

1 ROBERT F. KRAMER (Bar No. 181706)
rkramer@feinday.com
2 M. ELIZABETH DAY (Bar No. 177125)
eday@feinday.com
3 DAVID ALBERTI (Bar No. 220625)
dalberti@feinday.com
4 RUSSELL S. TONKOVICH (Bar No. 233280)
rtonkovich@feinday.com
5 MARC BELLOLI (Bar No. 244290)
mbelloli@feinday.com
6 NICHOLAS V. MARTINI (Bar No. 237687)
nmartini@feinday.com
7 AIDAN M. BREWSTER (Bar No. 319691)
abrewster@feinday.com
8
9
10 FEINBERG DAY KRAMER ALBERTI
11 LIM TONKOVICH & BELLOLI LLP
12 577 Airport Blvd., Suite 250
13 Burlingame, CA 94010
14 Telephone: (650) 825-4300
Facsimile: (650) 460-8443

15 Attorneys for Plaintiff
POLARIS POWERLED TECHNOLOGIES, LLC
16
17

18 UNITED STATES DISTRICT COURT
19 FOR THE CENTRAL DISTRICT OF CALIFORNIA
20

21 POLARIS POWERLED
22 TECHNOLOGIES, LLC,

23 Plaintiff,

24 v.

25 HISENSE ELECTRONICS
26 MANUFACTURING COMPANY OF
27 AMERICA CORPORATION;
28 HISENSE USA CORPORATION;
HISENSE INTERNATIONAL (HONG

Case No. 8:20-cv-00123

**COMPLAINT FOR PATENT
INFRINGEMENT**

DEMAND FOR JURY TRIAL

1 KONG) AMERICA INVESTMENT
2 CO., LIMITED (F/K/A HISENSE
3 INTERNATIONAL AMERICA
4 HOLDINGS CO., LIMITED);
5 HISENSE INTERNATIONAL (HK)
6 CO., LIMITED; HISENSE
7 INTERNATIONAL CO. LTD.;
8 QINGDAO HISENSE
9 ELECTRONICS CO. LTD. (F/K/A
10 HISENSE ELECTRIC CO., LTD.);
11 AND HISENSE CO., LTD.,

12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

Defendants.

1 Plaintiff Polaris PowerLED Technologies, LLC (“Polaris PowerLED”), by
2 and through its undersigned counsel, files this Complaint for Patent Infringement
3 relating to several U.S. patents as identified below (collectively, the “Patents-in-
4 Suit”) and alleges as follows:

5 **THE PARTIES**

6 1. Plaintiff Polaris PowerLED Technologies, LLC (“Polaris PowerLED”
7 or “Plaintiff”) is a Delaware limited liability company, with its address at 32932
8 Pacific Coast Highway #14-498, Dana Point, California, 92629.

9 2. Hisense Electronics Manufacturing Company of America Corporation
10 (“Hisense Mfg.”) is a corporation organized and existing under the laws of the State
11 of Georgia with an office at 7310 McGinnis Ferry Road, Suwanee, Georgia, 30024.

12 3. Hisense Mfg. is registered to do business in California, with a business
13 office at 11081 Tacoma Drive, Unit B, Rancho Cucamonga, CA 91730, which is
14 within this judicial district.

15 4. Upon information and belief, Hisense Mfg. has been involved in the
16 importation of accused products and components thereof to be manufactured
17 abroad, including in Mexico. Hisense Mfg. regularly imports and then sends to
18 Mexico containers with televisions and components of televisions to be assembled
19 in Mexico. For example, for arrival on December 5, 2018, Hisense Mfg. was the
20 recipient of a container including Hisense televisions with display, through the Port
21 of Long Beach in this District to be unloaded in Otay Mesa, California. By way of
22 another example, for arrival on February 25, 2019, Hisense Mfg. was the recipient
23 of a container including parts for Hisense Television model numbers 40H4050E,
24 40H4080E, and 32H4E1 through the Port of Los Angeles to be unloaded at that
25 port and in this judicial district. Hisense Electronica Mexico S.A. De C.V, an entity
26 that manufactures electronics for Hisense with an address in Mexico, was notified
27 upon arrival of the shipment, and these components were shipped to Mexico for
28 assembly. As a third example, for arrival on April 28, 2018, Hisense Mfg. was the

1 recipient of a container including parts for Hisense Television model numbers
2 55H6E and 65H9EPlus through the port of Long Beach in this District to be
3 unloaded in Otay Mesa, California. Hisense Electronica Mexico S.A. De C.V in
4 Mexico was notified upon arrival of the shipment, and these components were
5 shipped to Mexico for assembly.

6 5. HISENSE USA CORPORATION (“Hisense USA”) is a corporation
7 organized and existing under the laws of the State of Georgia with an office at 7310
8 McGinnis Ferry Road, Suwanee, Georgia, 30024 and an office at 17005 Evergreen
9 Place, City of Industry, CA 91745. Hisense USA makes, uses, sells, offers for sale,
10 and/or imports televisions accused of infringement in this Complaint.

11 6. Upon information and belief, televisions accused of infringement in
12 this Complaint have been and are shipped to Hisense USA’s warehouse in or near
13 Lynwood, California at 2700 E Imperial Hwy, Lynwood, CA 90262, which is
14 within this judicial district, is in Los Angeles County and is approximately ten (10)
15 miles south of downtown Los Angeles, California, for distribution to retailers in the
16 United States.

17 7. HISENSE INTERNATIONAL (HONG KONG) AMERICA
18 INVESTMENT CO., LIMITED (“Hisense Int’l HK Am. Inv.”) is a corporation
19 organized and existing under the laws of Hong Kong, China, with a principal place
20 of business at Rooms 3101-3105 Singga Commercial Centre, No. 148 Connaught
21 Road West, Hong Kong, China. Hisense Int’l HK Am. Inv. formerly did business
22 under the name HISENSE INTERNATIONAL AMERICA HOLDINGS CO.,
23 LIMITED.

24 8. Upon information and belief, Hisense Int’l HK Am. Inv. sells, offers
25 for sale, and/or imports televisions accused of infringement in this Complaint as
26 well as television parts for assembly into accused televisions abroad, including in
27 Mexico. For example, for arrival on January 7, 2019, Hisense Int’l HK Am. Inv.
28 shipped containers including Hisense televisions model number 50R6040E to

1 Hisense USA, through the Port of Los Angeles to be unloaded at that port and in
2 this District. As another example, for arrival on January 31, 2018, Hisense Int'l HK
3 Am. Inv. shipped containers including parts for Hisense Television model number
4 55H9D to Hisense Mfg., through the Port of Los Angeles in this District to be
5 unloaded in Laredo, Texas.

6 9. HISENSE INTERNATIONAL (HK) CO., LIMITED (“Hisense Int’l
7 HK”) is a corporation organized and existing under the laws of Hong Kong, China,
8 with a principal place of business at Rooms 3101-3105 Singga Commercial Centre,
9 No. 148 Connaught Road West, Hong Kong, China.

10 10. Upon information and belief, Hisense Int’l HK sells, offers for sale,
11 and/or imports televisions accused of infringement in this Complaint. For example,
12 for arrival on October 10, 2019, Hisense Int’l HK shipped containers including 55”
13 UHD (4K) 60HZ LED TV Roku televisions to Best Buy Co., Inc., through the Port
14 of Los Angeles to be unloaded at that port and in this District. Best Buy has sold
15 and currently sells in this State and in this District Hisense televisions with the
16 model number 55R7E that match that description.

17 11. Hisense International Co. Ltd. (“Hisense Int’l Co.”) is a corporation
18 organized and existing under the laws of the People’s Republic of China, with a
19 principal place of business at Hisense Tower, Floor 22, 17 Donghaixi Road,
20 Qingdao, Shandong Province, 266071 P.R. China, according to its website,
21 <http://global.hisense.com/contact>.

