

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

CRX TECH, LLC,

Plaintiff,

v.

LITE-ON, INC. AND LITE-ON
TECHNOLOGY CORPORATION,

Defendants.

Case No. 2:17-cv-00734

JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

This is an action for patent infringement arising under the Patent Laws of the United States of America, 35 U.S.C. § 1 *et seq.*, in which Plaintiff CRX Tech, LLC (“CRX” or “Plaintiff”) makes the following allegations against Defendants Lite-On, Inc. (“Lite-On”) and Lite-On Technology Corporation (“LTC”) (collectively, “Defendants”).

PARTIES

1. CRX Tech, LLC is a Texas limited liability company and has a place of business at 1601 Elm Street, Suite 4360, Dallas, Texas 75201.

2. On information and belief, Lite-On is a California corporation located at 720 South Hillview Drive, Milpitas, California 95035. Upon information and belief, Lite-On is a subsidiary of LTC. On information and belief, LTC is a Taiwanese entity located at 392 Ruey Kwang Road, Neihu, Taipei, Taiwan 114.

JURISDICTION AND VENUE

3. This action arises under the patent laws of the United States, Title 35 of the United States Code. Accordingly, this Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

4. This Court has personal jurisdiction over Defendants in this action because, among other reasons, Defendants have committed acts within the Eastern District of Texas giving rise to this action and have established minimum contacts with the forum state of Texas. Lite-On also has a Sales Office and regular and established place of business at 8917 Honeysuckle Drive, Argyle, Texas, which is within the Eastern District of Texas (Sherman division). Defendants directly and/or through subsidiaries or intermediaries (including distributors, retailers, and others), both individually and in joint enterprise with each other, have committed and continue to commit acts of infringement in this District by, among other things, making, using, importing, offering for sale, and/or selling products that infringe the patent-in-suit. Thus, Defendants purposefully availed themselves of the benefits of doing business in the State of Texas and the exercise of jurisdiction over Defendants would not offend traditional notions of fair play and substantial justice.

5. Venue is proper in this District under 28 U.S.C. §§ 1391 (c) and 1400(b) because LTC is a foreign corporation not resident in the United States and has committed acts of patent infringement in the District. *Brunette Machine Works, Ltd. v. Kockum Industries, Inc.*, 406 U. S. 706, 714 (1972). Venue is also proper as to at least Lite-On because it maintains at least one established and regular place of business in this District – a Sales Office at 8917 Honeysuckle Drive, Argyle, Texas, which is within the Eastern District of Texas (Sherman division) - and has committed acts of patent infringement in this District as well.

BACKGROUND

6. The inventions disclosed and claimed in the patent in suit were invented by Michael L. Wach in the early 2000s. Mr. Wach is the founder of Cirrex Corporation and Cirrex Systems, LLC, and a recipient of the Coulter Award for Innovation and Entrepreneurship. He is an inventor of more than fifty granted U.S. patents. Cirrex is a pioneering photonics company that has engaged in research and development backed by more than \$20 million in venture capital. Cirrex created optical technologies that advanced the fields of healthcare, communications and instrumentation.

7. As disclosed in the patent in suit, Mr. Wach invented a novel system for reducing unwanted longitudinal reflection in optical systems utilizing semiconductor gain mediums. At the time of the claimed inventions, the optical semiconductor industry struggled with minimizing reflections from facets of semiconductor devices. Longitudinal reflections diminished the performance and utility of optical systems, which require precise light emissions. Conventional methods to suppress unwanted reflections were difficult and expensive to fabricate and produced unwanted light beam behavior and wavelength distortion.

8. Antireflective coatings were attempted to reduce unwanted reflection and longitudinal modes. These coatings were formed by depositing a stack of thin-film layers having high-low and alternating refractive index interfaces between layers set up as a pattern of constructive and destructive interference that minimized reflection from facets. But there were difficulties associated with designing and fabricating these coatings for practical application. In addition, antireflective coatings were inherently difficult for antireflection over a broad spectral band.

9. For light emission diode (LED) products, such as Defendants' accused products, conventional solutions to the problems of semiconductor facet reflection and unwanted longitudinal modes produce light that is deteriorated due to residual, unwanted reflection from the facet that is insufficiently repressed.

10. Mr. Wach's company, Cirrex, searched for better solutions. Mr. Wach discovered that unwanted longitudinal reflections and facet reflections could be suppressed and minimized by applying a patterned surface to semiconductor facets. This improved technique also avoided the drawbacks of the conventional solutions at the time. Mr. Wach's inventions satisfied the need for a system and method that allowed amplification of an optical signal while suppressing light from an optical amplifier.

