Exhibit 8 have application, not only in the product identified in Exhibit 8 (OV24A1Q), but in many types of devices designed and manufactured by OmniVision, including image sensors, ASICs, CameraCubeChip®, LCOS, power management, touch & display, OVMed® ISP, and OVMed® cable module devices.[8] To obtain the benefits of the claimed technology, on information and belief, OmniVision incorporates the infringing structures similar to those described in Exhibit 8 into transistors in its other products, including ASICs, CameraCubeChip®, LCOS, power management, touch & display, OVMed® ISP, and OVMed® cable module devices. The infringement described in Exhibit 8 is therefore exemplary of infringement by transistors in other OmniVision products.

25. Exhibit 8 demonstrates how exemplary OmniVision Accused Products meet the claim limitations of Greenthread Patents and is herein incorporated by reference.

[8] https://www.ovt.com/company/about-us/

THE GREENTHREAD PATENTS

26. On April 16, 2013, the U.S. Patent and Trademark Office duly and legally issued U.S. Patent No. 8,421,195 ("the '195 Patent"), entitled "Semiconductor Devices with Graded Dopant Regions," listing Dr. Mohan Rao as the inventor, from a patent application filed January 12, 2007. The '195 Patent claims priority from U.S. Patent Application No. 10/934,915,[9] filed on September 3, 2004. A true and correct copy of the '195 Patent is attached hereto as Exhibit 1 and incorporated herein by reference.

27. On November 17, 2015, the U.S. Patent and Trademark Office duly and legally issued U.S. Patent No. 9,190,502 ("the '502 Patent"), entitled "Semiconductor Devices with Graded Dopant Regions," listing Dr. Mohan Rao as the inventor, from a patent application filed October 16, 2014. The '502 Patent claims priority from U.S. Patent Application No. 10/934,915,[10] filed on September 3, 2004. A true and correct copy of the '502 Patent is attached hereto as Exhibit 2 and incorporated herein by reference.

28. On December 17, 2019, the U.S. Patent and Trademark Office duly and legally issued U.S. Patent No. 10,510,842 ("the '842 Patent"), entitled "Semiconductor Devices with Graded Dopant Regions," listing Dr. Mohan Rao as the inventor, from a patent application filed on May 9, 2017. The '842 Patent claims priority from U.S. Patent Application No. 10/934,915,[11] filed on September 3, 2004. A true and correct copy of the '842 Patent is attached hereto as Exhibit 3 and incorporated herein by reference.

29. On August 4, 2020, the U.S. Patent and Trademark Office duly and legally issued

[9] Pub. No. US 2006/0049464.

[10] Pub. No. US 2006/0049464.

[11] Pub. No. US 2006/0049464.

U.S. Patent No. 10,734,481 ("the '481 Patent"), entitled "Semiconductor Devices with Graded Dopant Regions," listing Dr. Mohan Rao as the inventor, from a patent application filed on December 17, 2019. The '481 Patent claims priority from U.S. Patent Application No. 10/934,915,[12] filed on September 3, 2004. A true and correct copy of the '481 Patent is attached hereto as Exhibit 4 and incorporated herein by reference.

30. On September 14, 2021, the U.S. Patent and Trademark Office duly and legally issued U.S. Patent No. 11,121,222 ("the '222 Patent"), entitled "Semiconductor Devices with Graded Dopant Regions," listing Dr. Mohan Rao as the inventor, from a patent application filed on July 27, 2020. The '222 Patent claims priority from U.S. Patent Application No. 10/934,915,[13] filed on September 3, 2004. A true and correct copy of the '222 Patent is attached hereto as Exhibit 5 and incorporated herein by reference.

31. On April 26, 2022, the U.S. Patent and Trademark Office duly and legally issued U.S. Patent No. 11,316,014 ("the '014 Patent"), entitled "Semiconductor Devices with Graded Dopant Regions," listing Dr. Mohan Rao as the inventor, from a patent application filed on July 9, 2021. The '014 Patent claims priority from U.S. Patent Application No. 10/934,915,[14] filed on September 3, 2004. A true and correct copy of the '014 Patent is attached hereto as Exhibit 6 and incorporated herein by reference.

32. The '195, '502, '842, '481, '222, and '014 Patents are collectively referred to as the "Greenthread Patents."

33. Greenthread exclusively owns all rights, title, and interest in the Greenthread

[12] Pub. No. US 2006/0049464.

