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11 Attorneys for Plaintiff
 12 Polaris PowerLED Technologies, LLC

13 UNITED STATES DISTRICT COURT
 14 FOR THE CENTRAL DISTRICT OF CALIFORNIA
 15 WESTERN DIVISION

16 POLARIS POWERLED TECHNOLOGIES,
 17 LLC,

18 Plaintiff,

19 v.

20 VIZIO, INC., HON HAI PRECISION
 21 INDUSTRY CO., LTD. D/B/A FOXCONN
 TECHNOLOGY GROUP, COMPETITION
 22 TEAM TECHNOLOGY USA INC., TOP
 23 VICTORY ELECTRONICS (TAIWAN)
 CO. LTD., TOP VICTORY
 24 INVESTMENTS LTD., TPV
 TECHNOLOGY LTD., TPV
 25 INTERNATIONAL (USA), INC., TREND
 SMART AMERICA, LTD., INNOLUX
 26 CORP., INNOLUX USA, INC., AMTRAN
 TECHNOLOGY CO., LTD., AMTRAN
 27 LOGISTICS, INC., and NEWEGG, INC.,

28 Defendants.

Case No. 2:23-cv-03478

**COMPLAINT FOR PATENT
 INFRINGEMENT**

DEMAND FOR JURY TRIAL

1 Plaintiff Polaris PowerLED Technologies, LLC, by and through its
2 undersigned counsel, files this Complaint for Patent Infringement relating to U.S.
3 Patent No. 7,843,148 (“’148 Patent” or “Patent-in-Suit”) and alleges as follows:

4 **THE PARTIES**

5 1. Plaintiff Polaris PowerLED Technologies, LLC (“Polaris PowerLED”
6 or “Plaintiff”) is a California limited liability company, with its principal place of
7 business at 5150 E. Pacific Coast Highway, Suite 200, Long Beach, CA 90804.

8 **VIZIO**

9 2. Defendant VIZIO, Inc. (“VIZIO”), is a corporation organized under the
10 laws of California with its principal place of business at 39 Tesla, Irvine, CA 92618.

11 3. Upon information and belief, VIZIO outsources manufacture of its
12 accused televisions and consumer electronics products to third-party original
13 equipment manufacturers. Further, on information and belief, VIZIO and/or third
14 parties, including original equipment manufacturers and retailers acting on its behalf,
15 import, offer to sell, and/or sell the accused televisions and consumer electronics
16 products into the United States.

17 **Foxconn**

18 4. Upon information and belief, Hon Hai Precision Industry Co., Ltd. d/b/a
19 Foxconn Technology Group (“Hon Hai”) is a corporation existing under the laws of
20 Taiwan with its principal place of business at No. 2, Zihyou Street, Tucheng Dist.,
21 New Taipei City, 236, Taiwan.

22 5. Upon information and belief, Competition Team Technology USA Inc.
23 (CTTUS), is a corporation existing under the laws of the state of California with its
24 principal place of business at 1320 Valley Vista Dr., Ste 204, Diamond Bar, CA
25 91765 and is a subsidiary and affiliate of Hon Hai.

26 6. Hon Hai, together with CTTUS are referred to herein collectively as
27 “Foxconn.”
28

TPV (Top Victory)

1
2 7. Upon information and belief, Defendant TPV Technology Ltd. (“TPV
3 Technology”) is a corporation existing under the laws of Bermuda, with its principal
4 place of business at Units 1208-16, 12/F, C-Bons International Center, 1108 Wai Yip
5 Street, Kwun Tong, Kowloon, Hong Kong.

6 8. Upon information and belief, Defendant Top Victory Electronics
7 (Taiwan) Co. Ltd. (“TPV Electronics”) is a corporation existing under the laws of
8 Taiwan, with its principal place of business at 10F, No. 230, Liancheng Road, New
9 Taipei City, Taiwan.

10 9. Upon information and belief, Defendant Top Victory Investments, Ltd.
11 (“TPV Investments”) is a corporation existing under the laws of Hong Kong, with its
12 principal place of business at Rm 1023, 10th Fl, Suite 1023 Harbour City, 5 Canton
13 Road, Tsim Sha Tsui, Hong Kong.

14 10. Upon information and belief, Defendant TPV International (USA), Inc.
15 (“TPV USA”) is a corporation formed and registered to do business in California,
16 with its principal place of business at 3737 Executive Center Dr. #261, Austin, Texas.

17 11. Upon information and belief, Defendant Trend Smart America, Ltd.
18 (“Trend Smart”) is a California corporation with its principal place of business at 2
19 S. Pointe Dr., Lake Forest, California, and is an affiliate of the other TPV defendants.

20 12. TPV Technology together with TPV Electronics, TPV Investments,
21 TPV USA, and Trend Smart are referred to collectively herein as “TPV.”

