

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

QUASAR SCIENCE LLC
Petitioner,

v.

COLT INTERNATIONAL CLOTHING, INC. d/b/a COLT LED
Patent Owner.

Case: IPR2023-00614
U.S. Patent No. 10,566,895

**DECLARATION OF GUILLERMO MACIAS IN SUPPORT OF
PATENT OWNER'S RESPONSE**

DECLARATION OF GUILLERMO MACIAS IN SUPPORT OF PATENT OWNER'S RESPONSE

I, Guillermo ("Memo") Macias, declare as follows:

1. I am the inventor of the invention disclosed and claimed in the above referenced US Patent Nos. 10,566,895 (the "'895 Patent"). I am founder and principal of Colt International Clothing, Inc. dba Colt LED, which is the business for my bicolor tubular lights and related products.

2. In the late 2000s, I was sales representative for Municipal Energy Solutions, Inc. This company made LED lighting devices for street lighting and other applications.

BACKGROUND AND THE INDUSTRY LONG-STANDING PROBLEMS

3. In the same time frame, I wanted to create my own film and television equipment supply company. I had a connection at Paramount Pictures in Hollywood and so I went there in hopes of securing the large studio as my customer. I was fortunate to meet with Fernando Silva, Sales Managers for the Set Lighting Department at Paramount Pictures Corporation. He took me around the department to meet everyone, including Bruce Wonderlick.

4. I asked them to describe any problems that Paramount was experiencing with their film/TV lighting systems. See Ex. 2066 (Silva Decl.), ¶6 (Silva meeting Macias (“Memo”) of Colt to see if Paramount needed lighting products) and ¶7 (Silva, Paramount’s Sales Manager, showed Kino Flo fluorescent lighting tubes and explained problems including having to change tubes and/or gels for scene changes). For instance, I saw six Paramount employees changing out hundreds of fluorescent tubes working on a long table to swap out one Kino Flo tube of one color temperature for another Kino Flo tube of another color temperature and they explained that they did this all day as scene changes required. When the tubes needed gels, the same six employees would take the gel rolls, hand cut out a piece and individually wrap each tube. They had done these procedures for decades.

5. Mr. Silva also explained that existing tube lights also had problems with overly green-biased light output. See Ex. 2066, ¶8 (MacTech’s single color LED lighting had too much green.)

6. Mr. Silva further explained that these issues with existing lighting tube systems were a large and long-standing problem for Paramount Pictures. See, Ex. 2066, ¶7. The extent of the problems that I understood from Paramount and my own observations are emphasized by Mr. Silva’s declaration:

TV and movie productions which filmed at Paramount would often rent a hundred or more of these tubes and use them as key lighting on set. The tubes would stay rented on set for as long as the movie would be shot or the TV series would run. Thus some TV series would be renting over a hundred tubes continuously for years and years.”

Ex. 2066, ¶5: (emphasis added)

7. I was intrigued by both the size of Paramount’s unmet needs, and that their problems with prior tube lighting systems had existed for so long, so I told Paramount that I would work on it and return with an LED solution.

8. There were many obstacles to creating a film/TV suitable switchable bicolor white LED tube light in a fluorescent form factor with sufficient light output to be useful as key lighting (the primary lighting on a set).

9. I designed, researched and developed the prototype for my product. It took many trips to China to overcome thermal failures and other problems to get the prototype lighting device to the point where it had the features of claim 1 (and the other challenged claims) of the ‘895 Patent.

10. When the prototype was finally ready, I returned to Paramount Pictures as promised with my bicolor LED tube light (“Colt’s Bicolor LED Tube”).

Paramount immediately recognized the substantial commercial value of my

invention. Colt's Bicolor LED Tube was switchable between daylight (cool) and tungsten (warm) light settings, was bright in either mode yet the light emitted was even (no hotspots/point sources), was over 90 CRI in either mode and essentially no green and magenta hues in either mode. According to Mr. Silva, these were "the features that gaffers wanted" and he was "very pleased with these features." See, e.g., Ex. 2066, ¶¶ 9-11 Colt's Bicolor LED Tube did not need any gels and was switchable between daylight to tungsten without any rigging.