[13] Pub. No. US 2006/0049464.

[14] Pub. No. US 2006/0049464.

Patents necessary to bring this action, including the right to recover past and future damages. Certain of the Greenthread Patents were previously owned by Dr. G.R. Mohan Rao ("Dr. Rao"). On April 27, 2015, Dr. Rao assigned to Greenthread the then-issued Greenthread Patents and all related "continuations, continuations-in-part and extensions of said Applications and Patents and any pending applications or issued patents that directly claim or are amended to claim priority to any of the Applications or Patents." Dr. Rao's assignment was recorded with the U.S. Patent and Trademark Office on May 13, 2015, and again on July 22, 2021, and is attached hereto as Exhibit 7. Greenthread has therefore owned all rights to the Greenthread Patents necessary to bring this action throughout the period of Defendant's infringement and still owns those rights to the Greenthread Patents.

34. Defendant is not currently licensed to practice the Greenthread Patents.

35. The Greenthread Patents are valid and enforceable.

FACTUAL BACKGROUND

36. Dr. G.R. Mohan Rao ("Dr. Rao"), the sole inventor of the Greenthread Patents, has been an innovator in the semiconductor industry since the 1960s. He is a named inventor on more than 100 Patents worldwide and authored numerous technical publications over the last 50 years.

37. In September 1968, Dr. Rao received a Ph.D. in physics with a specialization in electronics from Andhra University in Waltair, India. He then traveled to the United States to attend a graduate program in physics at the University of Cincinnati.

38. After learning of an opportunity to work with Professor William Carr of Southern Methodist University ("SMU"), Dr. Rao transferred to SMU where he earned a Ph.D. in Electrical Engineering. While there, he worked in the SMU laboratory with Jack Kilby of Texas Instruments (a pioneering electrical engineer who would later receive a Nobel Prize for his work), on metal-oxide-silicon transistors ("MOS devices"), which are used for switching and amplifying electronic

signals in electronic devices. MOS devices form the basis of modern electronics and are the most widely used semiconductor devices in the world. The U.S. Patent and Trademark Office has called this device a "groundbreaking invention that transformed life and culture around the world."[15] Dr. Rao built these devices from scratch while a graduate student at SMU.

39. Through his mentor, Jack Kilby, Dr. Rao interviewed with—and was ultimately hired by—Texas Instruments to continue his work on MOS devices in 1972. Dr. Rao worked at Texas Instruments for the next twenty-two years, rising from an engineer to a Senior Fellow. At that time, Texas Instruments had only 12 Senior Fellows out of approximately 20,000 engineers. Eventually, Dr. Rao moved into a management position at Texas Instruments, ultimately becoming a Senior Vice President in 1985.

40. At Texas Instruments, Dr. Rao received his first patent while working in a process and product engineering capacity to solve a production problem with Texas Instruments' 4-kilobit RAM product. That patent was merely the beginning of Dr. Rao's long inventive career. Indeed, from the late 1970s through the mid-1980s, Dr. Rao worked on or managed projects relating to Texas Instruments' 64kb RAM, 256Kb RAM, 1Mb RAM, 4 Mb RAM, EEPROM, SRAM, and microcontrollers. For that work, Dr. Rao received numerous additional U.S. Patents.

41. The USPTO was not the only organization to recognize Dr. Rao's achievements. Some of Dr. Rao's work at Texas Instruments was so remarkable that it has been credited in multiple exhibits in the National Museum of American History at the Smithsonian Institution.[16] For example, the Smithsonian has displayed Texas Instruments' experimental 1-megabit CMOS DRAM, produced in April 1985 under Dr. Rao's leadership, and credited Dr. Rao for the

[15] https://www.uspto.gov/about-us/news-updates/remarks-director-iancu-2019-international-lectual-property-conference
[16] http://smithsonianchips.si.edu/texas/wafer.htm

achievement.[17]

42. In 1994, Dr. Rao left Texas Instruments for Cirrus Logic. During his two-year tenure at Cirrus Logic, he received more U.S. Patents relating to his work on integrated graphics controllers and memory.

43. In 1996, Dr. Rao started a company called Silicon Aquarius. Through a relationship between Silicon Aquarius and Matsushita, Dr. Rao led a design team in working on a 256Mb DRAM chip. After Silicon Aquarius ceased operations, Dr. Rao did consulting work for a number of different consulting companies and devoted much of his free time to thinking about various challenges and problems with which the semiconductor industry had struggled for years.