22 Innolux

23 13. Upon information and belief, Innolux Corp. is a corporation formed
24 under the laws of Taiwan, with its principal place of business at No. 160, Kexue Rd.,
25 Zhunan Township, Miaoli, 35053 Taiwan.

26 14. Upon information and belief, Innolux USA, Inc. (“Innolux USA”) is a
27 corporation formed under the laws of Delaware, with its principal place of business
28 at 101 Metro Drive, Suite 510, San Jose, CA 95110, United States.

1 15. Innolux Corp. together with Innolux USA are referred to collectively
2 herein as “Innolux.”

3 AmTRAN

4 16. Upon information and belief, Defendant AmTRAN Technology Co.,
5 Ltd. (“AmTRAN Technology”) is a corporation organized and existing under the
6 laws of Taiwan with its principal place of business at 17F., No. 268, Liancheng Rd.,
7 Jhonghe District, New Taipei City 23353, Taiwan, R.O.C.

8 17. Upon information and belief, Defendant AmTRAN Logistics, Inc.
9 (“AmTRAN Logistics,”) is a California corporation, with its principal place of
10 business at 14430 Monte Vista Ave., Chino, CA 91710.

11 18. AmTRAN Logistics together with AmTRAN Technology are referred
12 to collectively herein as “AmTRAN.”

13 Newegg

14 19. Upon information and belief, Defendant Newegg, Inc. (“Newegg”) is a
15 corporation formed under the laws of Delaware, with its principal place of business
16 at 17560 Rowland Street, City of Industry, CA 91748.

17 ***

18 20. VIZIO, Foxconn, TPV, Innolux, AmTRAN, and Newegg are referred to
19 collectively herein as “Defendants.”

20 **JURISDICTION AND VENUE**

21 21. Polaris PowerLED brings this civil action for patent infringement
22 pursuant to the Patent Laws of the United States, 35 U.S.C. § 1, *et seq.* This Court
23 has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and
24 1338(a).

25 VIZIO

26 22. Upon information and belief, Defendant VIZIO transacts and conducts
27 business in this District and the State of California and is subject to the personal
28 jurisdiction of this Court. Upon information and belief, VIZIO has minimum

1 contacts within the State of California and this District and has purposefully availed
2 itself of the privileges of conducting business in the State of California and in this
3 District. Polaris PowerLED's causes of action arise directly from VIZIO's business
4 contacts and other activities in the State of California and in this District.

5 23. Upon information and belief, VIZIO has committed acts of infringement
6 directly and/or through intermediaries or agents within this District and the State of
7 California by, *inter alia*, using, selling, offering for sale, importing, advertising,
8 and/or promoting products that infringe one or more claims of the Patent-in-Suit.
9 More specifically, VIZIO uses, sells, ships, distributes, offers for sale, advertises, and
10 otherwise promotes its products in the United States, the State of California, and this
11 District.

12 24. Venue is proper in this district under 28 U.S.C. §§ 1391(b), (c) and
13 1400(b), including VIZIO's physical presence and headquarters being located in this
14 district.

15 Foxconn

16 25. Upon information and belief, Foxconn transacts and conducts business
17 in this District and the State of California and is subject to the personal jurisdiction
18 of this Court. Upon information and belief, Foxconn has minimum contacts within
19 the State of California and this District and has purposefully availed itself of the
20 privileges of conducting business in the State of California and in this District. Polaris
21 PowerLED's causes of action arise directly from Foxconn's business contacts and
22 other activities in the State of California and in this District.

23 26. Upon information and belief, Foxconn has committed acts of
24 infringement within this District and the State of California by, *inter alia*, making,
25 importing, using, selling, and/or offering for sale VIZIO products that infringe one
26 or more claims of the Patent-in-Suit. Foxconn directly and/or through intermediaries
27 or agents, makes, imports, uses, sells, ships, distributes, offers for sale, and/or
28 otherwise promotes infringing VIZIO products in the United States, the State of

1 California, and this District.

2 27. Upon information and belief, Foxconn has imported, offered to sell, and
3 sold products that infringe one or more claims of the Patent-in-Suit to VIZIO, a
4 resident of this District, and continues to do so. Upon information and belief,
5 Foxconn has entered into an agreement with VIZIO pursuant to which Foxconn
6 manufactures, imports into the United States, and sells products that infringe one or
7 more claims of the Patent-in-Suit to VIZIO in the United States.

8 28. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400(b),
9 including based on the presence of CTTUS's principal place of business in this
10 District and/or Foxconn's transaction of business in this District directly and/or
11 through its affiliates and customers and/or acts of patent infringement in this District.

