

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

OMNIVISION TECHNOLOGIES, INC.,

Plaintiff,

v.

RE SECURED NETWORKS, LLC,

Defendant.

C.A. No. 24-187-JLH-CJB

JURY TRIAL DEMANDED

**DEFENDANT RE SECURED NETWORKS, LLC'S
ANSWER, DEFENSES, AND AMENDED COUNTERCLAIMS**

Defendant RE Secured Networks, LLC, ("RESN") responds to Plaintiff OmniVision Technologies, Inc.'s ("OmniVision" or "Plaintiff") Complaint as follows:

Each numbered paragraph below responds to the same numbered paragraph in the Complaint. RESN denies each and every allegation in the Complaint that is not expressly admitted below. Any factual allegation admitted below is admitted only as to the specific admitted facts, not as to any purported conclusions, characterizations, implications, or speculations that may arguably follow from the admitted facts. To the extent the allegations in the Complaint purport to characterize the nature or contents of the Exhibits to the Complaint, RESN lacks sufficient knowledge or information to form a belief as to the truth of those allegations and on that basis denies them. RESN denies that Plaintiff is entitled to the relief requested or any other. RESN's specific responses to the numbered allegations in the Complaint are in the below numbered paragraphs as follows.

NATURE OF THE ACTION¹

1. RESN admits that the Complaint purports to allege claims for a declaratory judgment action arising under the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgment Act, 28 U.S.C. §§ 2201 and 2202. RESN further admits that the Plaintiff purports to seek a declaratory judgment of non-infringement, but expressly denies that Plaintiff's claims have merit. RESN denies any remaining allegations in Paragraph 1 of the Complaint.

2. RESN lacks sufficient knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 2 of the Complaint and therefore denies them.

3. RESN denies the allegations in Paragraph 3 of the Complaint.

PARTIES

4. On information and belief, RESN admits the allegations in Paragraph 4 of the Complaint.

5. RESN admits the allegations in Paragraph 5 of the Complaint.

6. RESN admits that it has stated it has offices at 2633 McKinney Ave., Suite 130-740, Dallas Texas, 75204. RESN lacks sufficient knowledge to form a belief as to the truth or falsity of the remaining allegations in Paragraph 6 of the Complaint and therefore denies them.

JURISDICTION AND VENUE

7. RESN admits that OmniVision purports to bring an action for declaratory judgment of non-infringement under the patent laws of the United States 35 U.S.C. § 1, *et seq.*, and the

¹ For ease of reference, RESN incorporates the outline headings used in the Complaint. To the extent such headings make factual allegations, RESN does not adopt or admit such allegations and therefore denies them.

Declaratory Judgment Act, 28 U.S.C. §§ 2201, 2202. RESN denies that it, directly or through any alleged intermediaries, has committed or continues to commit any of the wrongdoing alleged in the Complaint in this or any judicial district. RESN further denies the remaining allegations in Paragraph 7 of the Complaint.

8. RESN admits, for the purposes of this action only, that this Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331, 1337, 1338, 2201, and 2202. RESN denies that it, directly or through any alleged intermediaries, has committed or continues to commit any of the wrongdoing alleged in the Complaint in this or any judicial district. RESN further denies the remaining allegations of Paragraph 8 of the Complaint.

9. RESN admits, for purposes of this action only, that this Court has personal jurisdiction over RE Secured Networks, LLC. RESN further admits that RE Secured Networks, LLC is a Delaware limited liability company. RESN denies that it, directly or through any alleged intermediaries, has committed or continues to commit any of the wrongdoing alleged in the Complaint in this or any judicial district. RESN further denies the remaining allegations of Paragraph 9 of the Complaint.

10. RESN admits that it is a Delaware limited liability company. RESN does not contest that venue over this action is proper in this District. RESN denies that this judicial district is the most convenient venue for this action to be heard. RESN denies that it, directly or through any alleged intermediaries, has committed or continues to commit any of the wrongdoing alleged in the Complaint in this or any judicial district. RESN further denies the remaining allegations of Paragraph 10 of the Complaint.

PATENTS-IN-SUIT

11. RESN admits that what appears to be a copy of U.S. Patent No. 7,323,671 (“the ’671 Patent”) entitled, “Method and Apparatus for Varying a CMOS Sensor Control Voltage,” is attached as Exhibit A to the Complaint. RESN further admits that the ’671 Patent issued on January 29, 2008. RESN further admits that RESN is the current owner of the ’671 Patent. RESN further admits that assignment records at the United States Patent and Trademark Office (“USPTO”) identify RESN as the current owner of the ’671 Patent. RESN further admits that the ’671 Patent lists as inventors Zeynep Toros, Richard Mann, Selim Bencuya, Chi-Shao (Sergi) Lin, and Jiafu Luo.

12. RESN admits that what appears to be a copy of U.S. Patent No. 7,800,145 (“the ’145 Patent”) entitled, “Method and Apparatus for Controlling Charge Transfer in CMOS Sensors with a Transfer Gate Work Function,” is attached as Exhibit B to the Complaint. RESN further admits that the ’145 Patent issued on September 21, 2010. RESN further admits that RESN is the current owner of the ’145 Patent. RESN further admits that assignment records at the USPTO identify RESN as the current owner of the ’145 Patent. RESN further admits that the ’145 Patent lists as inventors Zeynep Toros, Richard Mann and Selim Bencuya.

13. RESN admits that Exhibit C to the Complaint appears to be assignment records from the USPTO pertaining to the ’671 Patent.

14. RESN admits that Exhibit D to the Complaint appears to be assignment records from the USPTO pertaining to the ’145 Patent.

15. RESN admits that OmniVision is and has been on notice that it infringes the ’671 and ’145 Patents, among other RESN patents. RESN denies the remaining allegations in Paragraph 15 of the Complaint.

ACTS GIVING RISE TO THIS ACTION

16. RESN lacks sufficient knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 16 of the Complaint and therefore denies them.

17. RESN lacks sufficient knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 17 of the Complaint and therefore denies them.

18. RESN lacks sufficient knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 18 of the Complaint and therefore denies them.

19. RESN admits that the Asserted Patents were sold to it by way of a July 6, 2022 Purchase Agreement, that RESN is the owner, by assignment of the Asserted Patents and that, with respect to the Asserted Patents, RESN has the right to recover damages for past, present, and future infringement. RESN denies any remaining allegations in Paragraph 19 of the Complaint.

20. RESN lacks sufficient knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 20 of the Complaint and therefore denies them.

21. RESN admits the allegations in Paragraph 21 of the Complaint.

22. RESN admits that on April 29, 2023, Raul Diaz Morales sent an email to Robert Cleary, which included the text “To be clear, RE Secure Network is the sole owner of the entire portfolio. Ona IP is advisor for RE Secure Network to license it. IPwe is no longer involved and is not going to be involved.” RESN further admits that Erich Spangenberg was carbon copied on certain correspondence between Mr. Morales and Mr. Cleary sent after April 29, 2023. RESN denies the remaining allegations in Paragraph 22 of the Complaint.

23. RESN denies that “OmniVision substantively responded to Mr. Morales’ emails, confirming why there is no infringement of the Asserted Patents.” RESN lacks knowledge to form

a belief as to the truth or falsity of the remaining allegations in Paragraph 23 of the Complaint and therefore denies them.

24. RESN admits that on January 30, 2024, Mr. Morales sent an email to Mr. Cleary that included the text “Please let me know when you are free next week (morning your time) to have a call.” RESN further admits that on February 1, 2024, Mr. Morales sent an email to Mr. Cleary with the text “We’d like to present an offer.” RESN denies the remaining allegations in Paragraph 24 of the Complaint.

25. RESN admits that on February 1, 2024, Mr. Spangenberg sent an email to Mr. Cleary and Mr. Morales with the text “Friday works for me”. RESN denies the remaining allegations in Paragraph 25 of the Complaint.

26. RESN lacks sufficient knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 26 of the Complaint and therefore denies them.

27. RESN admits that Mr. Spangenberg was authorized to correspond with OmniVision regarding OmniVision’s infringement of RESN’s patents, but otherwise denies the allegations of Paragraph 27 of the Complaint.

28. RESN admits that OmniVision has and continues to infringe claims of the Asserted Patents, has expressly asserted that OmniVision infringes and continues to infringe claims of the Asserted Patents, and that RESN is on notice as to this infringement. RESN denies the remaining allegations in Paragraph 28 of the Complaint.

COUNT I
(Declaratory Judgment of [Alleged] Non-Infringement of the ’671 Patent)

29. RESN incorporates by reference and restates its responses in the foregoing paragraphs of this Answer as if fully set forth herein.

- 30. RESN denies the allegations in Paragraph 30 of the Complaint.
- 31. RESN denies the allegations in Paragraph 31 of the Complaint.
- 32. RESN denies the allegations in Paragraph 32 of the Complaint.
- 33. RESN denies the allegations in Paragraph 33 of the Complaint.

COUNT II
(Declaratory Judgment of [Alleged] Non-Infringement of the '145 Patent)

34. RESN incorporates by reference and restates its responses in the foregoing paragraphs of this Answer as if fully set forth herein.

- 35. RESN denies the allegations in Paragraph 35 of the Complaint.
- 36. RESN denies the allegations in Paragraph 36 of the Complaint.
- 37. RESN denies the allegations in Paragraph 37 of the Complaint.
- 38. RESN denies the allegations in Paragraph 38 of the Complaint.

PRAYER FOR RELIEF

RESN denies that OmniVision is entitled to any judgment, any of the relief requested in the Complaint's Prayer for Relief, or any other relief against RESN and, therefore, specifically denies Paragraphs (a)-(e) of the Complaint's Prayer for Relief.

DEMAND FOR JURY TRIAL

No response is necessary to OmniVision's demand for trial by jury on all issues so triable. RESN also demands a trial by jury on all counterclaims and issues so triable pursuant to Rule 38(b) of the Federal Rules of Civil Procedure and D. Del. LR 38.1.