44. In 2003, Dr. Rao and Philip John founded Greenthread to continue Dr. Rao's

[17] http://smithsonianchips.si.edu/texas/t_360.htm

pioneering work. A focal point of Dr. Rao's research was poor refresh time and the related problem of how to deal with and control the movement of both wanted and unwanted carriers in semiconductor devices, including memory and logic devices. Dr. Rao realized that graded dopants could be used to create a "drift layer" and other structures to facilitate the movement—in an upward or downward direction, as appropriate—of carriers from the semiconductor surfaces down into the substrate and vice versa. It was Dr. Rao's work on this problem that culminated in the Greenthread Patents.

45. Dr. Rao resides in this district.

OMNIVISION'S INFRINGEMENT

46. OmniVision has directly infringed, and continues to infringe, one or more claims of each of the Greenthread Patents through making, using, offering to sell, selling within the United States, and/or importing into the United States semiconductor products, including OV24A1Q, that practice the claimed inventions (*i.e.*, the OmniVision Accused Products). A non-exhaustive, exemplary list of the types or categories of products or devices that infringe are further identified in Exhibit 8.

47. Further, in concert with its authorized distributors and customers, OmniVision causes or induces infringing accused products to be made, used, offered to be sold, sold within the United States, and/or imported into the United States. Omnivision has obtained knowledge of Greenthread's patents and its infringement at least through the filing of this Complaint.

48. As shown in Exhibit 8, the exemplary OmniVision Accused Product, OV24A1Q, meets each and every element of at least one claim of the Greenthread Patents.

49. Upon information and belief, OmniVision fabricates and designs the OmniVision Accused Products using similar designs according to a limited number of processes, many or all

of which utilize substantially similar process steps, including process steps for creating regions with graded dopant concentrations, because the invention would have application in those categories of products, for example by improving switching time in transistors in the OmniVision Accused Products. Upon information and belief, the OmniVision Accused Products are in relevant part substantially similar to the exemplary OV24A1Q shown in Exhibit 8, particularly with regard to the manner in which the exemplary OV24A1Q includes and utilizes regions with graded dopant concentrations. Exhibit 8 is thus illustrative of the manner in which the OmniVision Accused Products meet the claim limitations of the Greenthread Patents.[18]

COUNT I: INFRINGEMENT OF U.S. PATENT NO. 8,421,195

50. Greenthread incorporates by reference and re-alleges all of the foregoing paragraphs of this Complaint and exhibits attached hereto as if fully set forth herein.

51. The following allegations are based on publicly available information and a

[18] This Court already interpreted and adopted Greenthread's claim construction in *Greenthread, LLC v. Samsung Electronics Co., Ltd. et al.*, Case No. 2:19-cv-00147-JRG (E.D. Tex.). *See* Dkt. 67. Multiple other courts have also upheld Greenthread's construction of the Greenthread Patents in related matters. In *Greenthread, LLC v. Intel Corp., et al.*, Case No. 6:22-cv-00105-ADA (W.D. Tex.), the Western District of Texas similarly issued a preliminary claim construction order adopting Greenthread's construction. *See* Dkt. 36-21 in *Greenthread, LLC v. Intel Corp.*, Case No. 3:22-cv-02001-JR (attaching as an exhibit the Western District of Texas's preliminary claim construction order in a status update before the District of Oregon). The claims in this matter against Intel were ultimately severed and transferred to Oregon, and the District of Oregon adopted the Western District of Texas' preliminary claim construction. *See* Dkt. 44 ("The Court also finds that the WDTX's preliminary constructions and summary judgment rulings are neither legally incorrect nor factually distinguishable. As a result, the Court adopts the WDTX's preliminary constructions and summary judgment rulings as its own. . ."). The Western District of Texas also denied Defendants' motions to dismiss and for summary judgment on similar grounds. *See* Dkt. 36-22 in *Greenthread, LLC v. Intel Corp.,* Case no. 3:22-cv-02001-JR (attaching as an exhibit the Western District of Texas' denial of Defendants' motion for summary judgment); Dkt. 110 in *Greenthread LLC v. Intel Corp.*, Case No. 6:22-cv-00105-ADA (W.D. Tex.). The District of Oregon similarly adopted these rulings. *See* Dkt. 44 in *Greenthread, LLC v. Intel Corp.,* Case no. 3:22-cv-02001-JR.

reasonable investigation of the structure and operation of the OmniVision Accused Products. Greenthread reserves the right to modify this description, including, for example, on the basis of information about the OmniVision Accused Products that it obtains during discovery.