12 TPV (Top Victory)

13 29. Upon information and belief, TPV transacts and conducts business in
14 this District and the State of California and is subject to the personal jurisdiction of
15 this Court. Upon information and belief, TPV has minimum contacts within the State
16 of California and this District and has purposefully availed itself of the privileges of
17 conducting business in the State of California and in this District. Polaris
18 PowerLED's causes of action arise directly from TPV's business contacts and other
19 activities in the State of California and in this District.

20 30. Upon information and belief, TPV has committed acts of infringement
21 within this District and the State of California by, *inter alia*, making, importing,
22 using, selling, and/or offering for sale VIZIO products that infringe one or more
23 claims of the Patent-in-Suit. TPV directly and/or through intermediaries or agents,
24 makes, imports, uses, sells, ships, distributes, offers for sale, and/or otherwise
25 promotes infringing VIZIO products in the United States, the State of California, and
26 this District.

27 31. Upon information and belief, TPV has imported, offered to sell, and sold
28 products that infringe one or more claims of the Patent-in-Suit to VIZIO, a resident

1 of this District, and continues to do so. Upon information and belief, TPV has entered
2 into an agreement with VIZIO pursuant to which TPV manufactures, imports into the
3 United States, and sells products that infringe one or more claims of the Patent-in-
4 Suit to VIZIO in the United States.

5 32. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400(b),
6 including based on the presence of Trend Smart's place of business in this District
7 and/or TPV's transaction of business in this District directly and/or through its
8 affiliates and customers and/or acts of patent infringement in this District.

9 Innolux

10 33. Upon information and belief, Innolux transacts and conducts business
11 in this District and the State of California and is subject to the personal jurisdiction
12 of this Court. Upon information and belief, Innolux has minimum contacts within the
13 State of California and this District and has purposefully availed itself of the
14 privileges of conducting business in the State of California and in this District. Polaris
15 PowerLED's causes of action arise directly from Innolux's business contacts and
16 other activities in the State of California and in this District.

17 34. Upon information and belief, Innolux has committed acts of
18 infringement within this District and the State of California by, *inter alia*, making,
19 importing, using, selling, and/or offering for sale VIZIO products that infringe one
20 or more claims of the Patent-in-Suit. Innolux directly and/or through intermediaries
21 or agents, makes, imports, uses, sells, ships, distributes, offers for sale, and/or
22 otherwise promotes infringing VIZIO products in the United States, the State of
23 California, and this District.

24 35. Upon information and belief, Innolux has imported, offered to sell, and
25 sold products that infringe one or more claims of the Patent-in-Suit to VIZIO, a
26 resident of this District, and continues to do so. Upon information and belief, Innolux
27 has entered into an agreement with VIZIO pursuant to which Innolux manufactures,
28 imports into the United States, and sells products that infringe one or more claims of

1 the Patent-in-Suit to VIZIO in the United States.

2 36. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400(b),
3 including based on Innolux’s transaction of business in this District directly and/or
4 through its affiliates and customers and/or acts of patent infringement in this District.

5 AmTRAN

6 37. Upon information and belief, AmTRAN transacts and conducts business
7 in this District and the State of California and is subject to the personal jurisdiction
8 of this Court. Upon information and belief, AmTRAN has minimum contacts within
9 the State of California and this District and has purposefully availed itself of the
10 privileges of conducting business in the State of California and in this District. Polaris
11 PowerLED’s causes of action arise directly from AmTRAN’s business contacts and
12 other activities in the State of California and in this District.

13 38. Upon information and belief, AmTRAN has committed acts of
14 infringement within this District and the State of California by, *inter alia*, making,
15 importing, using, selling, and/or offering for sale VIZIO products that infringe one
16 or more claims of the Patent-in-Suit. AmTRAN directly and/or through
17 intermediaries or agents, made, imported, used, sold, shipped, distributed, offered for
18 sale, and/or otherwise promoted infringing VIZIO products in the United States, the
19 State of California, and this District.

20 39. Upon information and belief, AmTRAN has imported, offered to sell,
21 and sold products that infringe one or more claims of the Patent-in-Suit to VIZIO, a
22 resident of this District. Upon information and belief, AmTRAN entered into an
23 agreement with VIZIO pursuant to which AmTRAN manufactured, imported into the
24 United States, and sold products that infringe one or more claims of the Patent-in-
25 Suit to VIZIO in the United States.

26 40. Venue is proper in this district under 28 U.S.C. §§ 1391(b), (c) and
27 1400(b), including based on AmTRAN Logistics’ physical presence and the location
28 of its headquarters in this District and/or AmTRAN’s transaction of business in this

1 District directly and/or through its affiliates and customers and/or acts of patent
2 infringement in this District.

3 Newegg

4 41. Upon information and belief, Newegg transacts and conducts business
5 in this District and the State of California and is subject to the personal jurisdiction
6 of this Court. Upon information and belief, Newegg has minimum contacts within
7 the State of California and this District and has purposefully availed itself of the
8 privileges of conducting business in the State of California and in this District. Polaris
9 PowerLED's causes of action arise directly from Newegg's business contacts and
10 other activities in the State of California and in this District.