11. He was excited about adding my product to Paramount's rentals. See, Ex. 2066, ¶¶ 11-13.

EARLY SUCCESS OF COLT'S BICOLOR LED TUBE

12. I refer to my invention as claimed in the '895 Patent as "**My Bicolor LED Tube Invention**" and Colt's product implementing the invention as "**Colt's Bicolor LED Tube**." Colt's Bicolor LED Tube is made in accordance with the challenged claims of the '895 Patent.

13. In 2013, Colt LED was just me, with a little help from my wife who pitched in. Even though I was just starting to produce LED lights, Paramount was quick to secure an exclusive contract for Colt's Bicolor LED Tubes. Paramount

purchased approximately \$200,000 dollars' worth of Colt's Bicolor LED Tubes as recited in the challenged claims of the '895 Patent.

14. Mr. Wonderlick, Set Lighting Rental Manager at Paramount Pictures, also recognized Colt's Bicolor LED Tube's improvements over prior LED lights in the industry. See, Ex. 2067 (Wonderlick Decl.), ¶8.

15. My product was a hit. As Mr. Wonderlick notes in his declaration: "... in 2013, Paramount purchased a substantial number of Colt's Bicolor LED Tubes Since introduction of *Colt's Bicolor Tube light at Paramount, it has been used in about 90% of all new productions* that Paramount supplies." Ex. 2067, ¶14 (emphasis added).

16. Mr. Silva also echoed the success: "*I have seen how Colt's Bicolor LED Tubes have changed the stage lighting industry. Almost immediately, Colt's Bicolor LED Tubes became the only tube lights or virtually the only tube lights used in Paramount's studios.*" Ex. 2067, ¶6 (emphasis added).

17. Colt's Bicolor LED Tube is made in accordance with the challenged claims of the '895 Patent.

18. As I understood from Mr. Wonderlick, Colt's Bicolor LED Tube quickly became the light that was used on every new production at Paramount, except for

very low budget shows or films. Especially from 2013 to 2016, I did very little marketing of Colt's Bicolor LED Tubes. For example, although I purchased the domain name www.ColtLED.com on or about April 25, 2013, I did not erect a website there until about August 2016. Even then, the site was very simple and stayed very simple for quite a while. Since Colt's Bicolor LED Tube just caught on at Paramount I didn't have to market. Others who liked Colt's Bicolor LED Tube started using it in productions they were involved in. Those users mainly rented Colt's Bicolor LED Tubes from Paramount, although they picked up the tubes from Colt's facilities.

19. Colt's Bicolor LED Tubes are switchable between warm/tungsten and cool/daylight settings, and this is what makes customers interested in the first place. Also, from my own experience, no one buys or rents Colt's Bicolor LED Tubes without testing them or without knowing the specifications of CRI and green deviation as well as seeing the amount of light emitted. One of the first tests potential buyers or renters perform is with a color meter to measure the green tones in the light output (for both the warm/tungsten and the cool/daylight settings).

Exhibit 2072 is a printout from Colt's website at www.coltled.com on January 12, 2019 marketing Colt's Bicolor LED Tubes touting the low green/less than 5 CC of

green and magenta deviation and thus not requiring gels. Colt has always promoted its true low/essentially no green deviation and its high (above 90) CRI, as well as its bright output. Colt posts the photometrics reports and specifications with wattage and with light output (lumens reports and lux reports), and color temperatures for each setting, such as shown in the below excerpt from one such report by Light Laboratory Inc., issued October 21, 2019 on Colt's Bicolor LED Tube in four-foot length:

FIG. 1 LUMINAIRE

Test Summary					
Distance (ft)	Color Settings	CCT	CRI	Lux	FC
4	D	5796	94.5	597	55.46
8				165.91	15.41
12				74.71	6.94
16				42.56	3.95
4	T	3107	96.6	554	51.47
8				154.11	14.32
12				69.51	6.46
16				39.51	3.67

Exhibit 2077 (Lumen and Colormetrics Report), bottom of p. 2.