DEFENSES

Except as set forth below, RESN has insufficient knowledge or information upon which to form a belief as to whether there may be additional defenses available, and therefore RESN reserves the right to assert such additional defenses based upon subsequently acquired knowledge

or information that becomes available through discovery or otherwise. Without assuming the burden of proof on any matters where that burden rests on OmniVision, RESN asserts the following defenses with respect to the Complaint.

**FIRST DEFENSE
(Failure to State a Claim)**

OmniVision, in the Complaint and each cause of action purportedly alleged therein, OmniVision fails to state a claim upon which relief can be granted.

**SECOND DEFENSE
(Infringement)**

The relief OmniVision seeks is barred because the claims of U.S. Patent Nos. 7,323,671 and 7,800,145 are valid, enforceable, and infringed by OmniVision.

**THIRD DEFENSE
(Limitation on Damages)**

OmniVision is precluded from recovering costs, fees, attorneys' fees, or damages related to this action.

**FOURTH DEFENSE
(Lack of Standing)**

OmniVision is precluded from recovering because any purported damages are not traceable to RESN's conduct.

RESERVATION OF ALL AFFIRMATIVE DEFENSES

RESN reserves the right to rely upon any other matter constituting an avoidance or affirmative defense as set forth in Rule 8(c) of the Federal Rules of Civil Procedure. RESN further reserves the right to seek leave to amend this Answer to add to, amend, withdraw, or modify these defenses as its investigation continues and as a result of discovery proceedings in this action.

RESN'S AMENDED COUNTERCLAIMS FOR PATENT INFRINGEMENT

NATURE OF THE ACTION

1. Counterclaim Plaintiff RE Secured Networks LLC ("RESN"), by and through its undersigned counsel, files these amended counterclaims ("Counterclaims") against Counterclaim Defendant OmniVision Technologies, Inc. ("OmniVision" or "Counterclaim Defendant").

2. This action arises under the patent laws of the United States, 35 U.S.C. § 1, *et seq.*, from OmniVision's infringement of United States Patent No. 7,323,671 (the "'671 Patent"), United States Patent No. 7,800,145 (the "'145 Patent"), United States Patent No. 6,838,651 (the "'651 Patent"), and United States Patent No. 7,495,274 (the "'274 Patent") (collectively, the "Counterclaim Asserted Patents").

THE PARTIES

3. RESN is a Delaware limited liability company with offices at 2633 McKinney Ave., Suite 130-740, Dallas, Texas 75204.

4. RESN is the sole and exclusive rightful owner of the Counterclaim Asserted Patents and holds, *inter alia*, the sole and exclusive right to sue and collect damages for past infringement.

5. Upon information and belief, and based on its averments above, OmniVision is a company organized and existing under the laws of the State of Delaware, with a principal place of business at 4275 Burton Drive, Santa Clara, California 95054.

JURISDICTION AND VENUE

6. This Court has federal question jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338(a) because this action involves a claim arising under the Patent Laws of the United States, 35 U.S.C. § 1, *et seq.*

7. The Court has personal jurisdiction over OmniVision at least because OmniVision is a Delaware corporation.

8. Venue is proper in this judicial district for OmniVision, pursuant to 28 U.S.C. §§ 1400 and 1391(b) and (c), because OmniVision has committed acts of infringement in this judicial district—including selling and distributing infringing products—and because OmniVision resides in the State of Delaware.

THE COUNTERCLAIM ASSERTED PATENTS

9. The '671 Patent, entitled "METHOD AND APPARATUS FOR VARYING A CMOS SENSOR CONTROL VOLTAGE," was lawfully issued by the United States Patent and Trademark Office on January 29, 2008. A true and correct copy of the '671 Patent is attached as Exhibit 1.

10. The '671 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

11. RESN is the owner, by assignment of the '671 Patent, including the right to bring action for and recover damages for past infringement.

12. The '145 Patent, entitled "METHOD AND APPARATUS FOR CONTROLLING CHARGE TRANSFER IN CMOS SENSORS WITH A TRANSFER GATE WORK FUNCTION," was lawfully issued by the United States Patent and Trademark Office on September 21, 2010. A true and correct copy of the '145 Patent is attached as Exhibit 2.

13. The '145 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

14. RESN is the owner, by assignment of the '145 Patent, including the right to bring action for and recover damages for past infringement.

15. The '651 Patent, entitled "HIGH SENSITIVITY SNAP SHOT CMOS IMAGE SENSOR," was lawfully issued by the United States Patent and Trademark Office on January 4, 2005. A true and correct copy of the '651 Patent is attached as Exhibit 3.

16. The '651 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

17. RESN is the owner, by assignment of the '651 Patent, including the right to bring action for and recover damages for past infringement.

18. The '274 Patent, entitled "METHOD AND APPARATUS FOR CONTROLLING CHARGE TRANSFER IN CMOS SENSORS WITH A GRADED TRANSFER-GATE WORK-FUNCTION," was lawfully issued by the United States Patent and Trademark Office on February 24, 2009. A true and correct copy of the '274 Patent is attached as Exhibit 4.

19. The '274 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

20. RESN is the owner, by assignment of the '274 Patent, including the right to bring action for and recover damages for past infringement.

FACTUAL ALLEGATIONS

Introduction

21. This case involves innovative technology related to CMOS image sensors that power all mobile phone and laptop cameras today, along with cameras used in medical imaging systems, internet of things devices, drones, automotive systems, and surveillance cameras.

22. In June 2003, ESS Technology, Inc. ("ESS") acquired Pictos Technologies, Inc., a California company, from Conexant Systems, Rockwell's successor. This acquisition included Pictos's digital imaging technology and research. At the time, Pictos developed and supplied image

processors, CMOS image sensors, camera modules and embedded software throughout the U.S. marketplace. Pictos's consumer products included one of the world's smallest VGA color sensors, CMOS imaging sensors and modules, as well as the fastest click-to-click, high performance low power image processors that supported multiple digital output formats.

23. As part of its research and development, ESS continued to develop and build upon Pictos' innovations. For example, ESS developed testing methodologies, methods, and equipment that allowed practitioners of the technology to fine tune their digital cameras so that colors, exposure, white balance, and other imaging criteria could be set to exact standards.

24. ESS was incredibly successful in gaining acceptance of its new digital imaging technology by manufacturers. By the fourth quarter of 2003, driven by tripled revenues in camera phones, ESS and Pictos had increased revenues more than 75% over the prior year.

25. In 2008, as a part of the separation of its operating businesses and its licensing businesses, ESS rolled this technology and innovation into Imperium IP Holdings (Cayman), Ltd. ("Imperium"). Through mergers and related agreements ESS assigned all of its patents and trade secrets to Imperium. Imperium IP Holdings became a Delaware corporation named Pictos Technologies Inc. in late 2019. In June of 2022, Pictos Technologies Inc. assigned the Asserted Patents to RESN.

26. The Asserted Patents have been licensed by some of the world's largest technology companies, confirming their valuation and the Pictos/ESS innovation that underlie them.

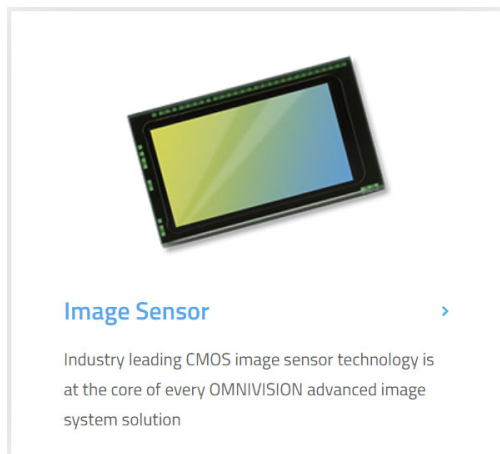
27. To date, OmniVision has refused to license the Counterclaim Asserted Patents despite there being extensive pre-suit negotiations and pre-suit notice of its infringement. Instead of taking a license to the patents, OmniVision has continued to infringe, including by launching

knew accused products while being aware of the patents-in-suit and its alleged infringement thereof.

OmniVision's Accused Products

28. Upon information and belief, OmniVision is an American subsidiary of the Chinese semiconductor and circuit company Will Semiconductor. OmniVision makes and sells digital imaging products for use in applications such as smartphones, laptops, surveillance cameras, webcams, automotive systems, and medical imaging systems.

29. OmniVision's products include image sensors. According to OmniVision's website, "[i]ndustry leading CMOS image sensor technology is at the core of every OMNIVISION advanced image system solution." (See, e.g., Exhibit 10, <https://ovt.com/products/>.)



30. OmniVision's website lists various image sensor products (Exhibit 11, <https://www.ovt.com/products/#image-sensor>) including, for example, the "PureCel" OmniVision product families such as OV24A and OV24B, and the "OmniBSI" OmniVision product families such as OV5640. (See *id.*; see also, e.g., Exhibits 12-14, <https://www.ovt.com/products/ov24b/>; <https://www.electronicsforu.com/news/color-cmos-24-megapixel-image-sensor-purecel-plus-s->

technology; <https://www.ovt.com/press-releases/omnivision-launches-optimized-quarter-inch-5-megapixel/>).

31. A non-limiting list of other PureCel OmniVision products include OG01A1B, OG01H1B, OG05B1B, OG09A10, OG0TB, OG0VA1B-A25A, OG0VA1B-GA5A, OH01A10, OH02A10, OH02A1S, OH02B10, OH02B20, OH08A, OH08B, OH0FA10, OH0TA10, OS02C10, OS02H10, OS04A10, OS04C10, OS04D10, OS04E10, OS05A10, OS05A20, OS05B, OS08A10, OS08A20, OS08C10, OS12D40, OV01A, OV2732, OV2736, OV2740, OV2744, OV02C, OV02E, OV02K, OV5675, OV5678, OV05C10, OV8856, OV08858-G04A, OV08X, OV09734-H16A-2A, OV09738-GA5A-Z, OV12895-C61A, OV12895-GA5A, OV12A, OV12D, OV13A10, OV13B, OV16A10-GA5A-Z, OV16E10, OV24B, OV32A, OV32B, OV32C, OV48B, OV48C, OV50A, OV50D, OV50E, OV50H, OV50K40, OV60A, OV64A, OV64B, OV64C, OVA0B, OVB0A, OVB0B, OX01E10-B58Y-1C-Z, OX01E10-E48Y-1D-Z, OX01E20, OX01F10, OX01H1B, OX01J10, OX02C1S, OX03C10, OX03D4C-E55Y-001A-Z, OX03F10, OX03J10, OX05B, OX05D10, OX08A4Y-B86U-1A-Z, OX08B40, OX08B4C-B86U-001A-Z, OX08D10.