22 12. Upon information and belief, Hisense Int’l Co. sells, offers for sale,
23 and/or imports televisions accused of infringement in this Complaint. For example,
24 for arrival on July 13 and 21, 2019, Hisense Int’l Co. shipped containers including
25 Hisense Televisions model numbers 32H4030F1 to Hisense USA, through the Port
26 of Los Angeles to be unloaded at that port and in this judicial district. By way of
27 another example, for arrival on January 11, 2019, Hisense Int’l Co. shipped
28 containers including 55” UHD (4K) 60HZ LED TV Roku Hisense Televisions to

1 recipient Best Buy Co. Inc. through the Port of Los Angeles to be unloaded at that
2 port and in this District. Best Buy has sold and currently sells in this State and in
3 this District Hisense televisions with the model number 55R7E that match that
4 description.

5 13. Qingdao Hisense Electronics Co. Ltd. (“Qingdao Hisense”) is a
6 corporation organized and existing under the laws of the People’s Republic of
7 China, with a principal place of business at No. 218, Qianwangang Road, Economic
8 and Technological Development Zone, Qingdao, Shandong Province, 266555 P.R.
9 China. Qingdao Hisense formerly did business under the name Hisense Electric
10 Co., Ltd.

11 14. Upon information and belief, Qingdao Hisense makes, sells, offers for
12 sale, and/or imports televisions accused of infringement in this Complaint and/or
13 components thereof. For example, Qingdao Hisense, under its former name,
14 Hisense Electrics Co., Ltd., for arrival on November 21, 2018, shipped containers
15 including 32” HD (720P) 60Hz LED TV Roku televisions to Best Buy Purchasing
16 LLC through the Port of Long Beach to be unloaded at that port and in this District.
17 Best Buy has sold and currently sells in this State and in this District Hisense
18 televisions with the model numbers 32H4E1 and 32H4F that match that description.

19 15. Upon information and belief, Qingdao Hisense’s former name,
20 Hisense Electric Co., Ltd., is the name that appears next to the model number and
21 serial number for Hisense-branded televisions imported, offered for sale, and sold
22 in the United States.

23 16. Hisense Co., Ltd. (“Hisense Co.”) is a corporation organized and
24 existing under the laws of the People’s Republic of China, with a principal place of
25 business at Hisense Tower, No.17 Donghaixi Road, Qingdao, Shandong Province,
26 266071 P.R. China.

27 17. Hisense Co. is the ultimate parent company of all of the other named
28 Defendants, and as the ultimate parent, Hisense Co. induces its subsidiaries,

1 affiliates, retail partners, and customers in the making, using, selling, offering for
2 sale, and/or importing of products accused of infringement in this Complaint.

3 18. Defendants are part of the same corporate structure and distribution
4 chain for making, using, selling, offering for sale, and/or importing the accused
5 televisions in the United States, including in this State and this District. Defendants
6 do business as a collective whole as The Hisense Group.

7 19. Defendants share the same executives, management, advertising
8 platforms, facilities, and distribution chains, and operate as a unitary business
9 venture under common ownership to manufacture and distribute televisions accused
10 of infringement in this Complaint. For example, Hisense USA and Hisense Mfg.
11 have the same office address, the same registered agent, and overlapping officers.
12 By way of a second example, Hisense Int'l HK and Hisense Int'l HK Am. Inv.
13 share a business address. Hisense Co. and Hisense Int'l Co. also share a business
14 address. Defendants are jointly and severally liable for the acts of patent
15 infringement alleged herein, and the actions of each Defendant can be attributed to
16 the other Defendants. Throughout this Complaint, Defendants will be referred to as
17 "Defendants" or "Hisense."

18 **JURISDICTION AND VENUE**

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

23 21. Upon information and belief, Defendants transact and conduct
24 business in this District and the State of California and are subject to the personal
25 jurisdiction of this Court. Upon information and belief, Defendants have minimum
26 contacts within the State of California and this District and have purposefully
27 availed themselves of the privileges of conducting business in the State of
28 California and in this District. Polaris PowerLED's causes of action arise directly

1 from Defendants' business contacts and other activities in the State of California
2 and in this District.

3 22. Personal jurisdiction exists over each of the Defendants because each
4 Defendant has sufficient minimum contacts with this forum as a result of business
5 conducted within this State and this District, and subsidiaries registered to do
6 business in this State.

7 23. Personal jurisdiction also exists specifically over each of the
8 Defendants because each, directly or through affiliates, subsidiaries, agents, or
9 intermediaries, transacts business in this State or purposefully directs business at
10 this State (including, without limitation, the Port of Los Angeles, California, the
11 Port of Long Beach, California, warehouses located in this District, and/or retail
12 stores including Best Buy and Walmart) by making, importing, offering to sell,
13 selling, and/or having sold infringing televisions within this State and District or
14 purposefully directed at this State or District.

15 24. Personal jurisdiction also exists specifically over each of the
16 Defendants because they have overlapping executives, interlocking corporate
17 structures, and close relationships as manufacturer, importer, and distributor of
18 accused products.

19 25. In addition, each of the Defendants, directly or through affiliates,
20 subsidiaries, agents, or intermediaries, places infringing televisions into the stream
21 of commerce knowing they will be sold and used in this State, and economically
22 benefits from the retail sale of infringing televisions in this State. For example,
23 Defendants' products have been sold and are available for sale in this District at
24 Best Buy and Walmart retail stores and are also available for sale and offered for
25 sale in this District through online retailers such as Amazon, Best Buy, and
26 Walmart. Defendants also advertise their infringing products to consumers in this
27 State and this District through the Hisense USA website. *See, e.g.,*
28 <https://www.hisense-usa.com/televisions/>.

1 filed on Dec. 14, 2004. A true and correct copy of the '087 Patent is attached as
2 **Exhibit A** to this Complaint.

3 32. Polaris PowerLED owns by the entire right, title, and interest in U.S.
4 Patent No. 8,223,117 titled "Method and Apparatus to Control Display Brightness
5 with Ambient Light Correction" (the "'117 Patent"). The '117 Patent issued on
6 July 17, 2012 to inventor Bruce R. Ferguson from the U.S. Patent Application No.
7 12/336,990, filed on Dec. 17, 2008. A true and correct copy of the '117 Patent is
8 attached as **Exhibit B** to this Complaint.

9 **COUNT I**

10 **(INFRINGEMENT OF U.S. PATENT NO. 7,239,087)**

11 33. Polaris PowerLED incorporates by reference paragraphs 1-32 above.

12 34. Mr. Newton E. Ball invented a novel manner of arranging and
13 controlling light sources that was a significant advance in improving display quality
14 in electronics products such as televisions. Mr. Ball patented these innovations in
15 the '087 Patent.

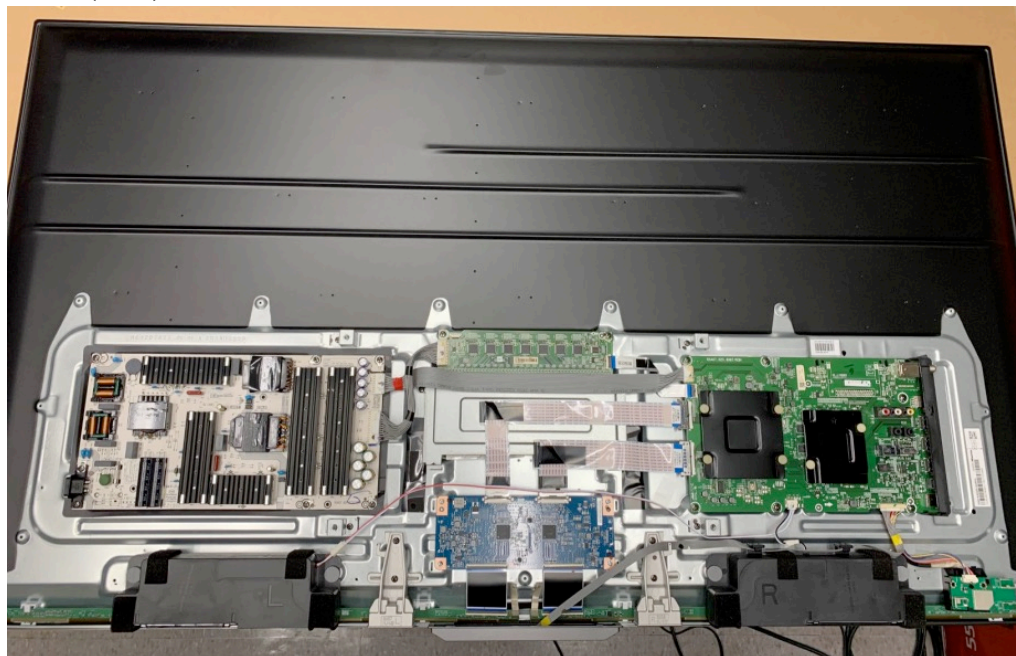
16 35. Claim 1 of the '087 Patent, for example, reads as follows:

17 1. A multi-load time sharing driver comprising:
18 a current source configured to provide a regulated current;
19 a network of semiconductor switches coupled in series; and
20 a plurality of light sources in a backlight system, each light source
21 associated with a semiconductor switch, wherein the semiconductor
22 switch selectively opens to allow the associated light source to conduct
23 the regulated current.