11. One of the novel patterned surfaces that Mr. Wach introduced to the facets of semiconductor gain mediums was modeled on the eye pattern of nocturnal insects, such as a "motheye," which provides a gradual change of the refractive index between the facet's surface and the neighboring medium. Use of this novel approach resulted in a gradual change that softened the sudden change in the refractive index that caused unwanted surface reflections, thereby considerably reducing the reflectance of the facet.

12. Mr. Wach's inventions are embodied in U.S Patent No. 6,483,635, titled "Apparatus for Light Amplification," which issued on November 19, 2002 (the "'635 Patent," "asserted patent," or "patent-in-suit").

13. The '635 patent has been cited as prior art by over fifty-five later patents, including patents assigned to 3M and Hewlett-Packard.

14. In addition to the "motheye" patterned structure, the '635 patent introduced the use of other patterned structures to control unwanted reflections, including lines, cones, conical

posts, holes, grids and microlens arrays. These patterned structures are useful not only for reducing longitudinal modes and facet reflection, but also for mode adaption, mode shaping and beam shaping.

15. Mr. Wach's inventive use of patterned structures is particularly beneficial because the patterned structures can be formed by relatively cost-effective techniques, such as etching directly into a semiconductor material or other substrate.

16. At the time of Mr. Wach's inventions, the LED industry was in its infancy. Since then, LED based products, including Defendants' accused products, have evolved to utilize the '635 patent to focus visible light emissions, making the LED products more useful for applications such as general lighting, communications and display backlighting.

17. CRX is the owner by assignment of the '635 Patent. The '635 Patent was duly and legally issued by the United States Patent and Trademark Office on November 19, 2002. A true and correct copy of the '635 Patent is included as Exhibit A.

COUNT I

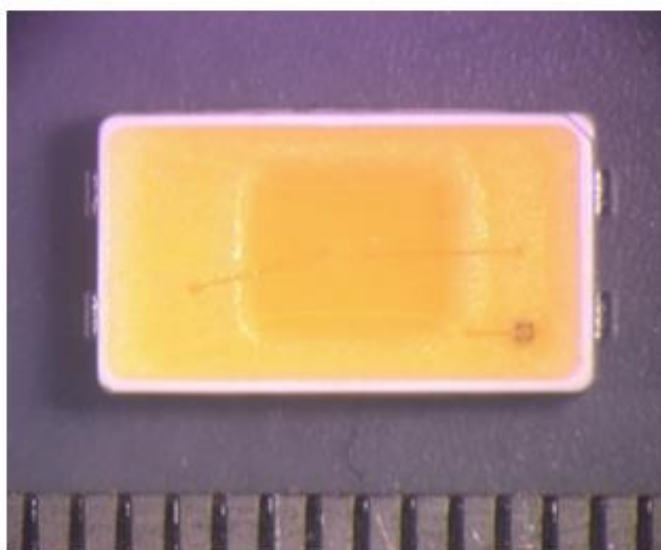
INFRINGEMENT OF THE '635 PATENT

18. CRX references and incorporates by reference paragraphs 1 through 18 of this Complaint.

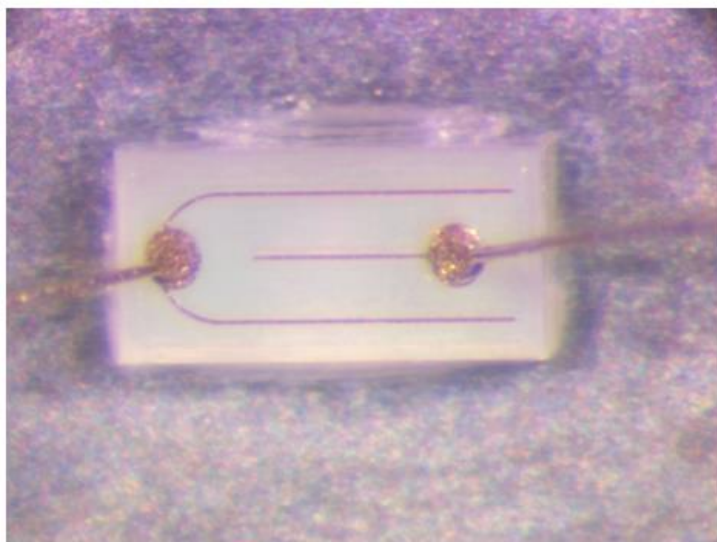
19. On information and belief, Defendants make, use, import, offer to sell and/or sell in the United States products that infringe various claims of the '635 Patent, and continue to do so. These include without limitation the Lite-On LED Middle Power family of products, including, for example, the LED Middle Power 5630 AZKxx Series including, e.g., the LTW-5630AZK27, LTW-5630AZK30, LTW-5630AZK35, LTW-5630AZK40, LTW-5630AZK50, LTW-5630AZK57, and LTW-5630AZK65, as well as Lite-On's LED products including and/or

utilizing a patterned substrate (collectively, the “accused products”). The accused products include, by way of further example, Lite-On’s LED components, LED modules, displays, televisions and lighting products that include LED dies and products utilizing a patterned substrate and/or Lite-On’s LED Middle Power family of products.