11 42. Upon information and belief, Newegg has committed acts of
12 infringement within this District and the State of California by, *inter alia*, making,
13 importing, using, selling, and/or offering for sale VIZIO products that infringe one
14 or more claims of the Patent-in-Suit. More specifically, Newegg, directly and/or
15 through intermediaries or agents, makes, imports, uses, sells, ships, distributes, offers
16 for sale, advertises, and/or otherwise promotes infringing VIZIO products in the
17 United States, the State of California, and this District.

18 43. Venue is proper in this district under 28 U.S.C. §§ 1391(b), (c) and
19 1400(b), including based on Newegg's physical presence and the location of its
20 headquarters in this District and/or Newegg's transaction of business in this District
21 directly and/or through its affiliates and customers and/or acts of patent infringement
22 in this District.

23 **BACKGROUND**

24 44. Upon information and belief, VIZIO designs, manufactures, and/or sells
25 electronic consumer products, including televisions, sound bars, speakers, and other
26 television accessories. VIZIO offers its products for sale through retailers, such as
27 Newegg, and online. VIZIO outsources the manufacture, importation, and sales of
28 its televisions and consumer electronics products to third parties.

1 manufacture for VIZIO until they are shipped from warehouses in the United States
2 to VIZIO's customers.

3 50. Upon information and belief, Foxconn indemnifies VIZIO for
4 allegations of patent infringement against VIZIO products manufactured by
5 Foxconn.

6 51. Upon information and belief, Foxconn and its affiliates had and continue
7 to have an ownership interest in VIZIO.

8 TPV (Top Victory)

9 52. Upon information and belief, TPV has manufactured and continues to
10 manufacture VIZIO Televisions. Upon information and belief, TPV has in the past
11 and continues to use, import, sell, offer to sell, and/or distribute VIZIO Televisions
12 in the United States.

13 53. Based on information and belief, TPV entered into a supply and sales
14 agreement with VIZIO to sell and supply VIZIO Televisions to VIZIO in the United
15 States.

16 54. Upon information and belief, Trend Smart is a subsidiary of TPV
17 Technology. Trend Smart imports VIZIO Televisions manufactured by TPV into the
18 United States.

19 55. Upon information and belief, TPV USA is a wholly owned subsidiary
20 of TPV Technology and distributes VIZIO Televisions in and throughout the United
21 States, including in California.

22 56. Upon information and belief, TPV Electronics is a subsidiary of TPV
23 Technology that manufactures VIZIO Televisions.

24 57. Upon information and belief, TPV Investments is wholly owned
25 subsidiary of TPV Technology that acts as a supplier to VIZIO pursuant to a
26 contractual agreement between the parties.

27 58. Upon information and belief, TPV, its subsidiaries, and agents are
28 responsible for transporting the VIZIO products they manufacture to the United

1 States. TPV directs and controls the shipment and importation of the VIZIO products
2 they manufacture and TPV is considered the importer of record. TPV, its
3 subsidiaries, and/or agents retain ownership of the products they manufacture for
4 VIZIO until they are shipped from warehouses in the United States to VIZIO's
5 customers.

6 59. Upon information and belief, TPV indemnifies VIZIO for allegations of
7 patent infringement against VIZIO products manufactured by TPV.

8 Innolux

9 60. Upon information and belief, Innolux has manufactured and continues
10 to manufacture VIZIO Televisions. Upon information and belief, Innolux has in the
11 past and continues to use, import, sell, offer to sell, and/or distribute VIZIO
12 Televisions in the United States.

13 61. Based on information and belief, Innolux entered into a supply and sales
14 agreement with VIZIO to sell and supply VIZIO Televisions to VIZIO in the United
15 States.

16 62. Upon information and belief, Innolux Corp. has an ownership interest
17 in VIZIO.

18 63. Upon information and belief, Innolux USA is a wholly-owned
19 subsidiary of Innolux Corp. that imports into the United States VIZIO Televisions,
20 including VIZIO Televisions manufactured by Innolux, and distributes them in and
21 throughout the United States, including in California.

22 64. Upon information and belief, Innolux, its subsidiaries, and agents are
23 responsible for transporting the VIZIO products they manufacture to the United
24 States. Innolux directs and controls the shipment and importation of the VIZIO
25 products they manufacture, and Innolux is considered the importer of record.
26 Innolux, its subsidiaries and/or agents retain ownership of the products they
27 manufacture for VIZIO until they are shipped from warehouses in the United States
28 to VIZIO's customers.