COLT SALES/REVENUE FIRST FOUR YEARS

20. Up until about 2017, Colt LED's business model, other than initial sales to Paramount, was targeted at rentals. Paramount was in effect the exclusive rental

agent. Colt had rental revenue but very little revenue from actual sales. Paramount sub-rented Colt's Bicolor LED Tubes to such large and well-known Big 5/Big 6 studios as NBC/Universal, Fox, Sony and Warner Bros. Other relatively large studios also sub-rented Colt's Bicolor LED Tubes from Paramount such as CBS, MBS (Manhattan Beach Studios), Sunset Gower, Insight and Quixote.

Approximately 90% or more of Colt's income in 2014 through 2016 was due to rental through Paramount of Colt's Bicolor LED Tubes. This amounted to a total of about \$2,000,000 for that initial three-year period. Colt's Bicolor LED Tubes were used on a lot of television shows and movies. Exhibit 2070 is an exemplary list of television shows and movies (filmed at various studios) that were using Colt's Bicolor LED Tubes from about October 2013 when Paramount first put the tubes in inventory up until the end of 2016/beginning of 2017. Shows included NCIS, NCIS-LA, Rizzoli & Isles, Grace and Frankie, School of Rock, VEEP, Thundermans, Transformers and Bay Watch.

21. As Quasar Science's copy (explained below) of Colt's Bicolor LED Tubes was being sold, Colt had to adjust its business model. Beginning in about 2017 Colt made some significant actual sales. Actual sales of Colt's Bicolor LED Tubes to Wamco (a leading specialty lighting company) in less than a one-year

period of 2017 totaled \$917,500. See Exhibit 2071 (“Wamco Sales”). With the 2014 to 2016 rentals, adding in 2017 sales and rentals, total revenue for Colt’s Bicolor LED Tubes from 2014 to 2017 was well over \$3,000,000. This total does not include “Colt’s Colormix LED Tube” (or just “Colormix”) which is very similar (and sold over \$350,000 to Wamco in 2017 to 2018). From 2018 to present revenue from Colt’s Bicolor LED Tubes has also been strong, but there was a lot of up and down in the industry. For example, in 2020 due to Covid and in 2023 due to the Writers Guild of America and SAG/AFTRA prolonged strikes the number of filming days went way down. Accordingly, the reduction in filming days significantly reduced rentals and sales.

QUASAR’S COPYING OF COLT’S BICOLOR LED TUBES

22. Unfortunately, because of the immediate success at Paramount, Paramount’s rentals to other studios, and the excitement of others in the field who saw Colt’s Bicolor LED Tube prototypes/samples, Quasar Science copied Colt’s Bicolor LED Tubes. I state this based on my own investigation (explained below) as well as based on the declarations of Bradley W. Brunon, Exhibit 2078, David L. Hoffman, Exhibit 2051, and Fernando Silva, Exhibit 2066.

23. As early as 2014 I became aware of Quasar Science's bicolor tubular LED lights that were exactly like my claimed invention. I was at a trade show in or about October 2014 where Quasar Science was displaying its copy of Colt's Bicolor LED Tube and where I met its co-owner Ray Gonzalez.

24. In early 2018 I sought further proof of the copying. I used Panjiva.com to look up Quasar Science's manufacturer. The manufacturer was a Chinese company called Laysion. I asked Alex Su, my independent quality control agent in China, to contact Laysion. He set up a meeting with Mr. Zhang of Laysion in China where Mr. Zhang lives and works. I met Mr. Zhang in the winter of 2018 at the Laysion factory in China. I explained that I had patents on Colt's Bicolor LED Tubes and that the Quasar Science copies infringed the patents. He admitted to me that Quasar Science had instructed him to make a copy exactly like Colt's Bicolor LED Tubes. He also showed me text message correspondence that had photos of my product disassembled (the same text messages and photos of Exhibit 2079, at PDF 94-95 and which are reproduced below for reference):

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Exhibit 2079, at PDF 94-95.

26. I know the LED lights shown in the above photos were Colt's Bicolor LED Tubes because I recognize all of the following as from the 20 to 30 sample tubes that I gave to Paramount in 2013:

- a. The end caps are black and one has the word INPUT on it for where power is received;
- b. The checkerboard three-row layout of the warm and cool LEDs;
- c. The little black round push button actuator for switching the

electrical power path for changing between warm and cool color temperature white being lit; and

d. The visible circuitry for switching and the color of the wires shown.