20. The accused products include a system for reducing reflection within an optical system, comprising a semiconductor gain medium comprising a front facet and a rear facet, and the semiconductor gain medium producing light energy when excited. The representative LTW-5630AZK27 accused product, for example, is a light emitting diode that includes a semiconductor gain medium that produces light energy when excited. Two top views of the light emitting diode for the LTW-5630AZK27 are shown below. The top view on the left has the packaging on, covering the light emitting diode. The top view on the right has the packaging removed, so that the light emitting diode is visible and can be seen.

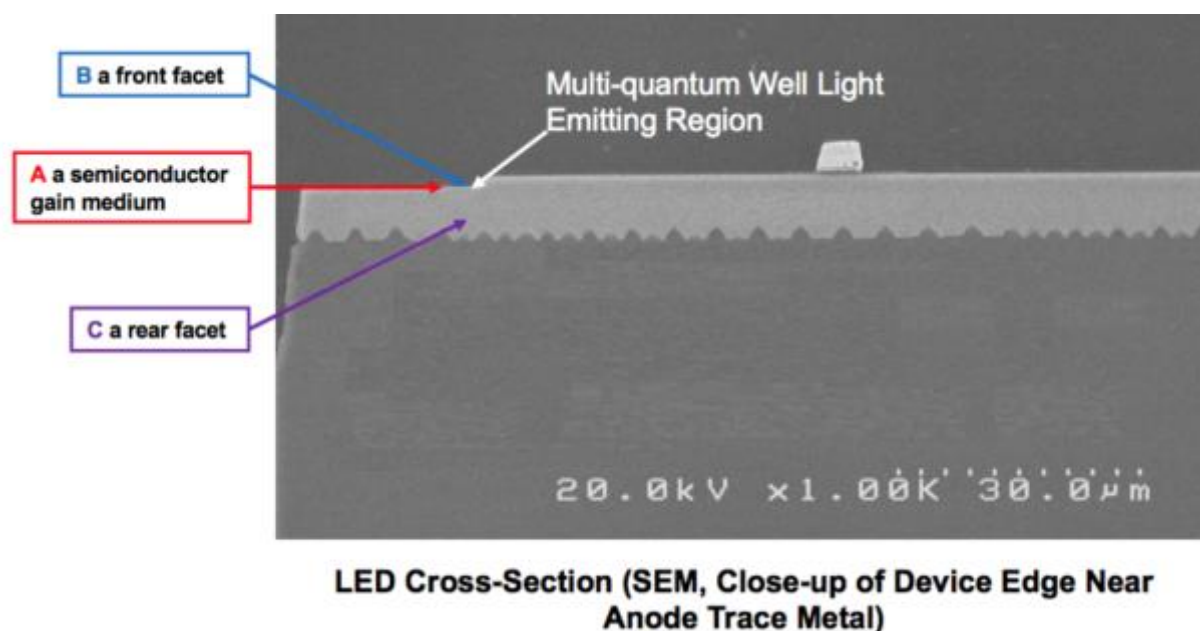


Top View (Light Emitting Side)

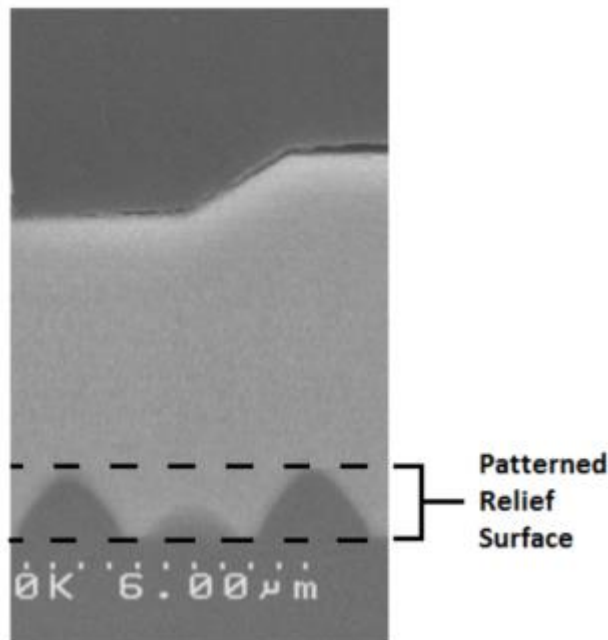


Top View (Optical, Close-up of Die)

21. The semiconductor gain medium of the accused products includes both a front facet and a rear facet. A microscopic cross-section of the LTW-5630AZK27 accused product shows infringing components of A (red): a semiconductor gain medium; B (blue): a front facet; and C (purple): a rear facet.