32. A non-limiting list of other OmniBSI OmniVision products include OV10640, OV10642, OV10650, OV10652, OV2718, OV2775, OV2778, OV4686, OV4688, OV6946, OV6948, OV7695, OV8865, OV9674, OV9716, OX01B40, OX01D10, OX03A10.²

² The non-limiting list of other OmniBSI OmniVision products is also identified in RESN's Initial Disclosures Identifying Accused Products and the Asserted Patents, dated August 5, 2024.

33. As confirmed by OmniVision's product literature, the PureCel products, such as the OV24A and OV24B, and the OmniBSI products, such as the OV5640, are CMOS image sensor products:

New 24-Megapixel Sensor Family Brings Smaller Pixel Size and Higher Resolution to Next-Generation Mobile Selfie and Main Camera Applications

SANTA CLARA, Calif. — Jan. 3, 2018 — OMNIVISION Technologies, Inc., a leading developer of advanced digital imaging solutions, today introduced the 24-megapixel (MP) OV24A sensor family, built on the **PureCel®Plus stacked die architecture**. These are OMNIVISION's first 0.9-micron pixel sensors, enabling high-performance rear- and front-facing smartphone cameras with high-resolution images and advanced features.

OMNIVISION's **PureCel®Plus stacked die 0.9-micron pixel** leverages multiple generations of advanced pixel technologies to match the latest 1.0-micron pixel quantum-efficiency performance. This enables higher-resolution pictures and video in a compact form factor.

The OV24A sensor family consists of three individual products: the **OV24A1Q**, **OV24A1B** and **OV24A10**. All three versions of the OV24A sensors can support phase-detection autofocus. The **OV24A1Q**, with its unique 4-cell color filter pattern, is ideal for front-facing camera applications. This sensor has an on-chip, in-pixel binning feature that captures four times more light photons than a regular 0.9-micron pixel. The result is higher image quality in low-light conditions. Additionally, an application can recover an image to full 24MP resolution, when paired with OMNIVISION's software solution.

(Exhibit 5, [OMNIVISION's First 0.9 Micron Pixel Image Sensor Family Enables Best-in-Class Performance and Features for High-End Smartphones | OMNIVISION \(ovt.com\)](#))

2 system level description

2.1 overview

The OV5640 (color) image sensor is a low voltage, high-performance, 1/4-inch 5 megapixel CMOS image sensor that provides the full functionality of a single chip 5 megapixel (2592x1944) camera using OmniBSI™ technology in a small footprint package. It provides full-frame, sub-sampled, windowed or arbitrarily scaled 8-bit/10-bit images in various formats via the control of the Serial Camera Control Bus (SCCB) interface.

The OV5640 has an image array capable of operating at up to 15 frames per second (fps) in 5 megapixel resolution with complete user control over image quality, formatting and output data transfer. All required image processing functions, including exposure control, gamma, white balance, color saturation, hue control, defective pixel canceling, noise canceling, etc., are programmable through the SCCB interface or embedded microcontroller. The OV5640 also includes a compression engine for increased processing power. In addition, OmniVision image sensors use proprietary sensor technology to improve image quality by reducing or eliminating common lighting/electrical sources of image contamination, such as fixed pattern noise, smearing, etc., to produce a clean, fully stable, color image.

The OV5640 has an embedded microcontroller, which can be combined with an internal autofocus engine and programmable general purpose I/O modules (GPIO) for external autofocus control. It also provides an anti-shake function with an internal anti-shake engine. For identification and storage purposes, the OV5640 also includes a one-time programmable (OTP) memory.

The OV5640 supports both a digital video parallel port and a serial MIPI port.

(Exhibit 15, OV5640 Datasheet, at 2-1.)

34. OmniVision further describes the PureCel Accused Products, such as the OV24A, as “image sensors” that are “an ideal camera solution for front- and rear-facing camera applications in high-end smartphones.” (OV24A10 24-megapixel product brief, attached hereto as Exhibit 6.)

35. As discussed below, OmniVision image sensors, including at least the PureCel OmniVision products (as exemplified by the OV24A and OV24B) and the OmniBSI OmniVision products (as exemplified by the OV5640), infringe the ’145, ’671, and ’274 Patents (the “’671 Accused Products” or “’145 Accused Products” or “’274 Accused Products”).³

36. OmniVision also makes and sells “Color Interpolation” product families, including, but not limited to, OH02A10, OS02C10, OS02H10, OS05A10, OS05A20, OS08A10, OS08A20, OV01A, OV2718, OV2732, OV2735, OV2740, OV2775, OV2775ARDS, OV02K, OV4688, OV4689, OV5675, OV6922, OV6930, OV6946, OV6948, OV7675, OV7676, OV7695, OV7955, OV7957, OV8856, OV08858-G04A, OV8865, OV09623-N29A, OV09674-N78A, OV09716-E66Y-1G, OV09718-A49A-Z, OV09724-A28A, OV09724-G04A, OV9732, OV09734-H16A-2A, OV09740-A46A, OV09740-G04A, OV09750-H55A, OV09760-G04H, OV09762-G04A, OV09762-G05A, OV09770-G04A, OV09782-GA4A, OV10626-N02V-PE-Z, OV10633-C96A-1H, OV10635-N29Y-PB, OV10640-N79Y-PF, OV10640-N79Y-RF, OV10650-E85Y-1D, OV12895-C61A, OV12895-GA5A, OV12D, OV13A10, OV13B, OV16A10-GA5A-Z,

³ To be clear, the PureCel and OmniBSI image sensors are exemplary, illustrative categories of infringing products. RESN has identified additional products that infringe the ’145, ’671, and ’274 Patents in RESN’s Initial Disclosures Identifying Accused Products and the Asserted Patents, dated August 5, 2024. Further, RESN anticipates it will identify additional products that infringe the ’145, ’671, and ’274 Patents as discovery progresses and in accordance with the applicable Federal Rules, Court orders, and Local Rules of the United States District Court for the District of Delaware.

OV16E10, OV24B, OV32A, OV48C, OV64C, OVB0A, OX01J10, OX02A10-E85Y-LD, OX03A10-B83Y-1E, OX03A10-E80Y-1E, OX03J10, OX05D10, OX08D10.

37. As discussed below, OmniVision image sensors, including at least the “Color Interpolation” image sensors (as exemplified by the OV9656), infringe the ’651 Patent (“the ’651 Accused Products”).⁴

OmniVision’s Willful Acts of Infringement

38. OmniVision has infringed and continues to infringe on RESN’s valuable and proprietary intellectual property, including at least the Counterclaim Asserted Patents. OmniVision is using RESN’s patented technology without a license or RESN’s permission.

39. Upon information and belief, OmniVision has been aware of the Counterclaim Asserted Patents for at least ten years.

40. For example, the ’671 Patent was cited during prosecution of U.S. Patent No. 9,967,504, which is on its face assigned to OmniVision Technologies, Inc., and which issued on May 8, 2018.

41. The publication of Appl. No. 11/026,582 (US20060146157A1), which issued as the ’145 Patent, is cited by U.S. Patent No. 8,139,130, which issued on March 20, 2012 and on its face is assigned to OmniVision.

⁴ The Color Interpolation image sensors are an exemplary, illustrative category of infringing products. RESN has identified additional products that infringe the ’651 Patent in RESN’s Initial Disclosures Identifying Accused Products and the Asserted Patents, dated August 5, 2024. Further, RESN anticipates it will identify additional products that infringe this patent as discovery progresses in accordance with the applicable Federal Rules, Court orders, and Local Rules of the United States District Court for the District of Delaware.

42. As another example, and attached hereto as Exhibit 7, on March 6, 2023, Raul Morales provided claim charts to Robert Clearly, OmniVision's General Counsel, mapping OmniVision's products to claims from each of the Counterclaim Asserted Patents:

From: Raul DM [<mailto:raul@ona-ip.com>]
Sent: Monday, March 6, 2023 6:26 AM
To: Robert Clearly <robert.clearly@ovt.com>
Cc: Erich Spangenberg <erich@ipwe.com>
Subject: Pictos Portfolio

[CAUTION]: EXTERNAL EMAIL

Robert—

Hope this email finds you well.

I wanted to reach back out to you to provide new evidence of use, as discussed during our last call a few months ago –see attached. These represent a re-work of the claim charts that have been previously shared with you for patents US7323671B1, US7800145B2 and US6838651B1.

As you can see, the attached provide more detail in the relations between every feature of each patent's main claim and OVT's products. They also focus on specific architectures implemented by multiple products –e.g., US'671 and US'145 to all PureCel@Plus-S stacked architecture products.

We are looking forward to resuming our discussion as soon as you've had the chance to review.

Best regards,
Raul

43. OmniVision's actions amount to at least objective reckless infringement of a valid patent and this objective risk was known as to all Counterclaim Asserted Patents.

COUNTERCLAIM I – INFRINGEMENT OF THE '671 PATENT

44. RESN repeats, re-alleges, and incorporates by reference the allegations contained in all preceding paragraphs of these Counterclaims as if set forth herein.

45. The '671 Patent is valid and enforceable.

46. RESN owns the entire right, title, and interest to the '671 Patent.

47. OmniVision has directly infringed and continues to directly infringe at least claim 1 of the '671 Patent—both literally and under the doctrine of equivalents—by making, using, selling, and/or offering for sale products that embody the inventions disclosed in the '671 Patent, including the PureCel Accused Products, as exemplified by the OV24A and OV24B.