24 36. Hisense has directly and indirectly infringed, and continues to directly
25 and indirectly infringe one or more claims of the '087 Patent, including at least
26 claim 1 of the '087 Patent, literally and/or under the doctrine of equivalents, by or
27 through making, using, offering for sale, selling within the United States, and/or
28 importing into the United States televisions, including, for example, Hisense's

1 55H9F TVs and other products that have a system for individual control of LED
2 strings, including, but not limited to, local dimming, black frame insertion, or
3 scanning backlight features in violation of 35 U.S.C. § 271(a). The devices listed in
4 this paragraph are collectively referred to in this Count as the “Accused Products.”

5 37. The Accused Products have “a multi-load time sharing driver
6 comprising: a current source configured to provide a regulated current.” The
7 Accused Products include, for example, an LED control board, power supply, and
8 main board which includes components (such as multi-channel LED drivers and
9 transistors) for individually controlling strings of LEDs in the TV backlight. The
10 LED control board is coupled to several sections of LEDs. In the exemplary
11 55H9F TV, for example, there are ten (10) different sections, each including twenty
12 (20) LEDs. These sections are divided into groups of two (2) LEDs for a total of
13 one hundred (100) zones.



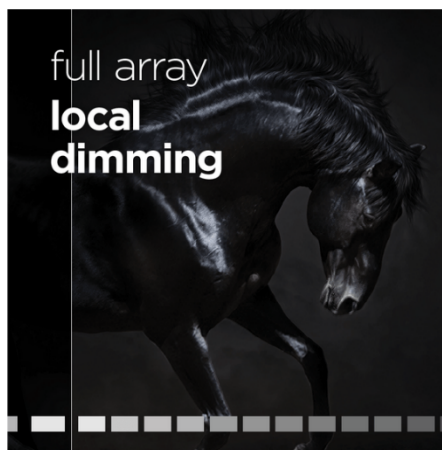
14
15
16
17
18
19 [LED Control Board/Power Board for Hisense 55H9F]


20
21
22
23
24
25 38. These one hundred (100) zones are consistent with Hisense’s
26 marketing of the product as featuring “full array local dimming.”
27
28

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

- **BackLight:** Adjust Local Dimming, Backlight Level, Automatic Light Sensor and Minimum Backlight to change the overall brightness of the screen.
 - **Local Dimming:** Enable the TV to automatically adjust the backlight by sections according to the changes in the image and increase the contrast.
- NOTE**
- Some models don't support this function.
 - **Backlight level:** Adjust how bright you want images to appear, lower settings create darker images (only when **Local Dimming** is off).
 - **Automatic Light Sensor:** Enable the TV to automatically adjust the picture settings according to the amount of ambient light in your room.
 - **Minimum Backlight:** Adjust the lower point of the dynamic backlight adjustment scope. This is a money-saving feature because it reduces power consumption.

[Hisense H9F User Manual, <https://www.hisense-usa.com/assets/ProductDownloads/34/5c65dd52f1/B-ES-G184733-MT5660-UM-HS-ENG-FRE-SPA19024-20190307.pdf>]



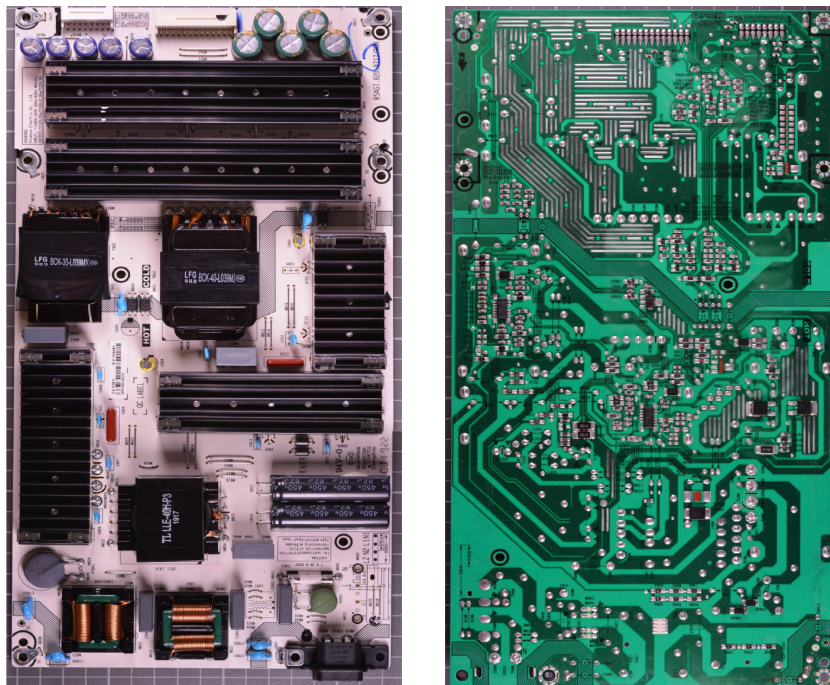
 Up to 132 zones for greater contrast

Lights Out Performance

Up to 132 local dimming zones provides a higher contrast range and color accuracy.

[Hisense 55H9F specifications at https://www.hisense-usa.com/televisions/all-tvs/55H9F_4k-premium-uled-hisense-android-smart-tv-54-5-diag]

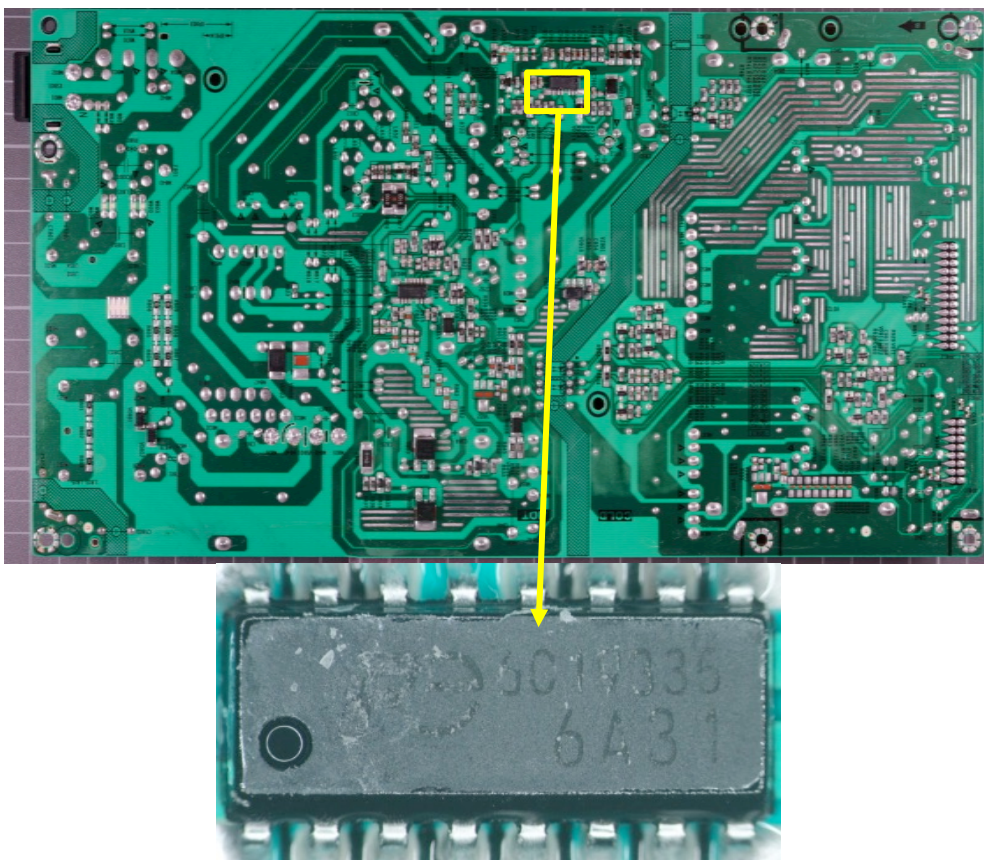
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28