1 the United States, and/or distributes VIZIO Televisions in the United States.

2 ***

3 74. Upon information and belief, the Foxconn, TPV, Innolux, and
4 AmTRAN defendants each are interrelated groups of companies which together
5 comprise manufacturers, importers, and sellers of VIZIO televisions. Each of these
6 defendant groups operate as a unitary business venture and supply the accused
7 televisions to VIZIO.

8 75. VIZIO is jointly and severally liable for patent infringement with the
9 other Defendants relating to the televisions made, imported, offered for sale, sold, or
10 used in the United States by any one of them. Plaintiff's right to relief arises out of
11 the same transaction, occurrence, or series of transactions or occurrences relating to
12 the importing, offering for sale, and sale of the same accused television units in the
13 United States. Additionally, questions of fact common to all of the defendants will
14 arise in this action, including whether these same television units infringe the '148
15 Patent, as well as questions concerning their manufacture, importation and sale.
16 Therefore, joinder of the defendants is proper under 35 U.S.C. § 299.

17 **THE PATENT-IN-SUIT**

18 76. Polaris PowerLED owns the entire right, title, and interest in U.S. Patent
19 No. 7,843,148 entitled "Driving Multiple Parallel LEDs With Reduced Power Supply
20 Ripple." The '148 Patent issued on November 30, 2010, to inventors Christian Gater
21 and Roel Van Ettinger from the U.S. Patent Application No. 12/099,729, filed on
22 April 8, 2008. A true and correct copy of the '148 Patent is attached as Exhibit A to
23 this Complaint.

24 77. The inventors, Messrs. Christian Gater and Roel Van Etting, invented a
25 novel manner of arranging and controlling light sources that was a significant
26 advance in reducing noise and artifacts, easing constraints on the power supply,
27 improving the color output of LEDs, and improving display quality in electronics
28 products such as televisions. Messrs. Christian Gater and Roel Van Etting patented

1 these innovations in the '148 Patent.

2 **COUNT I (INFRINGEMENT BY VIZIO)**

3 78. Polaris PowerLED incorporates by reference paragraphs 1-77 above.

4 79. VIZIO has directly infringed and continues to directly infringe one or
5 more claims of the '148 Patent, including at least claim 1 of the '148 Patent, literally
6 and/or under the doctrine of equivalents, by making, using, offering for sale, selling
7 and/or importing into the United States televisions and other consumer electronics
8 display products.

9 80. The VIZIO consumer electronics display products accused of
10 infringement include, without limitation, VIZIO's televisions, including without
11 limitation, the VIZIO M-series televisions, V-Series televisions and E-series
12 televisions (including exemplary models M50Q7-J01, V655M-K03, V505M-K09,
13 and E65-F0) as well as any other VIZIO televisions comprising analogous structures
14 and functions that infringe the '148 Patent. This exemplary non-exhaustive list and
15 description of devices recited in this paragraph are collectively referred to in this
16 Count and in this Complaint as the "Accused Products."

17 81. Claim 1 of the '148 Patent, for example, reads as follows:

18 1. A light emitting diode (LED) driver for driving LEDs
19 connected to different parallel paths, the driver comprising:

20 a voltage source for connection to first ends of LEDs in a
plurality of parallel paths;

21 a plurality of current set circuits, one current set circuit per
22 parallel path, each current set circuit controlling a peak current
through one or more LEDs connected in each parallel path; and

23 a pulse-width modulated (PWM) brightness control signal
24 generator connected to the plurality of current set circuits, the
25 brightness control signal generator being configured to generate
staggered PWM brightness control signals to the plurality of
current set circuits,

26 each current set circuit being configured to draw the peak
27 current through its associated one or more LEDs at a duty
28 cycle substantially corresponding to a duty cycle of a PWM
brightness control signal applied to it, such that the plurality of
current set circuits conduct current through their associated one

1 or more LEDs at the same duty cycle but out of phase with
2 each other.

3 82. The Accused Products have “A light emitting diode (LED) driver for
4 driving LEDs connected to different parallel paths, the driver comprising.” The
5 Accused Products include, for example, a signal processing and LED control circuit
6 board that comprises a LED control circuit including multi-channel LED drivers and
7 transistors for individually controlling strings of LEDs in the TV backlight. The LED
8 control circuit board is coupled to several sections of LEDs that provide full array
9 backlight features as well as local dimming zones.