27. As a result of the meeting with Mr. Zhang, I corresponded with him in and about August 2018 and I received from him his signed declaration (Exhibit 2039) dated August 15, 2018 where he admitted to copying Colt's Bicolor LED Tubes and making "approximately 10,000 pcs T12 bi-color for Mr. Gonzalez and Quasar." Exhibit 2039, ¶4. He also told me that Quasar Science had stopped using Laysion to make units.

28. I was present at the deposition of Mr. Zhang in October 2018 when he admitted to taking apart Colt's Bicolor LED Tubes to copy them at the request of Quasar Science from whom he said he received Colt's Bicolor LED Tubes.

QUASAR 2014 TO BEGINNING 2017 SALES

29. In or about late 2013 or early 2014 upon Quasar Science's introduction of its copy of Colt's Bicolor LED Tubes as recited in the '895 Patent claims, Quasar Science had immediate success. It sold at least about ten thousand of their copies of Colt's Bicolor LED Tube to up to about early 2017 (from Mr. Zhang's

declaration above and other information mentioned below). The customers included Cinelease, Inc., one of the largest film industry supply businesses. Cinelease in turn rented the bicolor lights to those in the film and television industry. Quasar's copy was called its S-Switch.

30. I am informed and believed that Quasar Science sold many thousands of their S-Switch bicolor lights to each of (i) Manhattan Beach Studios, (ii) Warner Brothers Studios, (iii) Sony Pictures Entertainment (p/k/a Columbia), (iv) Dadco, LLC (lighting equipment rental), (v) Walt Disney Studios, (vi) 20th Century Fox studios, (vii) The Culver Studios and (viii) Barbizon Lighting Company (film and TV lighting equipment provider), among others. Based on feedback from sales that Colt quoted but was unable to make on Colt's Bicolor LED Tubes and other information from and about the would-be purchasers of Colt's products, these quoted potential sales and other sales went to Quasar for its S-Switch/bicolor copy. Quasar Science sold its S-Switch copy of Colt's Bicolor LED Tubes in the T12, four-foot size for approximately \$175 to \$240. The four-foot T12 size is the most common size with very roughly 70 percent of the sales/rentals. I am informed and believed that the average sale to the above companies (including Cinelease and those listed in this paragraph) was approximately 3000 units and thus

conservatively about 24,000 to 27,000 overall units by about 2017 (8 companies listed above plus Cinelease times 3,000 units per company).

31. Since there are not that many large studios and at the time (2013/2014 to beginning of 2017) mainly only the one competitor Quasar, I have kept aware of as much as I can of the competition. More specifically, much of my information regarding Quasar sales is from the following: Colt LED was asked to quote to many of the same customers and the purchasing agents who ultimately bought from Quasar. Those customers and purchasing agents would ask Colt to beat Quasar Science's pricing. Quasar Science's retail price for its four-foot bicolor tube lights has been \$250 for many years. See, e.g. Exhibit 2056 (S-Switch model Q50W3056SG, four-foot, showing price of \$250 in 2017), p. 3. Even at a price on the low end of \$150 a piece, the sales total on 24,000 units is around \$3.6 million dollars through about early 2017. In about 2017, Quasar started selling its version ("Crossfade") of Colt's Colormix. I understand from my patent counsel Mr. Hoffman's declaration (Exhibit 2051) that not only the Quasar S-Switch but also the Crossfade (and later Crossfade X) come within the claims of the '895 Patent (as shown in Exhibits 2065 and 2066).

32. It is my experience that roughly 70 percent of the sales/rentals are four-

foot T12 size, and that the vast majority of the remaining sales/rentals are eight-foot T12 size and two-foot T12 size, with at least as many if not more sales of the eight-foot than the two-foot models. Therefore, these sales/rentals average out to at least about the above conservative \$150 figure.

33. Quasar Science has sold its copy of Colt's Bicolor LED Tubes to a lot of other studios and rental houses throughout the U.S. These sales are not included in the above conservative estimate of \$3.6 million through the end of 2018.