[Hisense 55H9F Power Supply Boards]

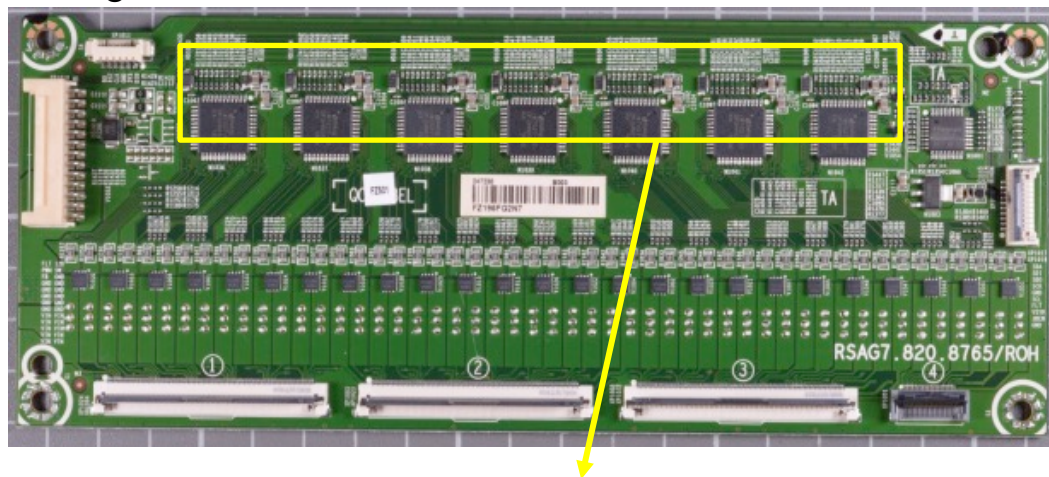
39. The power supply, working with the LED control board, provides a regulated current. For example, the exemplary Hisense 55H9F TVs include a power supply IC and associated circuitry that provide a switch mode power supply. The switch mode power supply and associated circuitry provide a regulated current (through each of the respective LED strings). When the 55H9F is turned on, the power supply provides a regulated current that flows through each of the respective LED strings. The LED control board includes a Fuji Electric 6A31 Current resonant control IC and associated circuitry configured to provide a regulated current.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28



[Fuji Electric 6A31 in Hisense 55H9F]

40. The LED control board in the exemplary Hisense 55H9F also includes components which provide a regulated current to the LEDs. For example, the LED control board in the Hisense 55H9F contains a total of 7 Dialog iW7027 16-channel LED drivers. Each LED driver is capable of providing a regulated current to multiple strings of LEDs.



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28



[Dialog iW7027 on LED Control Board in Hisense 55H9F]

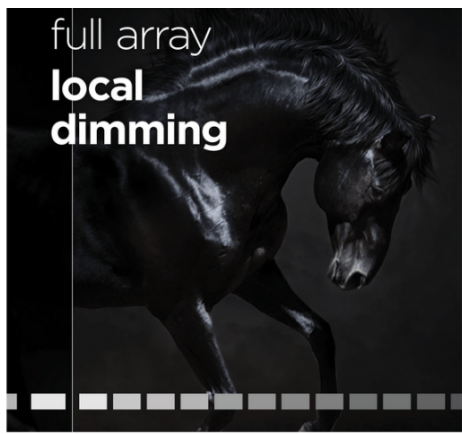
41. Hisense advertises various features and functionality evidencing that this claim is present in the Accused Products. For example, Hisense advertises local dimming in the Hisense 55H9F.


Picture

- **BackLight:** Adjust Local Dimming, Backlight Level, Automatic Light Sensor and Minimum Backlight to change the overall brightness of the screen.
 - **Local Dimming:** Enable the TV to automatically adjust the backlight by sections according to the changes in the image and increase the contrast.
- NOTE**
- Some models don't support this function.
 - **Backlight level:** Adjust how bright you want images to appear, lower settings create darker images (only when **Local Dimming** is off).
 - **Automatic Light Sensor:** Enable the TV to automatically adjust the picture settings according to the amount of ambient light in you room.
 - **Minimum Backlight:** Adjust the lower point of the dynamic backlight adjustment scope. This is a money-saving feature because it reduces power consumption.

[Hisense H9F User Manual, <https://www.hisense-usa.com/assets/ProductDownloads/34/5c65dd52f1/B-ES-G184733-MT5660-UM-HS-ENG-FRE-SPA19024-20190307.pdf>]

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28



 Up to 132 zones for greater contrast

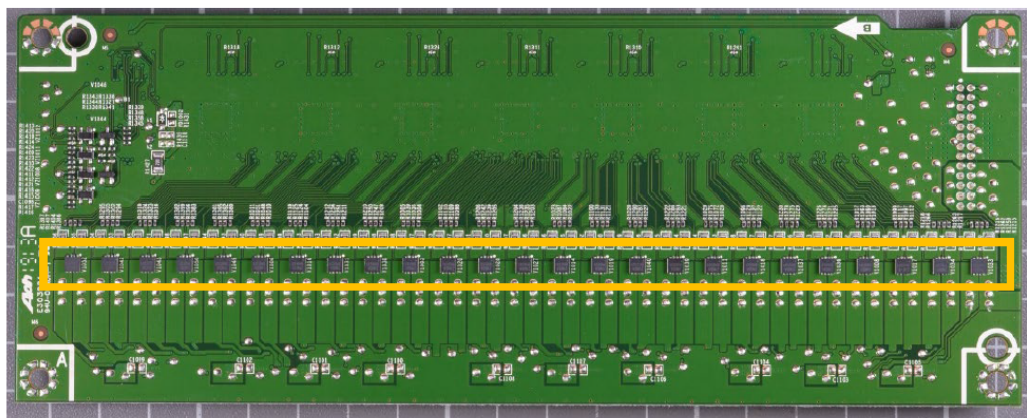
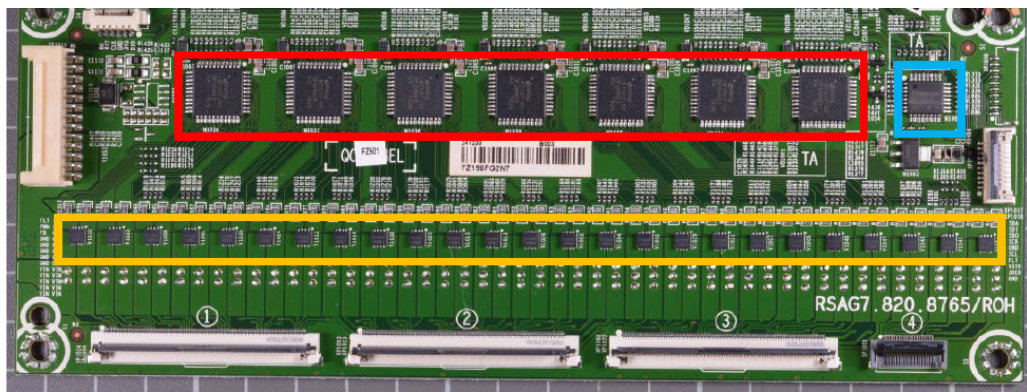
Lights Out Performance

Up to 132 local dimming zones provides a higher contrast range and color accuracy.