10 83. The Accused Products have “a voltage source for connection to first
11 ends of LEDs in a plurality of parallel paths.” As a representative example, the VIZO
12 M50Q7-J01 televisions include a power supply configured to provide a regulated
13 current to a plurality of parallel LED strings. In addition, the VIZO M50Q7-J01
14 televisions include current control circuitry. In the representative example of the
15 VIZO M50Q7-J01 television, the LED control circuit board includes a Dialog
16 AS3824 driver chip that is connected to the parallel LED strings, n-channel MOSFET
17 switches, and a voltage source. Power is supplied from the power supply board to the
18 LED control board that comprises the LED driver, switches and the first ends of the
19 parallel LED strings, in this case through an LED power connection port. When the
20 device is turned on, the power supply provides a voltage (VLED), which generates a
21 current that flows through each of the respective LED strings to the Dialog AS3824
22 LED driver chip. The Dialog AS3824 LED driver chip and related circuitry can
23 control the current that flows through each of multiple parallel LED strings
24 individually.

25 84. As a further representative example, the VIZIO V655M-K03 televisions
26 include a power supply configured to provide a regulated current to a plurality of
27 parallel LED strings. In addition, the VIZIO V655M-K03 televisions include current
28 control circuitry. In the VIZIO V655M-K03 televisions, the LED control circuit

1 board includes a Novatek NT50511S driver chip and related circuitry that is
2 connected to the parallel LED strings, multiple MOSFET switches, and a voltage
3 source. Power is supplied from the power supply board to the LED control board that
4 comprises the LED driver, switches and the first ends of the parallel LED strings, in
5 this case through an LED power connection port. When the device is turned on, the
6 power supply provides VLED, which generates a current that flows through each of
7 the respective LED strings. The Novatek NT50511S driver chip and related circuitry
8 can control the current that flows through multiple parallel LED strings individually.

9 85. As a further representative example, the VIZIO V505M-K09 televisions
10 include a power supply configured to provide a regulated current to a plurality of
11 parallel LED strings. In addition, the VIZIO V505M-K09 televisions include current
12 control circuitry. In the VIZIO V505M-K09 televisions, the LED control circuit
13 board includes a Power Forest PF7713D driver chip and related circuitry that is
14 connected to the parallel LED strings, FET switches, and a voltage source. Power is
15 supplied from the power supply board through LED control circuitry to the first ends
16 of the parallel LED strings. When the device is turned on, the power supply provides
17 VLED, which generates a current that flows through each of the respective LED
18 strings. The Power Forest PF7713D driver chip and related circuitry can control the
19 current that flows through multiple parallel LED strings individually.

20 86. As a further representative example, the VIZIO E65-F0 televisions
21 include a power supply configured to provide a regulated current to a plurality of
22 parallel LED strings. In addition, the VIZIO E65-F0 televisions include current
23 control circuitry. In the VIZIO E65-F0 televisions, the LED control circuit board
24 includes an AMS AS3824E driver chip and related circuitry that is connected to the
25 parallel LED strings, MOSFET switches, and a voltage source. Power is supplied
26 from the power supply board to the LED control board that comprises the LED driver,
27 switches and the first ends of the parallel LED strings, in this case through an LED
28 power connection port. When the device is turned on, the power supply provides

1 VLED, which generates a current that flows through each of the respective LED
2 strings. The AMS AS3824E driver chip and related circuitry can control the current
3 that flows through multiple parallel LED strings individually.

4 87. The Accused Products have “a plurality of current set circuits, one
5 current set circuit per parallel path, each current set circuit controlling a peak current
6 through one or more LEDs connected in each parallel path.” As a representative
7 example, the VIZO M50Q7-J01 television includes a current set circuit in each
8 parallel path that controls the peak current. The LED control circuit in the VIZO
9 M50Q7-J01 contains a Dialog AS3824 LED driver chip and related circuitry that
10 includes current set circuitry for each parallel path of LEDs.

11 88. As a further representative example, the VIZIO V655M-K03 televisions
12 include a current set circuit in each parallel path that controls the peak current. In the
13 VIZIO V655M-K03 televisions, the LED control circuit contains a Novatek
14 NT50511S LED driver and related circuitry that includes current set circuitry for
15 each parallel path of LEDs, which are connected to power MOSFETs.

16 89. As a further representative example, the VIZIO V505M-K09 televisions
17 include a current set circuit in each parallel path that controls the peak current. In the
18 VIZIO V505M-K09 televisions, the LED control circuit contains a Power Forest
19 PF7713D LED driver and related circuitry that includes current set circuitry for each
20 parallel path of LEDs, which are connected to FETs.

21 90. As a further representative example, the VIZIO E65-F0 televisions
22 include a current set circuit in each parallel path that controls the peak current. In the
23 VIZIO E65-F0 televisions, the LED control circuit contains an AMS AS3824E LED
24 driver and related circuitry that includes current set circuitry for each parallel path of
25 LEDs, which are connected to MOSFETs.