48. Claim 1 of the '671 Patent reads as follows:

1. An image sensor integrated circuit, comprising:

a plurality of photodetectors generating electrons excited by incident photons;

a plurality of nodes, wherein each of the plurality of photodetectors has a corresponding node of the plurality of nodes;

a plurality of transfer devices controlling a transfer of the electrons from said each of the plurality of photodetectors to the corresponding node, the transfer depending on a control signal applied to the plurality of transfer devices;

a plurality of reset devices, wherein each of the plurality of nodes has a corresponding reset device of the plurality of reset devices, and said each of the plurality of nodes is reset when the corresponding reset device is active;

row and column circuitry;

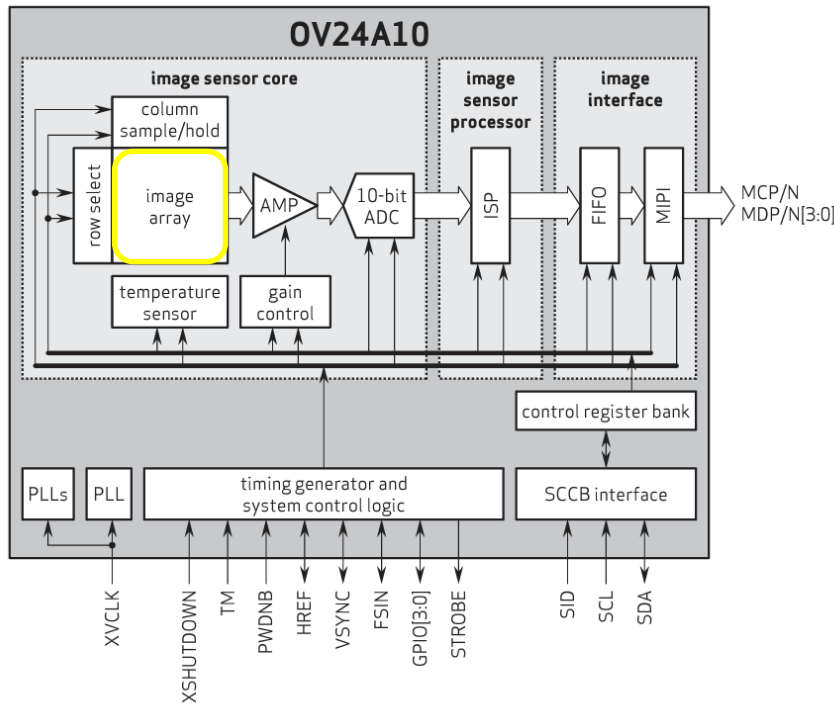
a plurality of signal devices coupling the plurality of nodes to the row and column circuitry; and

variable voltage circuitry including a voltage selector determining a control voltage of the control signal applied to the plurality of transfer devices.

49. As described above, the '671 Accused Products are CMOS image sensors. Moreover, to the extent the claim's preamble is limiting, the '671 Accused Products are integrated circuits. (*See, e.g.*, OV24A Product Brief, attached as Exhibit 6, referring to the sensor as having "on-chip" features.)

50. The '671 Accused Products, as exemplified by OV24A, include "a plurality of photodetectors generating electrons excited by incident photons." These products are image sensors that use CMOS technology (i.e., photodiode technology). *See, e.g.*, the below OV24A10 product brief Functional Block Diagram showing an "image array."

Functional Block Diagram



(Exhibit 6, emphasis added.)

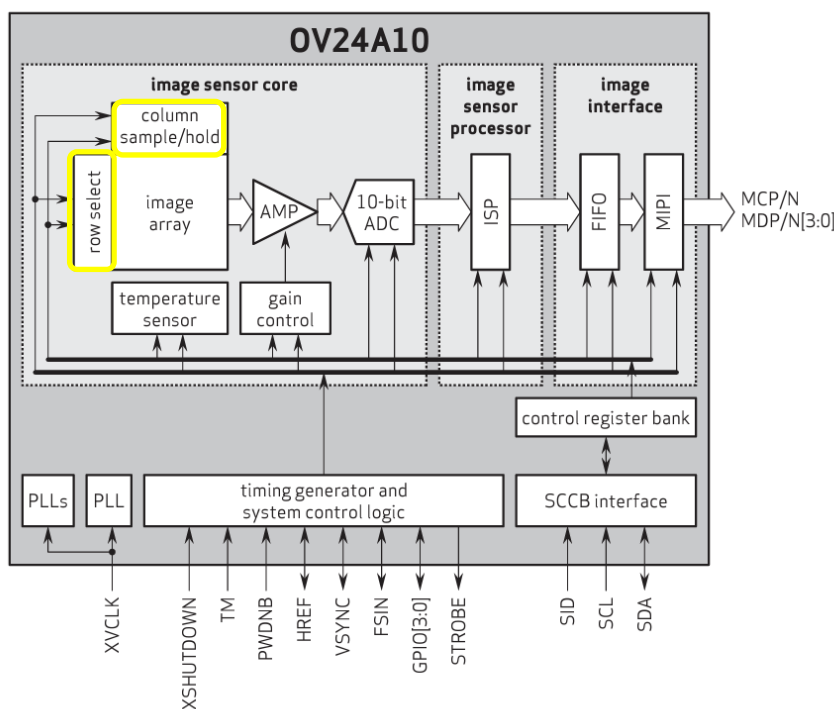
51. Similarly, the '671 Accused Products include “a plurality of nodes, wherein each of the plurality of photo detectors has a corresponding node of the plurality of nodes” and “a plurality of transfer devices controlling a transfer of the electrons from said each of the plurality of photodetectors to the corresponding node.” As one example, the OV24A10Q image sensor has clusters of four photodetectors, where four photodetectors are connected to a shared readout connected to corresponding nodes through corresponding transfer gates.

52. In the '671 Accused Products, the transfer may depend on, for example, a “control signal” applied to the plurality of transfer devices. For example, a transfer signal can be applied to a transistor connected to a photodetector, thereby controlling the transfer of charge from the photodetector.

53. The '671 Accused Products also have a plurality of reset devices, wherein each of the plurality of nodes has a corresponding reset device of the plurality of reset devices, and said each of the plurality of nodes is reset when the corresponding reset device is active. In the OV24A1Q, for example, each node is coupled with a reset device that resets the node in the active state.

54. The '671 Accused Products have row and column circuitry; and a plurality of signal devices coupling the plurality of nodes to the row and column circuitry. *See, e.g.*, “row select” and “column sample/hold” below:

Functional Block Diagram

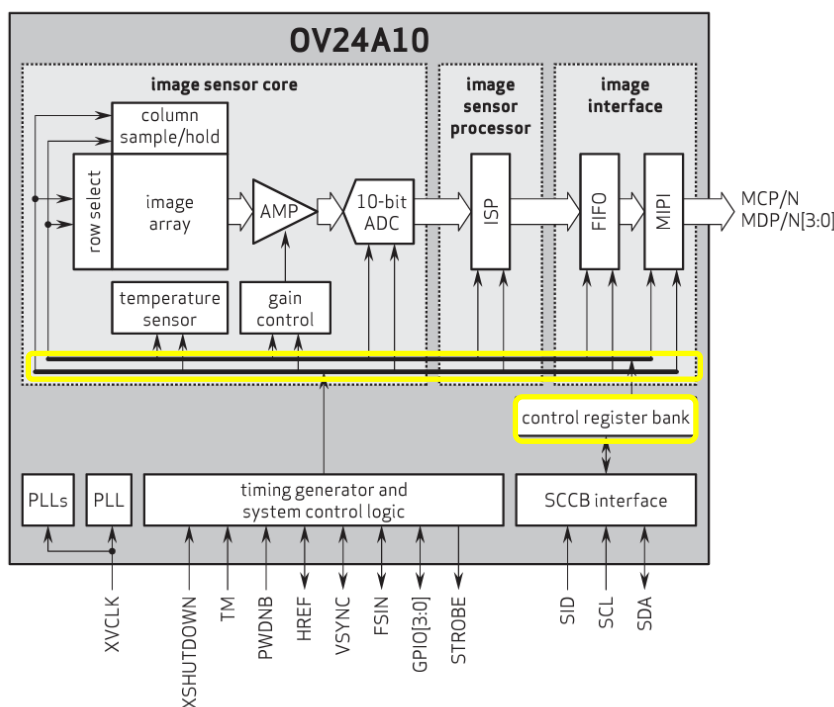


(Exhibit 6, emphasis added.)

55. Finally, the '671 Accused Products include variable voltage circuitry including a voltage selector determining a control voltage of the control signal applied to the plurality of

transfer devices. For example, the Functional Diagram confirms that the OV24A10 product includes a “control register bank” that is connected to the image sensor core.

Functional Block Diagram



(Exhibit 6, emphasis added.)

56. In its Complaint, the only claim limitation OmniVision disputes is an alleged lack of “variable voltage circuitry including a voltage selector determining a control voltage.” OmniVision alleges the OV24A series image sensors do not include this functionality but provides no further explanation. (See Complaint ¶ 31.) But upon information and belief, the ’671 Accused Products control the control voltage through signals sent to control circuitry. See, e.g., the below timing diagram showing the TG control signal.