[Hisense 55H9F specifications at https://www.hisense-usa.com/televisions/all-tvs/55H9F_4k-premium-uled-hisense-android-smart-tv-54-5-diag]

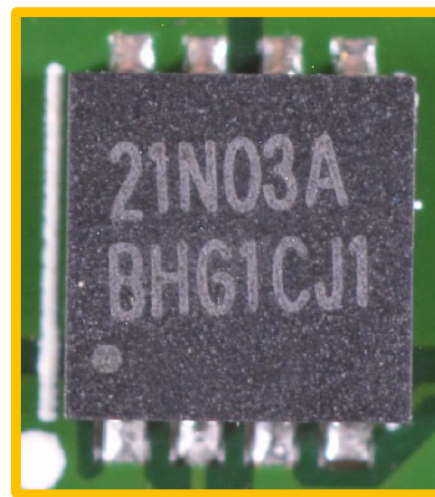
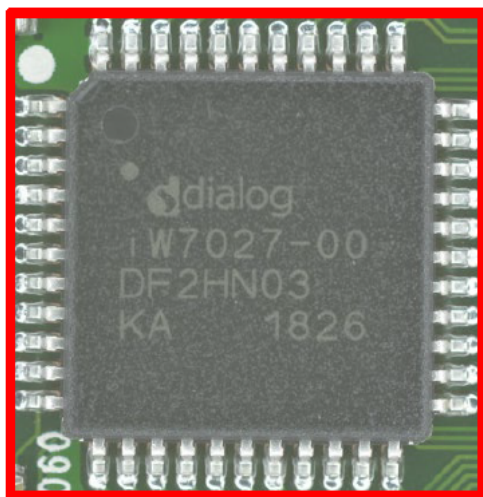
42. The Accused Products have “a network of semiconductor switches coupled in series.” The Accused Products include an LED control board with LED drivers coupled to both a switch mode power supply and one or more semiconductor switches. The exemplary Hisense 55H9F TV includes an LED control board includes seven (7) Dialog iW7027 LED driver chips across both sides of the board. The iW7027 LED driver includes a switch for each section of LEDs. Each section comprises two (2) LEDs.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28



Dialog iW7027 16 channel LED driver

N Channel MOSFET



[N-Channel MOSFET chips and Dialog iW7027 Chips on Hisense 55H9F LED Control Board]

43. The Dialog iW7027 LED driver supports up to sixteen (16) sections of LEDs and is associated with semiconductor switches for each section, including up to eight (8) N-Channel MOSFET chips. Each N-Channel MOSFET chip contains a

1 pair of semiconductor switches. The iW7027 LED driver receives a regulated
2 current from the resonant switch mode power supply. The resonant switch mode
3 power supply comprises a power supply IC and associated circuitry, including a
4 pair of semiconductor switches coupled in series. The iW7027 LED driver chip in
5 the Hisense 55H9F is coupled to the resonant switch mode power supply and its
6 associated circuitry and the N-Channel MOSFET chips, such that the two (2)
7 semiconductor switches associated with the resonant switch mode power supply are
8 coupled in series with each of the two switches in the N-Channel MOSFET chips
9 (i.e., semiconductor switches).

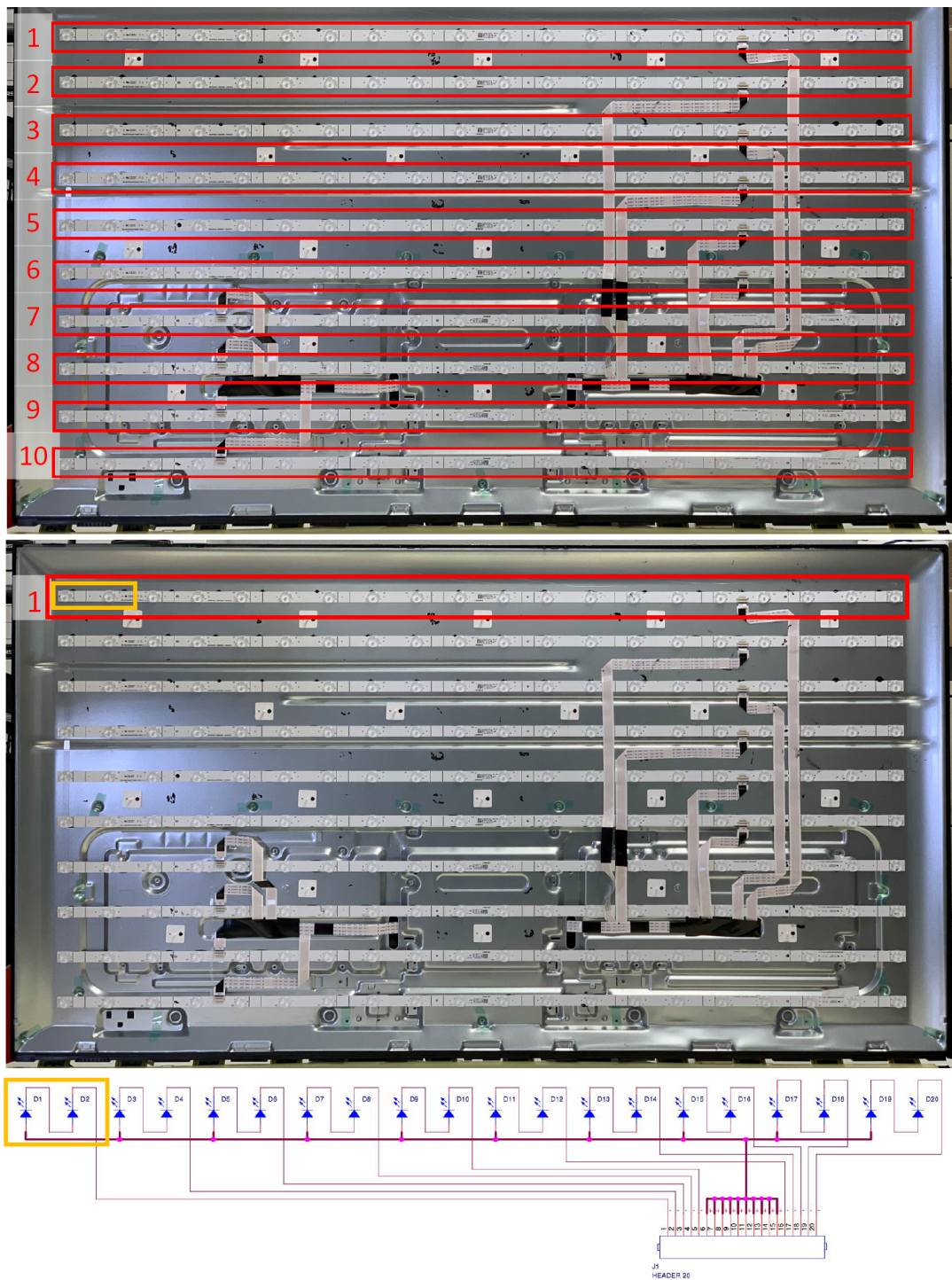
10 44. In addition, the N-Channel MOSFET chips are a network of
11 semiconductor switches coupled in series with the “current source configured to
12 provide a regulated current” (as identified above) and the plurality of light sources
13 (as identified below). There is thus a “a network of semiconductor switches
14 coupled in series.”

15 45. The Accused Products have “a plurality of light sources in a backlight
16 system, each light source associated with a semiconductor switch, wherein the
17 semiconductor switch selectively opens to allow the associated light source to
18 conduct the regulated current.”

19 46. The light sources in the Accused Products are connected, for example,
20 to an LED driver and power supply such that semiconductor switches can be
21 selectively opened to allow the associated light source to conduct the regulated
22 current. Each of the switches open to allow an associated light source to conduct
23 regulated current, and when not open, the associated light source will not conduct
24 the regulated current through the associated light sources. The control board is
25 coupled to strings of LEDs (e.g., light sources). In the exemplar Hisense 55H9F,
26 there are ten (10) sections containing twenty (20) total LEDs with two (2) LEDs per
27 zone, comprising a total of one hundred (100) zones.