52. Defendant's infringement has damaged and continues to damage Greenthread in an amount yet to be determined, of at least a reasonable royalty.

53. As alleged above and in Exhibit 8, the products analyzed in Exhibit 8 meet each and every one of the claim limitations of at least one claim of the '195 Patent.

54. As alleged above, the products analyzed in Exhibit 8 are exemplary of the OmniVision Accused Products.

55. As alleged above, Defendant has infringed and continue to infringe at least one claim of the '195 Patent by making, using, offering to sell, selling within the United States, and/or importing into the United States OmniVision Accused Products.

56. As alleged above, Defendant induces infringement of at least one claim of the '195 Patent by designing and marketing infringing products for sale, use, and importation into the United States.

57. Defendant's infringement has damaged and continues to damage Greenthread in an amount yet to be determined, of at least a reasonable royalty.

COUNT II: INFRINGEMENT OF U.S. PATENT NO. 9,190,502

58. Greenthread incorporates by reference and re-alleges all of the foregoing paragraphs of this Complaint and exhibits attached hereto as if fully set forth herein.

59. The following allegations are based on publicly available information and a reasonable investigation of the structure and operation of the OmniVision Accused Products. Greenthread reserves the right to modify this description, including, for example, on the basis of

information about the OmniVision Accused Products that it obtains during discovery.

60. As alleged above and in Exhibit 8, the products analyzed in Exhibit 8 meet each and every one of the claim limitations of at least one claim of the ’502 Patent.

61. As alleged above, the products analyzed in Exhibit 8 are exemplary of the OmniVision Accused Products.

62. As alleged above, Defendant has infringed and continue to infringe at least one claim of the ’502 Patent by making, using, offering to sell, selling within the United States, and/or importing into the United States OmniVision Accused Products.

63. As alleged above, Defendant induces infringement of at least one claim of the ’502 Patent by designing and marketing infringing products for sale, use, and importation into the United States.

64. Defendant’s infringement has damaged and continues to damage Greenthread in an amount yet to be determined, of at least a reasonable royalty.

COUNT III: INFRINGEMENT OF U.S. PATENT NO. 10,510,842

65. Greenthread incorporates by reference and re-alleges all of the foregoing paragraphs of this Complaint and exhibits attached hereto as if fully set forth herein.

66. The following allegations are based on publicly available information and a reasonable investigation of the structure and operation of the OmniVision Accused Products. Greenthread reserves the right to modify this description, including, for example, on the basis of information about the OmniVision Accused Products that it obtains during discovery.

67. As alleged above and in Exhibits 8, the products analyzed in Exhibit 8 meet each and every one of the claim limitations of at least one claim of the ’842 Patent.

68. As alleged above, the products analyzed in Exhibit 8 are exemplary of the

OmniVision Accused Products.

69. As alleged above, Defendant has infringed and continue to infringe at least one claim of the ’842 Patent by making, using, offering to sell, selling within the United States, and/or importing into the United States OmniVision Accused Products.

70. As alleged above, Defendant induces infringement of at least one claim of the ’842 Patent by designing and marketing infringing products for sale, use, and importation into the United States.

71. Defendant’s infringement has damaged and continues to damage Greenthread in an amount yet to be determined, of at least a reasonable royalty.

COUNT IV: INFRINGEMENT OF U.S. PATENT NO. 10,734,481

72. Greenthread incorporates by reference and re-alleges all of the foregoing paragraphs of this Complaint and exhibits attached hereto as if fully set forth herein.

73. The following allegations are based on publicly available information and a reasonable investigation of the structure and operation of the OmniVision Accused Products. Greenthread reserves the right to modify this description, including, for example, on the basis of information about the OmniVision Accused Products that it obtains during discovery.

74. As alleged above and in Exhibits 8, the products analyzed in Exhibit 8 meet each and every one of the claim limitations of at least one claim of the ’481 Patent.

75. As alleged above, the products analyzed in Exhibit 8 are exemplary of the OmniVision Accused Products.

76. As alleged above, Defendant has infringed and continue to infringe at least one claim of the ’481 Patent by making, using, offering to sell, selling within the United States, and/or importing into the United States OmniVision Accused Products.

77. As alleged above, Defendant induces infringement of at least one claim of the ’481 Patent by designing and marketing infringing products for sale, use, and importation into the United States.