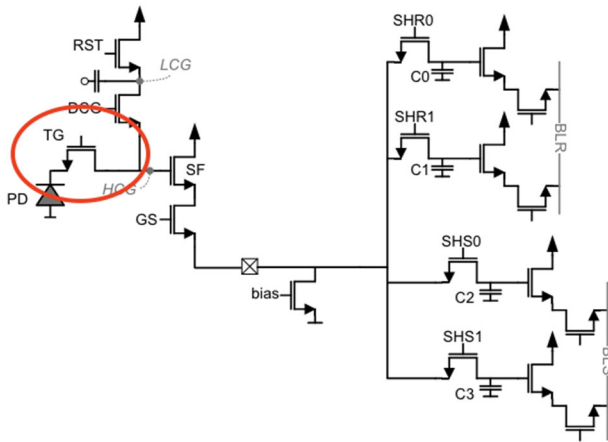


Figure 2: Pixel Schematic of the dual storage VDGS pixel

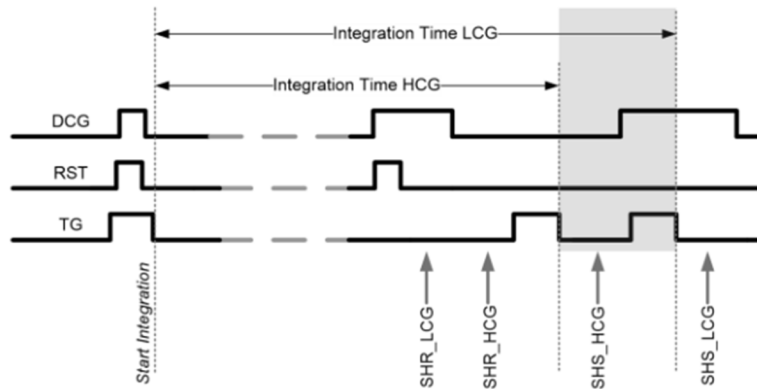


Figure 3 DCG Timing Diagram

(Cremers, Bart et al., “A 5MPixel Image Sensor with a 3.54 um dual Storage Global Shutter Back-Side Illuminated Pixel with 9bB DR,” at 1-2, attached hereto as Exhibit 9, emphasis added).

57. As shown above, OmniVision’s product documentation confirms there is a control plane for the control logic in the circuitry. And the voltage applied to the plurality of transfer devices can be adjusted, e.g., to adjust the transfer device’s characteristics and performance and/or to account for variations in the fabrication process or to allow for other manufacturing tolerances.

58. OmniVision also indirectly infringes and continues to infringe at least claim 1 of the '671 Patent with knowledge of or being willfully blind to the fact that its actions constitute infringement. On information and belief, OmniVision has had knowledge of or was willfully blind to the '671 Patent and that its actions constitute infringement as described above.

59. OmniVision has induced and continues to induce infringement of the '671 Patent by providing information and instruction on using its products in an infringing manner evidenced at least by: (1) marketing and sales materials provided to its customers and potential customers through its website and its other marketing activities; and (2) the instructions and information contained in OmniVision's product guides and instructional materials. OmniVision has known its activities are inducing infringement including because RESN informed OmniVision of its infringement with detailed claim charts.

60. OmniVision has contributed to direct infringement of the '671 patent by others by manufacturing, marketing, and selling at least the Accused Products, which are especially made for infringing use, which have no substantial non-infringing use, with the knowledge that such use is infringing, and with the knowledge that these products are material parts of such infringing uses.

61. Despite its knowledge of the '671 Patent, OmniVision infringed and continues to infringe the patent. Accordingly, OmniVision's infringement has been willful.

62. As a result of OmniVision's infringement of the '671 Patent, RESN has suffered and continues to suffer irreparable harm for which it has no adequate remedy at law. Unless enjoined by this Court, OmniVision's infringement will continue, resulting in further irreparable harm to RESN.

63. RESN is entitled to recover damages from OmniVision not less than a reasonable royalty adequate to compensate for the infringement.

64. OmniVision's unlawful actions have caused, and will continue to cause, RESN irreparable harm to its business and reputation unless enjoined.

COUNTERCLAIM II – INFRINGEMENT OF THE '145 PATENT

65. RESN repeats, re-alleges, and incorporates by reference the allegations contained in all preceding paragraphs of these Counterclaims as if fully set forth herein.

66. The '145 Patent is valid and enforceable.

67. RESN owns the entire right, title, and interest to the '145 Patent.

68. OmniVision has directly infringed and continues to directly infringe at least claim 1 of the '145 Patent—both literally and under the doctrine of equivalents—by making, using, selling, and/or offering for sale products that embody the inventions disclosed in the '145 Patent, including the '145 Accused Products, as exemplified by the OV24A and OV24B.

69. Claim 1 of the '145 Patent reads as follows:

1. An image sensor integrated circuit, comprising:

a plurality of photodetectors generating electrons excited by incident photons;

a plurality of nodes, wherein each of the plurality of photo detectors has a corresponding node of the plurality of nodes;

a plurality of transfer devices controlling a transfer of the electrons from said each of the plurality of photodetectors to the corresponding node, each of the plurality of transfer devices including:

a first terminal coupled to one of the plurality of photodetectors;

a second terminal coupled to one of the plurality of nodes; and

a body between the first terminal and the second terminal; and

a control terminal electrically coupled to the body, wherein the transfer of the electrons occurs through the body between the first terminal and the second terminal in response to a control voltage of sufficient value applied to the control terminal, and in an absence of the control voltage the control terminal creates an electric field tending to repel the electrons from a portion of the body by the control terminal;

a plurality of p-type regions having a concentration stronger than a background p-type concentration of the plurality of transfer devices, wherein each of the plurality of p-type regions has a lateral position only partly under the control terminal of a transfer device of the plurality of transfer devices, the plurality of p-type regions controlling the transfer of electrons from a photodetector of the plurality of photodetectors to the corresponding node of the photodetector, and the plurality of p-type regions has the lateral position at least partly under the corresponding node, and the plurality of p-type regions has the lateral position stopping short of the plurality of photodetectors and stopping short of a plurality of reset devices;

the plurality of reset devices, wherein each of the plurality of nodes has a corresponding reset device of the plurality of reset devices, and said each of the plurality of nodes is reset when the corresponding reset device is active;

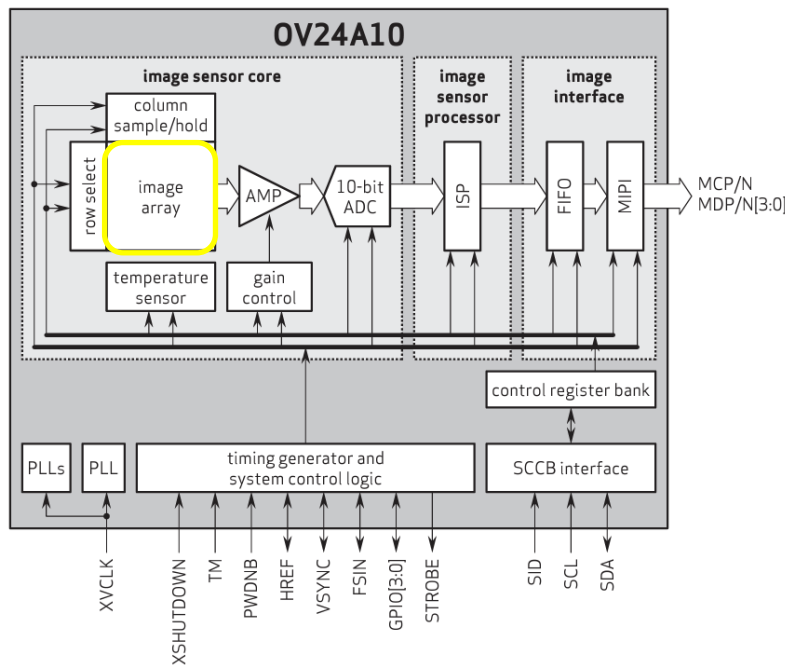
row and column circuitry; and

a plurality of signal devices coupling the plurality of nodes to the row and column circuitry.

70. As described above, the '145 Accused Products are CMOS image sensors. Moreover, to the extent the claim's preamble is limiting, the '145 Accused Products are integrated circuits. (*See, e.g.*, OV24A Product Brief, referring to the sensor as having "on-chip" features.)

71. The '145 Accused Products OV24A includes "a plurality of photodetectors generating electrons excited by incident photons." These products are image sensors that use CMOS technology (i.e., photodiode technology). *See, e.g.*, the below OV24A10 product brief Functional Block Diagram showing an "image array":

Functional Block Diagram



(Exhibit 6, emphasis added.)

72. Similarly, the '145 Accused Products include “a plurality of nodes, wherein each of the plurality of photo detectors has a corresponding node of the plurality of nodes” and “a plurality of transfer devices controlling a transfer of the electrons from said each of the plurality of photodetectors to the corresponding node.” As one example, the OV24A10Q image sensor has clusters of four photodetectors, where four photodetectors are connected to a shared readout connected to corresponding nodes through corresponding transfer gates.

73. In the '145 Accused Products, each of the transfer devices includes a first terminal coupled to one of the plurality of photodetectors, a second terminal coupled to one of the plurality of nodes, a body between the first terminal and the second terminal and a control terminal electrically coupled to the body. For example, the transfer device's gate channel corresponds to a body between two terminals.

74. The transfer of the electrons occurs through the body between the first terminal and the second terminal in response to a control voltage of sufficient value applied to the control terminal, and in an absence of the control voltage the control terminal creates an electric field tending to repel the electrons from a portion of the body by the control terminal. For example, a control signal can bias the transfer gate creating a conductive channel between the photodetector and the corresponding node. As an additional example, because of the design and doping of the various regions and portions of the image sensor integrated circuit, in the absence of biasing on the gate the transistor would tend to repel electronics as required by the claim. The nature of the control signal (or absence thereof) and the doping of various regions will control the specific response of the control terminal to applied electrons.

75. The '145 Accused Products have a plurality of p-type regions having a concentration stronger than a background p-type concentration of the plurality of transfer devices, wherein each of the plurality of p-type regions has a lateral position only partly under the control terminal of a transfer device of the plurality of transfer devices, the plurality of p-type regions controlling the transfer of electrons from a photodetector of the plurality of photodetectors to the corresponding node of the photodetector, and the plurality of p-type regions has the lateral position at least partly under the corresponding node, and the plurality of p-type regions has the lateral position stopping short of the plurality of photodetectors and stopping short of a plurality of reset devices. For example, on information and belief, these Accused Products have highly-doped p-type regions, which lie between and partly underneath the transfer gates and that control the transfer of electrons from a photodetector to the corresponding node as required. The extent and location of these highly-doped p-type regions was shared with OmniVision before it filed its complaint in this action.