28

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28



[LED Matrix and Individual LED zone in Hisense 55H9F]

47. The semiconductor switch selectively opens to allow the associated light source to conduct the regulated current. Each semiconductor switch (e.g., the two switches in each N-Channel MOSFET chip) is associated with an LED driver in the Accused Products. The LED drivers (e.g., the iW7027 drivers) in the

1 Accused Products are configured to implement local dimming by selectively
2 controlling these semiconductor switches.

3 48. Hisense also has indirectly infringed and continues to indirectly
4 infringe the '087 Patent by inducing and contributing to infringement by customers
5 and third parties of the '087 Patent. Hisense's users, customers, agents or other
6 third parties who use those devices in accordance with Hisense's instructions
7 infringe at least claim 1 of the '087 Patent, in violation of 35 U.S.C. § 271(a).
8 Because Hisense intentionally instructs its customers to infringe through training
9 videos, demonstrations, brochures and user guides, such as those located at:
10 <https://www.hisense-usa.com/televisions/>, <https://www.hisense-usa.com/support/>,
11 and [https://www.hisense-usa.com/televisions/all-tvs/55H9F_4k-premium-uled-](https://www.hisense-usa.com/televisions/all-tvs/55H9F_4k-premium-uled-hisense-android-smart-tv-54-5-diag)
12 [hisense-android-smart-tv-54-5-diag](https://www.hisense-usa.com/televisions/all-tvs/55H9F_4k-premium-uled-hisense-android-smart-tv-54-5-diag), Hisense is liable for infringement of the '087
13 Patent under 35 U.S.C. § 271(b).

14 49. Hisense is on notice of its infringement of the '087 Patent by no later
15 than November 25, 2019, by virtue of a letter from counsel for Polaris PowerLED
16 to the Presidents of Hisense Co., Hisense Int'l Co., Hisense Int'l HK, Hisense USA,
17 Qingdao Hisense, Hisense Int'l HK Am. Inv., Guiyang Hisense Electronics Co.,
18 Ltd., and Hisense Electronica Mexico S.A. de C.V.

19 50. By the time of trial, Hisense will have known and intended (since
20 receiving such notice) that its continued actions would actively induce the
21 infringement of at least claim 1 of the '087 Patent.

22 51. On information and belief, Defendants' past and continuing
23 infringement has been deliberate and willful, and this case is therefore an
24 exceptional case, which warrants award of treble damages and attorneys' fees to
25 Plaintiff pursuant to 35 U.S.C. § 285.

26 52. By at least as early as November 25, 2019, Defendants had actual
27 knowledge or should have known of the '087 Patent and that their activities were
28 infringing this patent. After receiving actual knowledge of the '087 Patent,

1 Defendants have continued to make, use, sell, offer for sale, and/or import
2 infringing products into the United States despite knowing that there was a high
3 likelihood of infringement.

4 53. As a result of Defendants' infringement of the '087 Patent, Polaris
5 PowerLED has suffered monetary damages and is entitled to no less than a
6 reasonable royalty for Defendants' use of the claimed inventions of the '087 Patent,
7 together with interest and costs as determined by the Court. Polaris PowerLED will
8 continue to suffer damages in the future unless Defendants' infringing activities are
9 enjoined by this Court.

10 54. Polaris PowerLED will be irreparably harmed unless a permanent
11 injunction is issued, enjoining Defendants and their agents, employees,
12 representatives, affiliates, and others acting in concert with Defendants from
13 infringing the '087 Patent.

14 **COUNT II**

15 **(INFRINGEMENT OF U.S. PATENT NO. 8,223,117)**

16 55. Polaris PowerLED incorporates by reference paragraphs 1-54 above.

17 56. Mr. Bruce Ferguson invented a novel manner of adjusting the
18 brightness of a display screen in response to ambient light, conserving power,
19 reducing eye strain, and significantly improving the experience of the user. His
20 inventions were a significant advance in the field of display technology, power
21 conservation and power control for electronics products, including televisions and
22 other devices. Mr. Ferguson patented these innovations in the '117 Patent.

23 57. Claim 1 of the '117 Patent, for example, reads as follows:

24 1. A brightness control circuit with selective ambient light correction
25 comprising:

26 a first input configured to receive a user signal indicative of a user
27 selectable brightness setting;

28

1 a light sensor configured to sense ambient light and to output a sensing
2 signal indicative of the ambient light level;

3 a multiplier configured to selectively generate a combined signal based
4 on both the user signal and the sensing signal; and

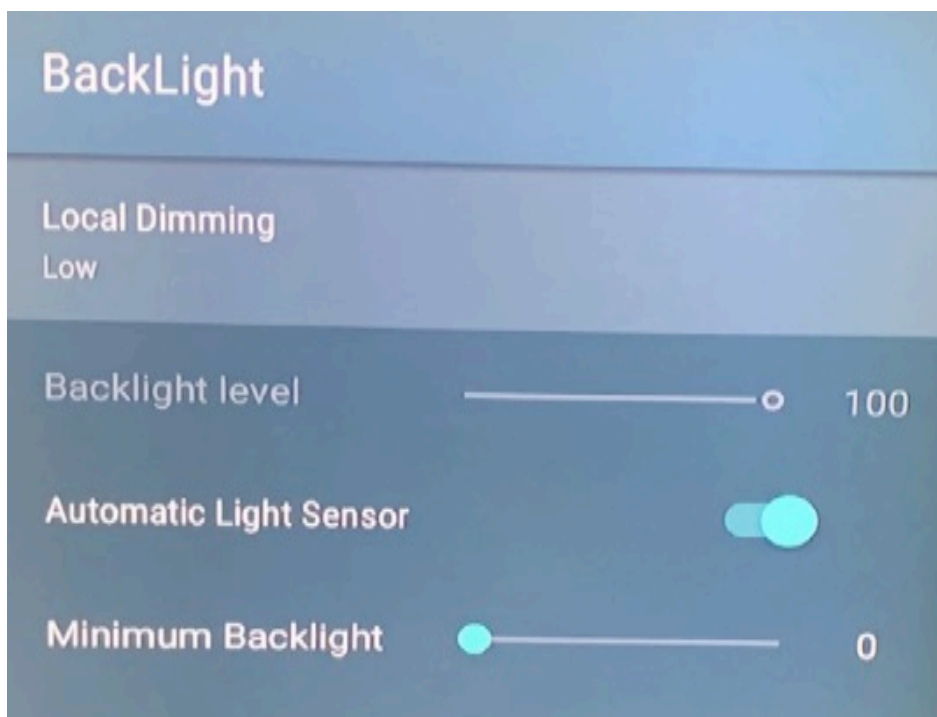
5 a dark level bias configured to adjust the combined signal to generate a
6 brightness control signal that is used to control a brightness level of a
7 visible display such that the brightness control signal is maintained
8 above a predetermined level when the ambient light level decreases to
approximately zero.

9 58. Hisense has directly and indirectly infringed, and continues to directly
10 and indirectly infringe one or more claims of the '117 patent, including at least
11 claim 1 of the '117 Patent, literally and/or under the doctrine of equivalents, by or
12 through making, using, offering for sale, selling within the United States, and/or
13 importing into the United States televisions, including, for example, Hisense's
14 55H9F TVs, and other products that have any system for automatically controlling
15 the brightness of a display while accounting for user adjustment, in violation of 35
16 U.S.C. § 271(a). The devices listed in this paragraph are collectively referred to in
17 this Count as the "Accused Products."

18 59. The Accused Products have "a brightness control circuit with selective
19 ambient light correction comprising: a first input configured to receive a user signal
20 indicative of a user selectable brightness setting." For example, the Accused
21 Products contain a brightness control circuit with selective ambient light correction.
22 The Accused Products contain hardware components and/or software that detects
23 ambient light, such as an ambient light sensor.

24 60. The Accused Products adjust display brightness based on the detected
25 ambient light. This function can be enabled or disabled by the user of the device.
26 If the selective ambient light correction is enabled, the Accused Products' display
27 brightness will increase or decrease based on the amount of detected ambient light.
28 If the selective ambient light correction is disabled, the Hisense Accused Products'

1 display brightness will not be based on the amount of detected ambient light. The
 2 exemplary Hisense 55H9F TV includes an ambient light sensor and software to
 3 allow the device to selectively control display brightness based on ambient light
 4 levels.