34. QUASAR S-SWITCH AT WARNER BROS. STUDIOS: Attached hereto as Exhibit 2073 is a copy of selected pages from the Warner Bros. June 2018 set lighting department's rental catalog showing the available, e.g., #59260-L "Quasar Switch LED Bi-Clr Tube..." (at PDF 2, middle) and e.g., #59250, 59260, 59271 "Quasar switchable LED bi-color tube[s]" (at PDF 3, middle) that are a copy of Colt's Bicolor LED Tubes. Attached hereto as Exhibit 2074 is a full copy of the rental catalog (2023 version) which is still on Warner Bros. website at https://s34366.pcdn.co/wp-content/uploads/2023/05/WBD_SetLighting_Equip_List_2023.pdf. Quasar's S-Switch model (the copy of Colt' Bicolor LED Tubes) are listed as follows:

Item 59290 at PDF 100 (middle);

Item 59250 at PDF 111 (bottom); and

Items 59280, 59280-L and 59320 at PDF 112 (near bottom).

35. As may be seen from the above, four of the Big 5 Studios, Paramount, Disney/Fox, Warner Bros. and Sony have purchased many thousands of either Colt's Bicolor LED Tubes or Quasar Science's copy thereof. The studios then rent out these lights.

35. Attached hereto as Exhibit 2075 is a copy of Quasar Science's web page from the internet.org archive of November 23, 2016 showing "Specifications" of its light and prominently featuring that "All Quasar products have a CRI of 95+ with 0CC (no Magenta or Green spikes)."

2019 RETAIL PRICES VERSUS KINO FLO FLUORESCENT TUBES

36. The standard retail price of Colt's Bicolor LED Tubes as offered by Colt in the four-foot T12 size was about \$250 per tube as of 2017 to 2019 for retail sale.

37. Attached as Exhibit 2076 is a copy of some printouts from January 2019 showing some prices for purchasing six Kino Flo fluorescent tube lights for film and television lighting in four-foot T12 sizes, averaging about \$23 per bulb for retail sale, less than one tenth the retail price (\$250) of Colt's Bicolor LED Tube (four-foot T12) as of January 13, 2019 from B&H Photo selling Kino Flo 800mA

KF 32 SFC True Match- **6 tubes** for \$136.88 and Barn Door selling Kino Flo 488-K55-S – **6 tubes** for \$137.70.

38. INITIAL RENTAL PRICE: When Colt's Bicolor LED Tubes were first introduced in 2013/2014 at Paramount, the rental price for per four-foot tube was at least \$20 per week. I recall that the rental price for Kino Flo's four-foot fluorescent tube was about half, i.e., \$10 per week.

COLT'S BICOLOR PRODUCT PHOTOS

39. I have reviewed Exhibit 2053 (prepared by Mr. Hoffman) which are comparisons of Colt's Bicolor LED Tube with selected claims of the '895 Patent and I confirm and agree with that the features listed there are in Colt's products (the right side of the chart). That is, Colt's Bicolor LED Tubes are made in accordance with the selected claims of the '895 Patent listed therein. For example, the LEDs are broad-spectrum white light and Colt's Bicolor LED Tubes, the yellow-ish LEDs are cool white phosphor LEDs, the orange-ish LEDs are warm white phosphor LEDs which are not overlapping with the cool white kelvin temperature range, there is a driver and switch for switching color temperatures, the tube is about 1.5" in diameter, there is a driver and pcb, the four-foot tubes and larger receive at least 42 watts, the specific color temperatures used for the LEDs are about 5600K and about 3200K, the housing

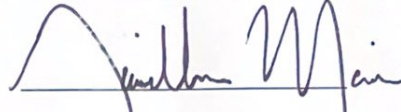
is aluminum, the lights put out at least 1000 lumens, the CRI is over 90 and the green/magenta deviation is less than 5 points, and power is received at the input connectors. I also note that Exhibit 2053 incorporates at least some of the photos of Exhibit 2052 which are accurate photos of Colt's Bicolor LED Tubes. All generations have at least the same or substantially the same structure and functions as the version of Exhibit 2052 but e.g., some improvements, such as increasing input wattage.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

In signing this Declaration, I understand that the Declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I acknowledge that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 26 day of January 2024 at Valencia, California.



Name: Guillermo Macias