76. The '145 Accused Products also have a plurality of reset devices as required by the claims, wherein each of the plurality of nodes has a corresponding reset device of the plurality of reset devices, and said each of the plurality of nodes is reset when the corresponding reset device is active. In, for example, the OV24A1Q, each node is coupled with a reset device that resets the node in the active state. *See, also, e.g.,* the below from OmniVision's literature.

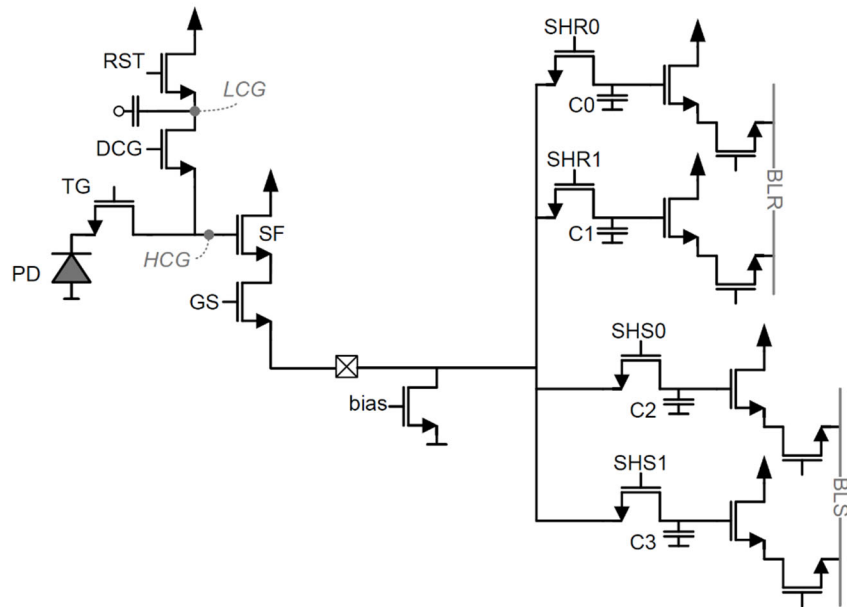


Figure 2: Pixel Schematic of the dual storage VDGS pixel

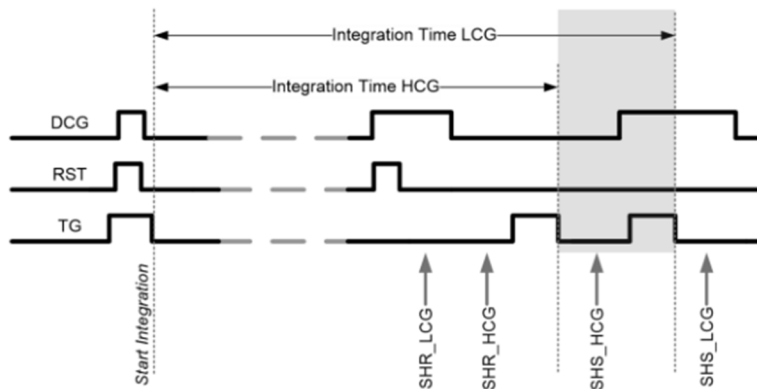
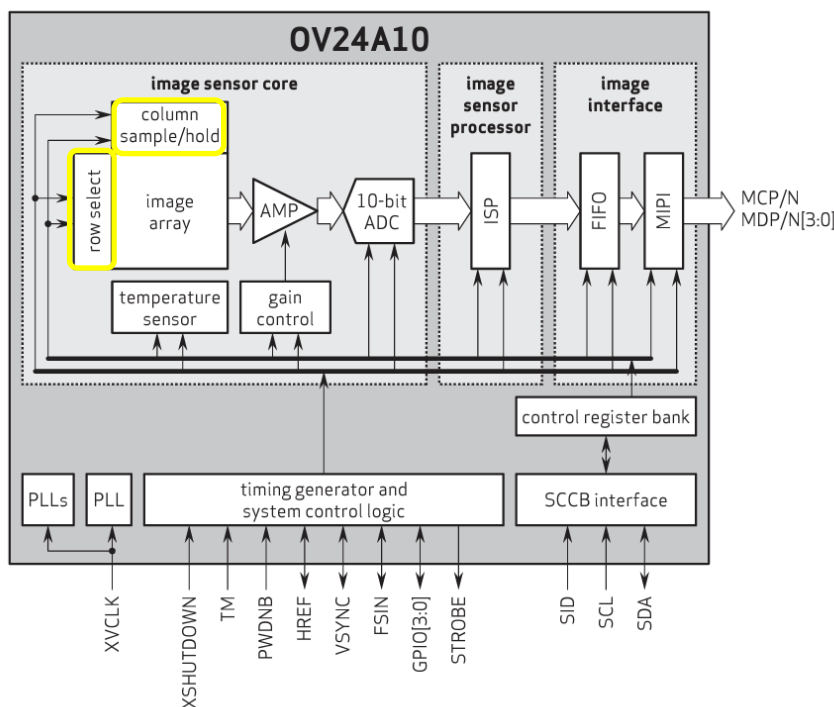


Figure 3 DCG Timing Diagram

(Exhibit 9, at 1-2).

77. The '145 Accused Products have row and column circuitry; and a plurality of signal devices coupling the plurality of nodes to the row and column circuitry. *See, e.g.*, “row select” and “column sample/hold” below:

Functional Block Diagram



(Exhibit 6, emphasis added.)

78. In its Complaint, the only claim limitation that OmniVision identifies as allegedly not met by its products is “in an absence of the control voltage the control terminal creates an electric field tending to repel the electrons from a portion of the body.” (*See* Complaint, Par. 36.) But as described above, this is how the Accused Products work. OmniVision’s products are designed with dopant such that when the control voltage drops below a certain threshold or value, the flow of electrons is blocked, or repelled.

79. OmniVision also indirectly infringed and continues to infringe at least claim 1 of the '145 Patent with knowledge of or being willfully blind to the fact that its actions constitute infringement. On information and belief, OmniVision has had knowledge of or was willfully blind to the '145 Patent and that its actions constitute infringement as described above.

80. OmniVision has induced and continues to induce infringement of the '145 Patent by providing information and instruction on using its products in an infringing manner evidenced at least by: (1) marketing and sales materials provided to its customers and potential customers through its website and its other marketing activities; and (2) the instructions and information contained in OmniVision's product guides and instructional materials. OmniVision has known its activities are inducing infringement including because RESN informed OmniVision of its infringement with detailed claim charts.

81. OmniVision has contributed to direct infringement of the '145 patent by others by manufacturing, marketing, and selling at least the Accused Products, which are especially made for infringing use, which have no substantial non-infringing use, with the knowledge that such use is infringing, and with the knowledge that these products are material parts of such infringing uses.

82. Despite its knowledge of the '145 Patent, OmniVision infringed and continues to infringe the '145 Patent. Accordingly, OmniVision's infringement has been willful.

83. As a result of OmniVision's infringement of the '145 Patent, RESN has suffered and continues to suffer irreparable harm for which it has no adequate remedy at law. Unless enjoined by the Court, OmniVision's infringement will continue, resulting in further irreparable harm to RESN.

84. RESN is entitled to recover damages from OmniVision not less than a reasonable royalty adequate to compensate for the infringement.

85. OmniVision's unlawful actions have caused, and will continue to cause, RESN irreparable harm to its business and reputation unless enjoined.

COUNTERCLAIM III – INFRINGEMENT OF THE '651 PATENT

86. RESN repeats, re-alleges, and incorporates by reference the allegations contained in all preceding paragraphs as if fully set forth herein.

87. The '651 Patent is valid and enforceable.

88. RESN owns the entire right, title, and interest to the '651 Patent.

89. OmniVision has directly infringed at least claim 1 of the '145 Patent—both literally and under the doctrine of equivalents—by making, using, selling, and/or offering for sale products that embody the inventions disclosed in the '651 Patent, including the Color Interpolation Accused Products, as exemplified by the OV9656 sensor.

90. Claim 1 of the '651 Patent reads as follows:

1. A solid state imaging device, comprising:

a red pixel having an output;

a blue pixel having an output;

a first green pixel having an output;

a second green pixel having an output;

a first analog-to-digital converter connected to the output of the red pixel for converting the output of the red pixel into a first digital signal and connected to the output of the blue pixel for converting the output of the blue pixel into a second digital signal;

a second analog-to-digital converter connected to the output of the first green pixel for converting the output of the first green pixel into a third digital signal and connected to the output of the second green pixel for converting the output of the second green pixel into a fourth digital signal; and

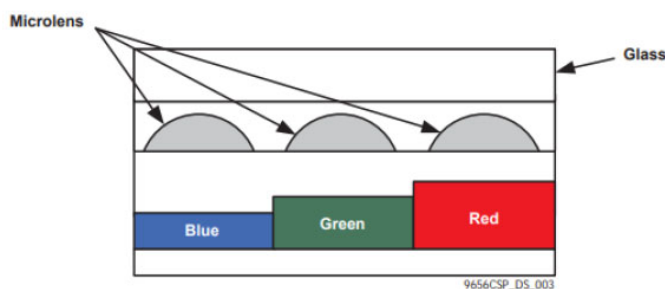
a color interpolation circuit for combining the first, second, third and fourth digital signals.

91. The Color Interpolation Accused Products are solid state imaging devices. For example, as confirmed by the OV9656 Preliminary Datasheet, for example, the OV9656 sensor has an active image array of 1300 columns by 1028 rows:

Image Sensor Array

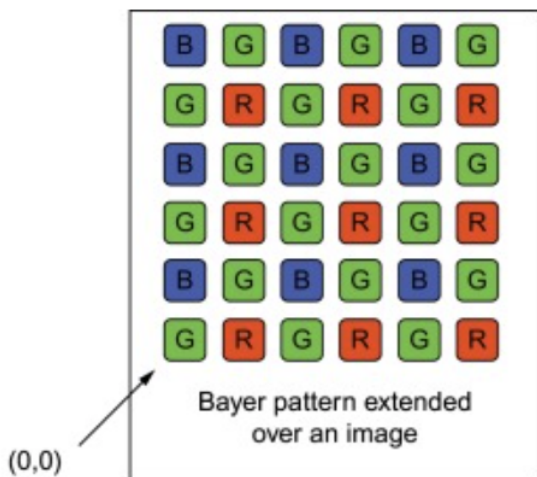
The OV9656 sensor has an active image array of 1300 columns by 1028 rows (1,336,400 pixels). Figure 3 shows a cross-section of the image sensor array.