26 91. The Accused Products include “a pulse-width modulated (PWM)
27 brightness control signal generator connected to the plurality of current set circuits,
28 the brightness control signal generator being configured to generate staggered PWM

1 brightness control signals to the plurality of current set circuits.” As a representative
2 example, for the VIZIO M50Q7-J01 televisions, the Dialog AS3824 LED driver chip
3 uses multiple PWM signal generators to implement dimming and control the
4 brightness of the LED strings. The PWM control signal generator generates
5 staggered PWM brightness control signals to the plurality of current set circuits. The
6 PWM brightness control signals are out of phase of each other.

7 92. As a further representative example, for the VIZIO V655M-K03
8 televisions, the Novatek NT50511S LED driver chip uses multiple PWM signal
9 generators to implement dimming and control the brightness of the LED strings. The
10 PWM control signal generator generates staggered PWM brightness control signals
11 to the plurality of current set circuits. The PWM brightness control signals are out
12 of phase of each other.

13 93. As a further representative example, for the VIZIO V505M-K09
14 televisions, the Power Forest PF7713D LED driver chip uses multiple PWM signal
15 generators to implement dimming and control the brightness of the LED strings. The
16 PWM control signal generator generates staggered PWM brightness control signals
17 to the plurality of current set circuits. The PWM brightness control signals are out
18 of phase of each other.

19 94. As a further representative example, for the VIZIO E65-F0 televisions,
20 the AMS AS3824E LED driver chip uses multiple PWM signal generators to
21 implement dimming and control the brightness of the LED strings. The PWM control
22 signal generator generates staggered PWM brightness control signals to the plurality
23 of current set circuits. The PWM brightness control signals are out of phase of each
24 other.

25 95. The Accused Products have “each current set circuit being configured
26 to draw the peak current through its associated one or more LEDs at a duty cycle
27 substantially corresponding to a duty cycle of a PWM brightness control signal
28 applied to it, such that the plurality of current set circuits conduct current through

1 their associated one or more LEDs at the same duty cycle but out of phase with each
2 other.” As a representative example, for the M50Q7-J01 television, the peak current
3 through its associated one or more LEDs at a duty cycle substantially corresponds to
4 the duty cycle of a PWM brightness control signal applied to it. Further, for the
5 M50Q7-J01 television, the current set circuits conduct current through their
6 associated one or more LEDs out of phase with each other.

7 96. As a further representative example, for the VIZIO V655M-K03
8 televisions, the peak current through its associated one or more LEDs at a duty cycle
9 substantially corresponds to the duty cycle of a PWM brightness control signal
10 applied to it. Further, for the VIZIO V655M-K03 televisions, the current set circuits
11 conduct current through their associated one or more LEDs out of phase with each
12 other.

13 97. As a further representative example, for the VIZIO V505M-K09
14 televisions, the peak current through its associated one or more LEDs at a duty cycle
15 substantially corresponds to the duty cycle of a PWM brightness control signal
16 applied to it. Further, for the VIZIO V505M-K09 televisions, the current set circuits
17 conduct current through their associated one or more LEDs out of phase with each
18 other.

19 98. As a further representative example, for the VIZIO E65-F0 televisions,
20 the peak current through its associated one or more LEDs at a duty cycle substantially
21 corresponds to the duty cycle of a PWM brightness control signal applied to it.
22 Further, for the VIZIO E65-F0 televisions, the current set circuits conduct current
23 through their associated one or more LEDs out of phase with each other.

24 99. Upon information and belief, there are no products that must be marked
25 in order for Polaris PowerLED to comply with the marking requirements of 35 U.S.C.
26 § 287(a). Polaris PowerLED has complied with the requirements of 35 U.S.C. §
27 287(a) and, for at least this reason (without any limitation), is entitled to pre-suit
28 damages for infringement.

1 100. As a result of VIZIO’s infringement of the ’148 Patent, Polaris
2 PowerLED has suffered monetary damages and is entitled to no less than a reasonable
3 royalty for VIZIO’s use of the claimed inventions of the ’148 Patent, together with
4 interest and costs as determined by the Court. Polaris PowerLED will continue to
5 suffer damages in the future as long as VIZIO’s infringing activities continue.

6 **COUNT II (INFRINGEMENT BY FOXCONN)**

7 101. Polaris PowerLED incorporates by reference paragraphs 1-100 above.

8 102. Foxconn has directly infringed and continues to directly infringe one or
9 more claims of the ’148 Patent, including at least claim 1 of the ’148 Patent, literally
10 and/or under the doctrine of equivalents, by making, using, offering for sale, selling
11 and/or importing into the United States the Accused Products, including without
12 limitation, the VIZIO V655M-K03 televisions.

13 103. As a result of Foxconn’s infringement of the ’148 Patent, Polaris
14 PowerLED has suffered monetary damages and is entitled to no less than a reasonable
15 royalty for Foxconn’s use of the claimed inventions of the ’148 Patent, together with
16 interest and costs as determined by the Court. Polaris PowerLED will continue to
17 suffer damages in the future as long as Foxconn’s infringing activities continue.