16 [Hisense 55H9F Menu]

17 61. Hisense further describes in the manual how this Minimum Backlight
 18 setting adjusts the functionality of the Automatic Light Sensor mode:

- 19 • **Automatic Light Sensor:** Enable the TV to automatically adjust the picture settings according to the amount of ambient light in your room.
- 20 • **Minimum Backlight:** Adjust the lower point of the dynamic backlight adjustment scope. This is a money-saving feature because it reduces power consumption.

21 [Hisense H9F User Manual, [https://www.hisense-](https://www.hisense-usa.com/assets/ProductDownloads/34/5c65dd52f1/B-ES-G184733-MT5660-UM-HS-ENG-FRE-SPA19024-20190307.pdf)
 22 [usa.com/assets/ProductDownloads/34/5c65dd52f1/B-ES-G184733-MT5660-UM-](https://www.hisense-usa.com/assets/ProductDownloads/34/5c65dd52f1/B-ES-G184733-MT5660-UM-HS-ENG-FRE-SPA19024-20190307.pdf)
 23 [HS-ENG-FRE-SPA19024-20190307.pdf](https://www.hisense-usa.com/assets/ProductDownloads/34/5c65dd52f1/B-ES-G184733-MT5660-UM-HS-ENG-FRE-SPA19024-20190307.pdf)]

24 62. As described above, this automatic brightness adjustment feature can
 25 be adjusted by changing the Minimum Backlight level. Additionally, this feature
 26 can be turned off.

27 63. The Accused Products include, for example, a menu in which a user
 28 provides a user signal indicative of a user selectable brightness setting. A user

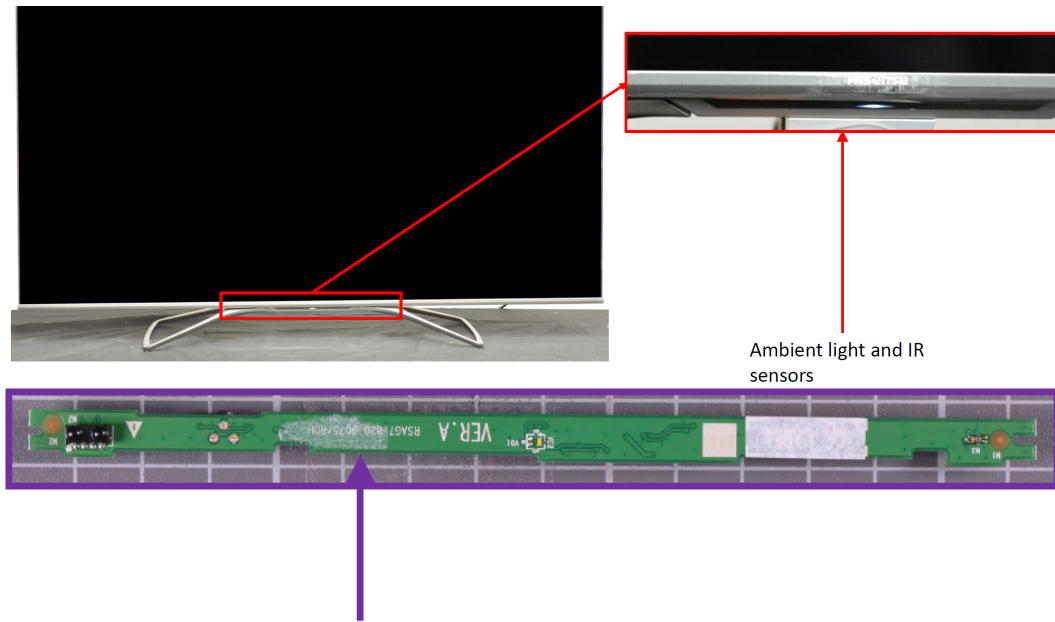
1 navigates to a display menu to provide the user signal. The Hisense Accused
2 Products include software that stores this received signal indicative of a user
3 selectable brightness setting in a first input. For example, the Hisense Accused
4 Products may store the received user signal in a software variable that represents
5 the first input. For example, a user may use the “Minimum Backlight” setting to
6 adjust the screen brightness point.



7
8
9
10
11
12
13
14
15
16
17 [Hisense 55H9F Menu]

18
19 64. The Accused Products have “a light sensor configured to sense
20 ambient light and to output a sensing signal indicative of the ambient light level” as
21 shown below. The light sensor may be mounted such that it faces the front or the
22 back of the Hisense Accused Products. The light sensor measures ambient light
23 and outputs a sensing signal indicative of the ambient light. Software running on
24 the Hisense Accused Products stores the sensing signal. For example, the Hisense
25 Accused Products’ software may store the sensing signal in a software variable that
26 represents the ambient light level. The exemplary 55H9F has a light sensor facing
27 the front of the television.
28

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28



IR and ALS board

65. The Hisense 55H9F states that the Automatic Light Sensor “adjust[s] the picture settings according to the amount of ambient light”:

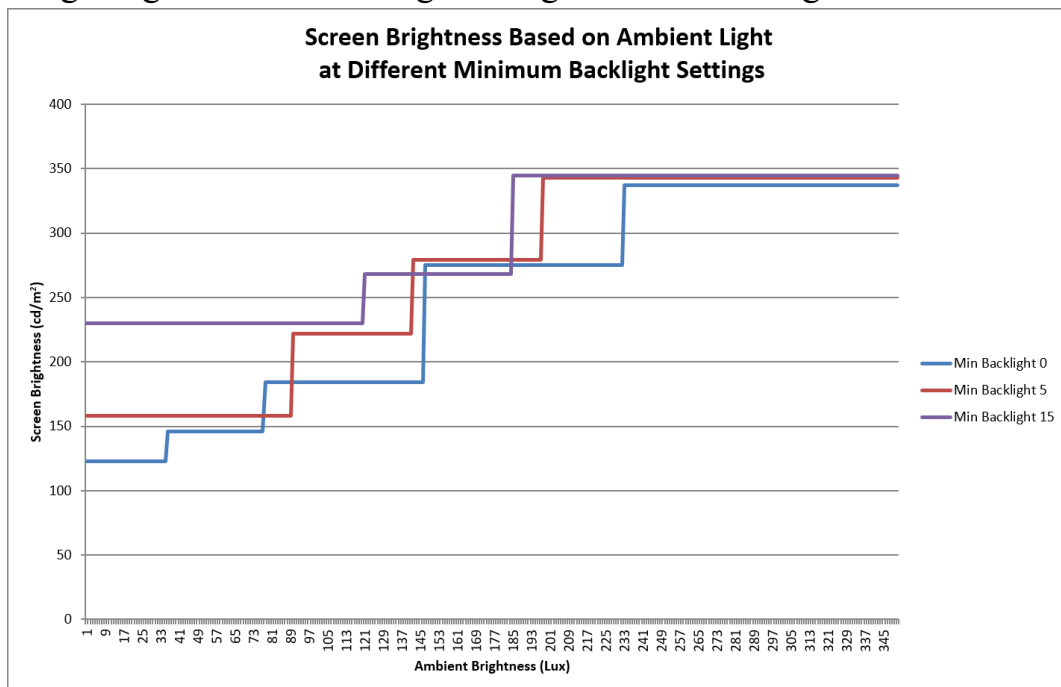
- **Automatic Light Sensor:** Enable the TV to automatically adjust the picture settings according to the amount of ambient light in your room.
- **Minimum Backlight:** Adjust the lower point of the dynamic backlight adjustment scope. This is a money-saving feature because it reduces power consumption.

[Hisense H9F User Manual, <https://www.hisense-usa.com/assets/ProductDownloads/34/5c65dd52f1/B-ES-G184733-MT5660-UM-HS-ENG-FRE-SPA19024-20190307.pdf>]

66. The Accused Products have “a multiplier configured to selectively generate a combined signal based on both the user signal and the sensing signal.” The Accused Products include hardware components for running software which includes a multiplier configured to selectively generate a combined signal based on both the user signal and the sensing signal. These hardware components include, for example, a processor and solid-state storage that runs an operating system and/or additional software for generating a combined signal. The solid-state storage may be implemented in the form of a NAND-based flash drive.