Figure 3 Image Sensor Array



(Exhibit 8, OmniVision Preliminary Datasheet for the OV9656 Color CMOS SXGA (1.3 MegaPixel) CameraChip Sensor with OmniPixel Technology, at 3.)

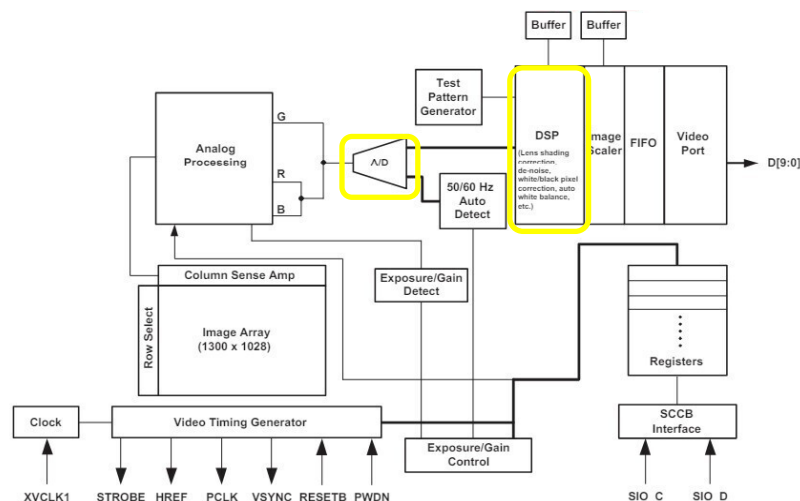
92. The Color Interpolation Accused Products use, *e.g.*, a Bayer pattern of red, green, and blue pixels.



(See, e.g., <https://www.sciencedirect.com/topics/engineering/bayer-pattern>)

93. Upon information and belief, the Color Interpolation Accused Products include multiple on-chip analog-to-digital converts, one for receiving blue and red pixel signals and another for receiving green signals. These analog-to-digital converters, for example, meet the claimed first and second analog to digital converter claim limitations.

94. Lastly, the Color Interpolation Accused Products include the claimed interpolation circuit including because on information and belief they have a digital signal processor (DSP) that combines the red, blue, and green digital signals as required by the claim. See the below diagram showing the the DSP and the A/D block, representing multiple A/D converters:



(Exhibit 8, at 2, available at [https://www.waveshare.net/w/upload/8/85/OV9655_DS_\(1.0\).pdf](https://www.waveshare.net/w/upload/8/85/OV9655_DS_(1.0).pdf), emphasis added.)

95. Despite being on notice of its alleged infringement of the '651 patent, OmniVision did not identify in its Complaint any reasons why it does not infringe the '651 Patent.

96. OmniVision also indirectly infringed at least claim 1 of the '651 Patent with knowledge of or being willfully blind to the fact that its actions constitute infringement. On

information and belief, OmniVision has had knowledge of or was willfully blind to the '651 Patent and that its actions constitute infringement as described above.

97. OmniVision has induced infringement of the '651 Patent by providing information and instruction on using its products in an infringing manner evidenced at least by: (1) marketing and sales materials provided to its customers and potential customers through its website and its other marketing activities; and (2) the instructions and information contained in OmniVision's product guides and instructional materials. OmniVision has known its activities are inducing infringement including because RESN informed OmniVision of its infringement with detailed claim charts.

98. OmniVision has contributed to direct infringement of the '651 patent by others by manufacturing, marketing, and selling at least the Accused Products, which are especially made for infringing use, which have no substantial non-infringing use, with the knowledge that such use is infringing, and with the knowledge that these products are material parts of such infringing uses.

99. Despite its knowledge of the '651 Patent, OmniVision infringed the '651 Patent. Accordingly, OmniVision's infringement has been willful.

100. RESN is entitled to recover damages from OmniVision not less than a reasonable royalty adequate to compensate for the infringement.

COUNTERCLAIM IV – INFRINGEMENT OF THE '274 PATENT

101. RESN repeats, re-alleges, and incorporates by reference the allegations contained in all preceding paragraphs of these Counterclaims as if fully set forth herein.

102. The '274 Patent is valid and enforceable.

103. RESN owns the right, title, and interest to the '274 Patent.

104. OmniVision has directly infringed and continues to directly infringe at least claim 1 of the '274 Patent—both literally and under the doctrine of equivalents—by making, using, selling, and/or offering for sale products that embody the inventions disclosed in the '274 Patent, including the OmniBSI Accused Products, as exemplified by the OV5640.

105. Claim 1 of the '274 Patent reads as follows:

1. An image sensor integrated circuit, comprising:

a plurality of photodetectors generating electrons excited by incident photons;

a plurality of nodes, wherein each of the plurality of photodetectors has a corresponding node of the plurality of nodes;

a plurality of transfer devices controlling a transfer of the electrons from said each of the plurality of photodetectors to the corresponding node, each of the plurality of transfer devices including:

a first terminal coupled to one of the plurality of photo detectors;

a second terminal coupled to one of the plurality of nodes; and

a body between the first terminal and the second terminal; and

a control terminal electrically coupled to the body, wherein the transfer of the electrons occurs through the body between the first terminal and the second terminal in response to a control voltage of sufficient value applied to the control terminal, the control terminal includes a first part and a second part, the first part of the control terminal closer than the second part of the control terminal to the first terminal, the second part of the control terminal closer than the first part of the control terminal to the second terminal, the control terminal having a nonconstant work function such that a difference between the nonconstant work function of the first part of the control terminal and the nonconstant work function of the second part of the control terminal create an electric field in the body tending to cause electrons in the body to move in a direction from the first terminal to the second terminal;

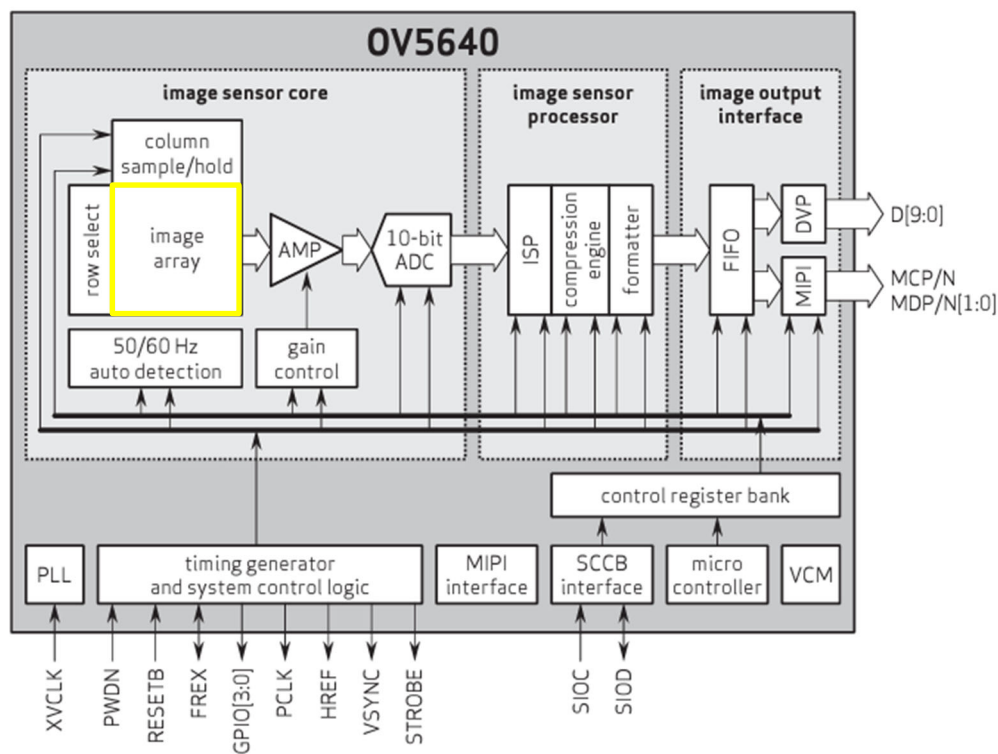
a plurality of reset devices, wherein each of the plurality of nodes has a corresponding reset device of the plurality of reset devices, and said each of the plurality of nodes is reset when the corresponding reset device is active;

row and column circuitry; and

a plurality of signal devices coupling the plurality of nodes to the row and column circuitry.

106. As described above, the '274 Accused Products are CMOS image sensors. Moreover, to the extent the claim's preamble is limiting, the '274 Accused Products are integrated circuits. (See, e.g., OV5640 Product Brief, attached as Exhibit 15, referring to the sensor as having “on-chip” features.)

107. The '274 Accused Products, as exemplified by OV5640, include “a plurality of photodetectors generating electrons excited by incident photons.” These products are image sensors that use CMOS technology (*i.e.*, photodiode technology). See, e.g., the below OV5640 Block Diagram showing an “image array.”

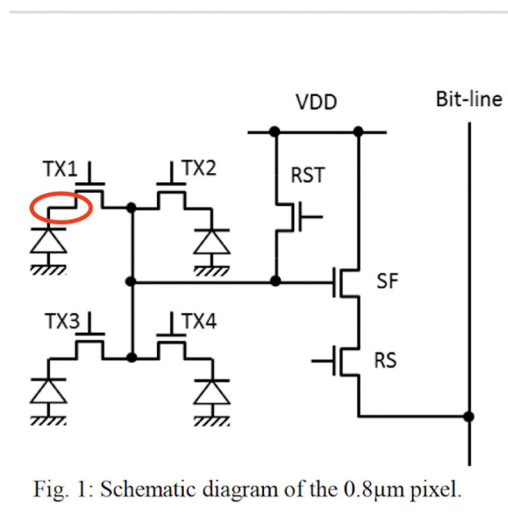


(Exhibit 15, at 2-2, emphasis added.)