18 **COUNT III (INFRINGEMENT BY TPV)**

19 104. Polaris PowerLED incorporates by reference paragraphs 1-103 above.

20 105. TPV has directly infringed and continues to directly infringe one or
21 more claims of the ’148 Patent, including at least claim 1 of the ’148 Patent, literally
22 and/or under the doctrine of equivalents, by making, using, offering for sale, selling
23 and/or importing into the United States the Accused Products, including without
24 limitation the VIZIO M50Q7-J01 televisions.

25 106. As a result of TPV’s infringement of the ’148 Patent, Polaris PowerLED
26 has suffered monetary damages and is entitled to no less than a reasonable royalty
27 for TPV’s use of the claimed inventions of the ’148 Patent, together with interest and
28 costs as determined by the Court. Polaris PowerLED will continue to suffer damages

1 in the future as long as TPV's infringing activities continue.

2 **COUNT IV (INFRINGEMENT BY INNOLUX)**

3 107. Polaris PowerLED incorporates by reference paragraphs 1-106 above.

4 108. Innolux has directly infringed and/or continues to directly infringe one
5 or more claims of the '148 Patent, including at least claim 1 of the '148 Patent,
6 literally and/or under the doctrine of equivalents, by making, using, offering for sale,
7 selling and/or importing into the United States the Accused Products including
8 without limitation the VIZIO V505M-K09 televisions.

9 109. As a result of Innolux's infringement of the '148 Patent, Polaris
10 PowerLED has suffered monetary damages and is entitled to no less than a reasonable
11 royalty for Innolux's use of the claimed inventions of the '148 Patent, together with
12 interest and costs as determined by the Court. Polaris PowerLED will continue to
13 suffer damages in the future as long as Innolux's infringing activities continue.

14 **COUNT V (INFRINGEMENT BY AMTRAN)**

15 110. Polaris PowerLED incorporates by reference paragraphs 1-109 above.

16 111. AmTRAN has directly infringed and/or continues to directly infringe
17 one or more claims of the '148 Patent, including at least claim 1 of the '148 Patent,
18 literally and/or under the doctrine of equivalents, by making, using, offering for sale,
19 selling and/or importing into the United States the Accused Products, including
20 without limitation the VIZIO E65-F0 televisions.

21 112. As a result of AmTRAN's infringement of the '148 Patent, Polaris
22 PowerLED has suffered monetary damages and is entitled to no less than a reasonable
23 royalty for AmTRAN's use of the claimed inventions of the '148 Patent, together
24 with interest and costs as determined by the Court. Polaris PowerLED will continue
25 to suffer damages in the future as long as AmTRAN's infringing activities continue.

26 **COUNT VI (INFRINGEMENT BY NEWEGG)**

27 113. Polaris PowerLED incorporates by reference paragraphs 1-112 above.

28 114. Newegg has directly infringed and continues to directly infringe one or

1 more claims of the '148 Patent, including at least claim 1 of the '148 Patent, literally
2 and/or under the doctrine of equivalents, by making, using, offering for sale, selling
3 and/or importing into the United States the Accused Products, including without
4 limitation the VIZIO V505M-K09 and VIZIO M50Q7-J01 televisions.

5 115. As a result of Newegg's infringement of the '148 Patent, Polaris
6 PowerLED has suffered monetary damages and is entitled to no less than a reasonable
7 royalty for Newegg's use of the claimed inventions of the '148 Patent, together with
8 interest and costs as determined by the Court. Polaris PowerLED will continue to
9 suffer damages in the future as long as Newegg's infringing activities continue.

10 **PRAYER FOR RELIEF**

11 WHEREFORE, Polaris PowerLED requests the following relief from this
12 Court:

13 A. A judgment that Defendants have directly infringed one or more claims
14 of the '148 Patent literally and/or under the doctrine of equivalents;

15 B. Compensatory damages in an amount according to proof, and in any event
16 no less than a reasonable royalty, including all pre-judgment and post-judgment
17 interest at the maximum rate allowed by law;

18 C. A judgment that this is an exceptional case and awarding Polaris
19 PowerLED its costs and reasonable attorneys' fees incurred in this action as provided
20 by 35 U.S.C. § 285; and

21 D. A judgment granting Polaris PowerLED such further relief as the Court
22 may deem just and proper.

23 **JURY TRIAL DEMAND**

24 Polaris PowerLED hereby demands trial by jury on all issues so triable
25 pursuant to Fed. R. Civ. P. 38.
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Dated: May 8, 2023

KRAMER ALBERTI LIM & TONKOVICH LLP

By: Robert F. Kramer
Robert F. Kramer

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Polaris PowerLED Technologies, LLC