22. The accused products also comprise a patterned relief surface disposed on one of the facets. As can be seen by the below blown-up photograph, the patterned relief surface of the representative LTW-5630AZK27 is disposed on the rear facet:



23. The placement of the patterned relief surface leads to reducing reflection of light through at least one of said front and rear facets. At least one of said front facet and said rear facet allows part to transmit therethrough. For example, in the LTW-5630AZK27 accused product, the patterned relief surface disposed on the rear facet of the semiconductor gain medium reduces unwanted reflection in the front facet. The front facet allows part of the light energy to transmit therethrough.

24. On information and belief, Defendants have directly infringed and continue to directly infringe the '635 Patent by, among other things, making, using, importing, offering for sale, and/or selling the accused products. On information and belief, the accused products infringe one or more claims of the '635 Patent, including at least claim 1.

25. By making, using, importing, offering for sale, and/or selling the accused products that infringe claims of the '635 Patent, Defendants have injured CRX and are liable to CRX for infringement of the '635 Patent pursuant to 35 U.S.C. § 271(a) directly and/or under the doctrine of equivalents.

26. In addition, Defendants actively induce others, including without limitation customers and end users of the accused products and related products, to directly infringe each and every claim limitation, including without limitation claim 1 of the '635 Patent, in violation of 35 U.S.C. § 271(b). Upon information and belief, Defendants' customers and/or end users have directly infringed and are directly infringing each and every claim limitation, including without limitation claim 1 of the '635 Patent. Defendants have actual knowledge of the '635 Patent at least as of service of this Complaint. Defendants are knowingly inducing their customers and end users to directly infringe claims of the '635 Patent, with the specific intent to encourage such infringement, and knowing that the induced acts constitute patent infringement. Defendants' inducement includes, for example, providing technical and user guides, product data sheets, demonstrations, installation guides, and other forms of support that induce their customers and end users to directly infringe claims of the '635 Patent. Defendants also induce their customers to directly infringe claims of the '635 patent by, *e.g.*, selling infringing products to overseas customers with knowledge and intent that the customer will import, use, sell and/or offer to sell infringing products in the United States. Defendants design the accused products to operate in a manner such that when they are used by their customers and end users as intended, they infringe the '635 patent.

27. To the extent discovery shows that Defendants' infringement of claims of the '635 Patent is or has been willful and/or egregious, CRX reserves the right to request such a finding at time of trial.

28. As a result of Defendants' infringement of the '635 Patent, CRX has suffered monetary damages for Defendants' infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendants, together with interest and costs as fixed by the

Court, and CRX will continue to suffer damages in the future unless Defendants' infringing activities are enjoined by this Court.

29. Unless a permanent injunction is issued enjoining Defendants and their agents, employees, representatives, affiliates, and all others acting or in active concert therewith from infringing the '635 Patent, CRX will be irreparably harmed.

PRAYER FOR RELIEF

Plaintiff respectfully requests the following relief from this Court:

A. A judgment that Defendants have infringed and/or induced infringement of one or more claims of the '635 Patent;

B. A permanent injunction enjoining Defendants and their officers, directors, agents, affiliates, employees, divisions, branches, subsidiaries, parents, and all others acting in active concert or participation with Defendants, from infringing the '635 Patent;

C. A judgment and order requiring Defendants to pay CRX damages, costs, expenses, and prejudgment and post-judgment interest for Defendants' acts of infringement in accordance with 35 U.S.C. § 284;

D. A judgment and order requiring Defendants to provide accountings and to pay supplemental damages to CRX, including, without limitation, prejudgment and post-judgment interest;

E. A judgment and order finding that this is an exceptional case within the meaning of 35 U.S.C. § 285 and awarding to CRX its reasonable attorneys' fees against Defendants; and

F. Any and all other relief to which CRX may show itself to be entitled.

JURY TRIAL DEMANDED

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, CRX requests a trial by jury of any issues so triable by right.

Dated: November 8, 2017

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