108. Similarly, the '274 Accused Products include “a plurality of nodes, wherein each of the plurality of photodetectors has a corresponding node of the plurality of nodes” and “a

plurality of transfer devices controlling a transfer of the electrons from said each of the plurality of photodetectors to the corresponding node.” As one example, the OV5640 image sensor includes groups of photodiodes as photodetectors that correspond with a node, where a transfer transistor (also called a transfer gate) is adjacent to each photodiode and is used to control the flow of electrons from the photodetectors.

109. In the '274 Accused Products, each of the transfer gates includes a first terminal (*i.e.*, source) coupled to the photodetector, *e.g.*, as shown below:



(Exhibit 16, at 3, emphasis added.)

110. In the '274 Accused Products, each of the transfer gates includes a second terminal (*i.e.*, drain) coupled to the node for the group of photodiodes and a body between the first terminal and the second terminal of the transfer gate, *e.g.*, as shown below:

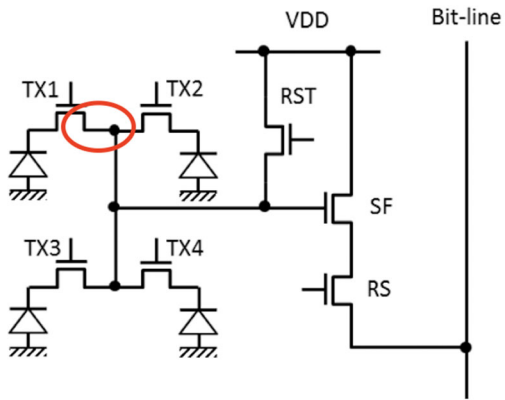
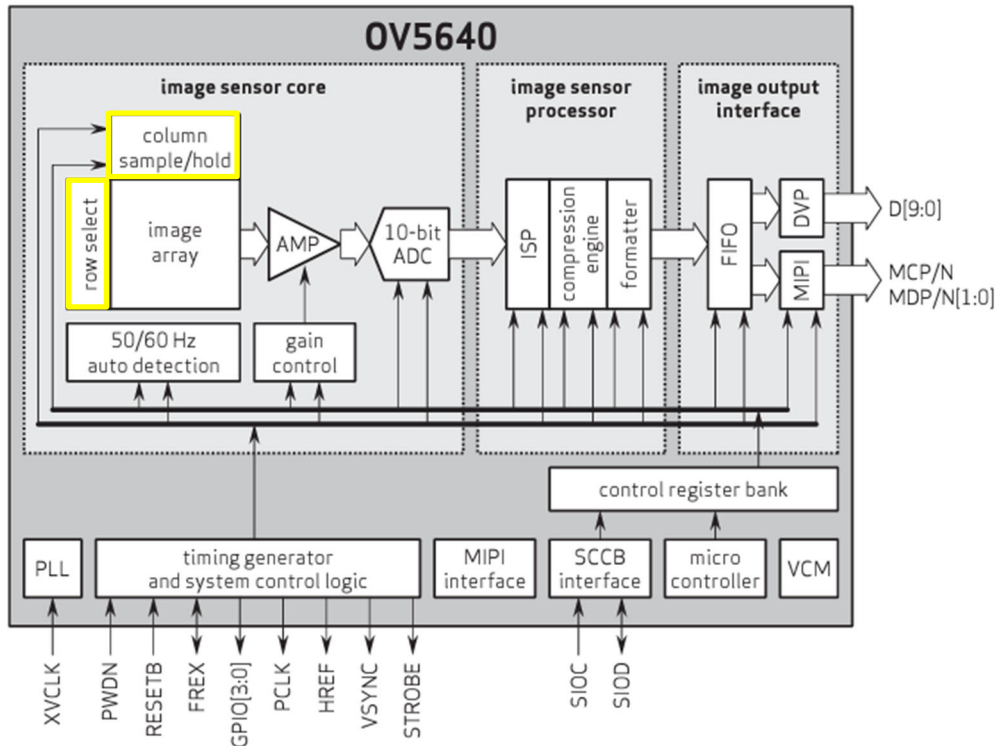


Fig. 1: Schematic diagram of the 0.8μm pixel.

(Exhibit 16, at 3, emphasis added.)

111. The '274 Accused Products also have a plurality of reset devices, wherein each of the plurality of nodes has a corresponding reset device of the plurality of reset devices, and said each of the plurality of nodes is reset when the corresponding reset device is active. In the OV5640, for example, each node is coupled with a reset device that resets the node in the active state.

112. The '274 Accused Products have row and column circuitry; and a plurality of signal devices coupling the plurality of nodes to the row and column circuitry. *See, e.g.*, “row select” and “column sample/hold” below:



(Exhibit 15, at 2-2, emphasis added.)

113. Upon information and belief, the '274 Accused Products include a control terminal electrically coupled to the body of the transfer gate, where the transfer of the electrons occurs through the body between the first terminal and the second terminal in response to a control voltage of sufficient value applied to the control terminal, where the control terminal includes a first part and a second part, the first part of the control terminal closer than the second part of the control terminal to the first terminal, the second part of the control terminal closer than the first part of the control terminal to the second terminal, the control terminal having a nonconstant work function such that a difference between the nonconstant work function of the first part of the control terminal and the nonconstant work function of the second part of the control terminal create an electric field in the body tending to cause electrons in the body to move in a direction from the first terminal to the second terminal. For example, with respect to OV5640, upon information and

belief, as shown below in an FET transistor, "the first part" and "the second part" of the control terminal (gate) may refer to segments of the gate structure of the transfer transistor. The control terminal in a FET is the gate. The gate voltage controls the conductivity of the channel between the source (first terminal) and the drain (second terminal). The first part of the control terminal in this example may be the segment of the gate that is closer to the first terminal (source), *e.g.*, a part of the gate that is nearer to the left side, where the source is located. The second part of the control terminal may then, for example, include a part of the gate that is nearer to the right side, where the drain is located. The gate has a nonconstant work function that varies along the length of the gate. The work function is the minimum energy needed to move an electron from the metal (gate) into the vacuum. The gradient in work function across the gate leads to a potential difference, enhancing the movement of electrons when a sufficient control voltage is applied.

114. OmniVision also indirectly infringed at least claim 1 of the '274 Patent with knowledge of or being willfully blind to the fact that its actions constitute infringement. On

information and belief, OmniVision has had knowledge of or was willfully blind to the '274 Patent and that its actions constitute infringement as described above.

115. OmniVision has induced infringement of the '274 Patent by providing information and instruction on using its products in an infringing manner evidenced at least by: (1) marketing and sales materials provided to its customers and potential customers through its website and its other marketing activities; and (2) the instructions and information contained in OmniVision's product guides and instructional materials. OmniVision has known its activities are inducing infringement including because RESN informed OmniVision of its infringement with detailed claim charts.

116. OmniVision has contributed to direct infringement of the '274 Patent by others by manufacturing, marketing, and selling at least the Accused Products, which are especially made for infringing use, which have no substantial non-infringing use, with the knowledge that such use is infringing, and with the knowledge that these products are material parts of such infringing uses.

117. Despite its knowledge of, or, at a minimum, its willful blindness of the '274 Patent, OmniVision infringed the '274 Patent. Accordingly, OmniVision's infringement has been willful.

118. RESN is entitled to recover damages from OmniVision not less than a reasonable royalty adequate to compensate for the infringement.

DAMAGES

119. As a result of OmniVision's acts of infringement, RESN has suffered actual and consequential damages. However, RESN does not yet know the full extent of the infringement, and the extent if the infringement and damages cannot be ascertained except through discovery and special accounting. To the fullest extent permitted by law, RESN seeks recovery of damages at least for reasonable royalties, lost profits, unjust enrichment, willfulness, and benefits received

by OmniVision as a result of using misappropriated RESN technology. RESN further seeks all other damages to which RESN is entitled under law or in equity.

DEMAND FOR JURY TRIAL

120. Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure and D. Del. LR 38.1, RESN hereby respectfully requests a jury trial for all Counterclaims and issues so triable.

REQUEST FOR RELIEF

WHEREFORE, RESN respectfully requests the following relief:

- A. the entry of judgment on the Counterclaims, including all claims, causes of action, and requests for relief therein, in favor of RESN and against OmniVision;
- B. the entry of judgment that OmniVision infringes the Counterclaim Asserted Patents;
- C. the entry of judgment that OmniVision's infringement of the Counterclaim Asserted Patents has been and continues to be willful;
- D. the entry of judgment against OmniVision, awarding RESN actual damages in an amount sufficient to compensate RESN for OmniVision's direct and indirect infringement of the Asserted Patents, until such time as OmniVision ceases its infringing conduct;
- E. the entry of judgment against OmniVision, awarding RESN enhanced damages pursuant to 35 U.S.C. § 284;
- F. the entry of judgment against OmniVision, awarding RESN pre-judgment and post-judgment interest to the full extent allowed under the law, as well as its costs;
- G. a determination that this is an exceptional case under 35 U.S.C. § 285, and an award to RESN of its costs and fees in this action, including its reasonable attorneys' fees under

- 35 U.S.C. § 285 and/or all other applicable statutes and rules in common law as may apply, with pre- and post-judgment interest thereon;
- H. an order for an accounting of damages for OmniVision's acts of infringement;
 - I. an award to RESN of its costs of suit;
 - J. the entry of a permanent injunction, enjoining OmniVision, its officers, directors, agents, employees, parents, subsidiaries, affiliates, licensees, successors, and assigns, and those acting in concert or participation with them, from further acts of direct and/or indirect infringement of the Asserted Patents; and
 - K. an award to RESN of such further and additional relief, whether legal or equitable, that RESN requests, that the Court determines RESN to be entitled, or that the Court deems just and proper.

Date: October 25, 2024

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