1 67. After receiving the user signal and the sensing signal, software on the
 2 Accused Products processes software variables associated with the user signal
 3 and/or the sensing signal. This processing includes, for example, scaling or
 4 converting the variables. The processing also includes generating a combined
 5 signal. The combined signal is generated based on both the user signal and the
 6 sensing signal. The combined signal may also be generated based on variables that
 7 are derived from the user signal and sensing signal. The process of generating the
 8 combined signal includes multiplication. Software on the Accused Products stores
 9 the combined signal in a software variable. The software variable can be, for
 10 example, an integer or float.

11 68. For example, testing of the exemplary Hisense 55H9F shows a
 12 multiplicative adjustment to the brightness curve based on the user-selectable
 13 “Minimum Backlight” setting when “Automatic light sensor” is enabled. The
 14 scaling of the brightness curve shown in the data below plainly indicates the
 15 presence of a multiplier combining the Minimum Backlight setting with the
 16 ambient light signal in determining the brightness control signal.



1 69. The multiplier in the Accused Products selectively generates a
2 combined signal depending on whether the “automatic light sensor” is enabled or
3 disabled.



16 [Hisense 55H9F Menu]

17 70. The Accused Products have “a dark level bias configured to adjust the
18 combined signal to generate a brightness control signal that is used to control a
19 brightness level of a visible display such that the brightness control signal is
20 maintained above a predetermined level when the ambient light level decreases to
21 approximately zero.” The Accused Products include hardware and software
22 components that include a dark level bias configured to adjust the combined signal
23 to generate a brightness control signal that is used to control the brightness level of
24 a visible display such that the brightness control signal is maintained above a
25 predetermined level when the ambient light level decreases to approximately zero.
26 These hardware components include, for example, a processor and solid-state
27 storage that runs an operating system and/or additional software for generating a
28 combined signal. The solid-state storage may be implemented in the form of a

1 NAND-based flash drive. The software works in conjunction with or is included in
2 the operating system running on the Hisense Accused Products.

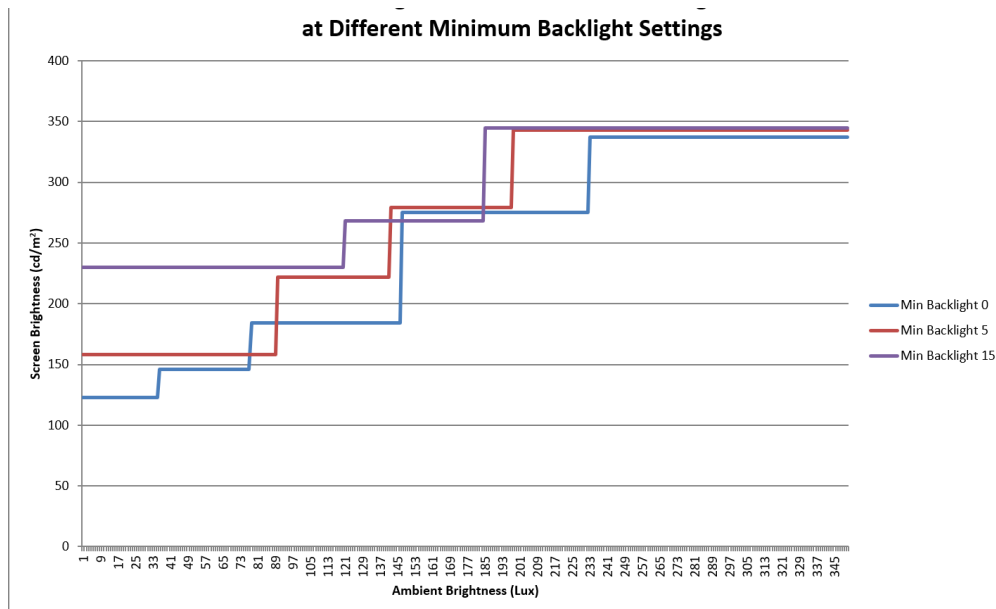
3 71. After receiving the user signal and the sensing signal, software on the
4 Hisense Accused Products processes software variables associated with the user
5 signal and/or the sensing signal. This processing includes, for example, scaling or
6 converting the variables. The processing also includes generating a combined
7 signal. The combined signal is generated based on both the user signal and the
8 sensing signal. The combined signal may also be generated based on variables that
9 are derived from the user signal and sensing signal.

10 72. The dark level bias is a software variable that is used to adjust the
11 combined signal, which is generated based on the user signal and the sensing
12 signal. A software function or mathematical equation is used in conjunction with
13 the dark level bias and the combined signal in order to generate a brightness control
14 signal. For example, the dark level bias may be a variable or set of variables input
15 into a function to maintain the brightness control signal above a predetermined
16 level. The brightness control signal is a software variable or function that is used to
17 control the brightness of the display in the Accused Products.

18 73. When the ambient light level decreases to approximately zero, the dark
19 level bias is used to control the brightness control signal such that the brightness
20 control signal is maintained above a predetermined level of brightness. As shown
21 in testing of the exemplary Hisense 55H9F's brightness curve, the dark level bias
22 prevents the brightness control signal from dropping below a predetermined level
23 when the ambient light level decreases to approximately zero.

24
25
26
27
28

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28



[Hisense 55H9F Menu]

76. Hisense further describes in the manual how this Minimum Backlight setting adjusts the functionality of the Automatic Light Sensor mode:

- **Automatic Light Sensor:** Enable the TV to automatically adjust the picture settings according to the amount of ambient light in you room.
- **Minimum Backlight:** Adjust the lower point of the dynamic backlight adjustment scope. This is a money-saving feature because it reduces power consumption.

[Hisense H9F User Manual, <https://www.hisense-usa.com/assets/ProductDownloads/34/5c65dd52f1/B-ES-G184733-MT5660-UM-HS-ENG-FRE-SPA19024-20190307.pdf>]

77. Hisense is on notice of its infringement of the '117 Patent by no later than November 25, 2019, by virtue of a letter from counsel for Polaris PowerLED to the Presidents of Hisense Co., Hisense Int'l Co., Hisense Int'l HK, Hisense USA, Qingdao Hisense, Hisense Int'l HK Am. Inv., Guiyang Hisense Electronics Co., Ltd., and Hisense Electronica Mexico S.A. de C.V.

78. By the time of trial, Hisense will have known and intended (since receiving such notice) that its continued actions would actively induce the infringement of at least claim 1 of the '117 Patent.

1 (B) A judgment that Defendants have infringed one or more claims
2 of the '117 patent literally and/or under the doctrine of equivalents directly and/or
3 indirectly by inducing infringement;

4 (C) Compensatory damages in an amount according to proof, and in
5 any event no less than a reasonable royalty, including all pre-judgment and post-
6 judgment interest at the maximum rate allowed by law;

7 (D) Treble damages for willful infringement pursuant to 35 U.S.C.
8 § 284;

9 (E) An order and judgment permanently enjoining Hisense and its
10 officers, directors, agents, servants, employees, affiliates, attorneys, and all others
11 acting in privity or in concert with them, and their parents, subsidiaries, divisions,
12 successors and assigns from further acts of infringement of the Patents-in-Suit;

13 (F) A judgment that this is an exceptional case and awarding Polaris
14 PowerLED its costs and reasonable attorneys' fees incurred in this action as
15 provided by 35 U.S.C. § 285; and

16 (G) A judgment granting Polaris PowerLED such further relief as
17 the Court may deem just and proper.

18 **JURY TRIAL DEMAND**

19 83. Polaris PowerLED hereby demands trial by jury on all issues so triable
20 pursuant to Fed. R. Civ. P. 38.

21 DATED: January 21, 2020

22
23 By: /s/ Robert F. Kramer
24 Robert F. Kramer

25 Attorneys for Plaintiff
26 POLARIS POWERLED TECHNOLOGIES,
27 LLC
28