78. Defendant’s infringement has damaged and continues to damage Greenthread in an amount yet to be determined, of at least a reasonable royalty.

COUNT V: INFRINGEMENT OF U.S. PATENT NO. 11,121,222

79. Greenthread incorporates by reference and re-alleges all of the foregoing paragraphs of this Complaint and exhibits attached hereto as if fully set forth herein.

80. The following allegations are based on publicly available information and a reasonable investigation of the structure and operation of the OmniVision Accused Products. Greenthread reserves the right to modify this description, including, for example, on the basis of information about the OmniVision Accused Products that it obtains during discovery.

81. As alleged above and in Exhibit 8, the products analyzed in Exhibit 8 meet each and every one of the claim limitations of at least one claim of the ’222 Patent.

82. As alleged above, the products analyzed in Exhibit 8 are exemplary of the OmniVision Accused Products.

83. As alleged above, Defendant has infringed and continue to infringe at least one claim of the ’222 Patent by making, using, offering to sell, selling within the United States, and/or importing into the United States OmniVision Accused Products.

84. As alleged above, Defendant induces infringement of at least one claim of the ’222 Patent by designing and marketing infringing products for sale, use, and importation into the United States.

85. Defendant’s infringement has damaged and continues to damage Greenthread in an

amount yet to be determined, of at least a reasonable royalty.

COUNT VI: INFRINGEMENT OF U.S. PATENT NO. 11,316,014

86. Greenthread incorporates by reference and re-alleges all of the foregoing paragraphs of this Complaint and exhibits attached hereto as if fully set forth herein.

87. The following allegations are based on publicly available information and a reasonable investigation of the structure and operation of the OmniVision Accused Products. Greenthread reserves the right to modify this description, including, for example, on the basis of information about the OmniVision Accused Products that it obtains during discovery.

88. As alleged above and in Exhibits 8, the products analyzed in Exhibit 8 meet each and every one of the claim limitations of at least one claim of the ’014 Patent.

89. As alleged above, the products analyzed in Exhibit 8 are exemplary of the OmniVision Accused Products.

90. As alleged above, Defendant has infringed and continue to infringe at least one claim of the ’014 Patent by making, using, offering to sell, selling within the United States, and/or importing into the United States OmniVision Accused Products.

91. As alleged above, Defendant induces infringement of at least one claim of the ’014 Patent by designing and marketing infringing products for sale, use, and importation into the United States.

92. Defendant’s infringement has damaged and continues to damage Greenthread in an amount yet to be determined, of at least a reasonable royalty.

DAMAGES

93. As a result of OmniVision’s acts of infringement, Greenthread has suffered and continues to suffer actual and consequential damages. However, Greenthread does not yet know

the full extent of the infringement and the amount of damages cannot be ascertained except through discovery and special accounting. To the fullest extent permitted by law, Greenthread seeks recovery of damages at least for reasonable royalties, unjust enrichment, and benefits received by Defendant as a result of using the patented technology. Greenthread further seeks any other damages to which Greenthread is entitled under law or in equity.

DEMAND FOR JURY TRIAL

94. Greenthread hereby demands a jury trial for all issues so triable.

PRAYER FOR RELIEF

WHEREFORE, Greenthread respectfully requests that this Court enter judgment in its favor as follows:

A. That Judgment be entered that OmniVision has infringed one or more claims of the Greenthread Patents, literally and under the doctrine of equivalents;

B. That, in accordance with 35 U.S.C. § 283, OmniVision and all its affiliates, employees, agents, officers, directors, attorneys, successors, and assigns and all those acting on behalf of or in active concert or participation with any of them, be preliminarily and permanently enjoined from (1) infringing the Greenthread Patents and (2) making, using, selling, and offering for sale, or importing into the United States, the OmniVision Accused Products;

C. An award of damages sufficient to compensate Greenthread for OmniVision's infringement under 35 U.S.C. § 284;

D. That the case be found exceptional under 35 U.S.C. § 285 and that Greenthread be awarded its reasonable attorneys' fees;

E. Costs and expenses in this action;

F. Damages for pre-issuance infringement under 35 U.S.C. § 154(d);

G. An award of prejudgment and post-judgment interest; and

H. Such other and further relief as the Court may deem just and proper.

Dated: May 10, 2023.

MCKOOL SMITH, P.C.

/s/ Alan L. Whitehurst

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