

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

**SVV TECHNOLOGY INNOVATIONS
INC.**

Plaintiff,

v.

ASUSTEK COMPUTER INC.

Defendant.

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Civil Action No. 6:22-cv-00311

JURY DEMANDED

PLAINTIFF’S COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff SVV Technology Innovations Inc. (“SVVTI” or “Plaintiff”) files this Complaint for patent infringement against ASUSTek Computer Inc. (“ASUSTek” or “Defendant”). Plaintiff alleges infringement of United States Patent Numbers 8,290,318 (“318 Patent”); 9,880,342 (“342 Patent”), 10,439,089 (“089 Patent”), and 10,627,562 (“562 Patent”) collectively, the “Asserted Patents.”

PARTIES

1. Plaintiff SVVTI is a California corporation with a place of business 1832 Tribute Road, Suite C, Sacramento, California 95815.
2. On information and belief, Defendant ASUSTek is a company organized and existing under the laws of the country of the Republic of China (Taiwan), with its principal place of business at No. 15 Li-Te Road, Beitou District, Taipei 112, Taiwan, R.O.C.
3. ASUSTek may be served with process pursuant to Fed. R. Civ. P. 4(f)(2)(C)(ii) by Plaintiff sending the Court's Clerk under a cover letter: (1) copies of the Complaints and Summons in the above-captioned matter; (2) a FedEx envelope into which the Court can pack

said Complaints and Summons; (3) and a prepaid FedEx label that provides for shipment via a method that requires a signed receipt. *See Atlas Global Technologies v. ASUSTek Computer, Inc.*, No. 6:21-cv-00820-ADA, ECF No. 31 (W.D. Tex. Mar. 4, 2022). That label should be addressed to: ASUSTEK COMPUTER INC. No. 15, Li-Te Road Beitou District, Taipei 112 Taiwan, R.O.C. *Id.* That label should have a return address of: Chambers of the Honorable Alan D Albright 800 Franklin Ave. Waco, TX 76701. *Id.*

JURISDICTION AND VENUE

4. This is an action for patent infringement arising under the patent laws of the United States, Title 35, United States Code. Jurisdiction as to these claims is conferred on this Court by 35 U.S.C. §§1331 and 1338(a).

5. This Court has personal jurisdiction over ASUSTek because, directly or through intermediaries, each has committed acts within the Western District of Texas giving rise to this action and/or has established minimum contacts with the Western District of Texas such that the exercise of jurisdiction would not offend traditional notions of fair play and substantial justice.

6. ASUSTek has placed or contributed to placing infringing products into the stream of commerce via an established distribution channel knowing or understanding that such products would be sold and used in the United States, including in the Western District of Texas.

7. This Court has specific personal jurisdiction over ASUSTek at least in part because ASUSTek conducts business in this Judicial District. SVVTI's causes of action arise, at least in part, from Defendant's contacts with and activities in the State of Texas and this Judicial District. The exercise of jurisdiction over ASUS would not offend traditional notions of fair play and substantial justice. Defendant ASUS, directly and/or through subsidiaries or intermediaries (including distributors, retailers, and others), has committed and continues to commit acts of

infringement in this District by, among other things, offering to sell and selling products and/or services that infringe the patents-in-suit, including the accused devices as alleged herein.

8. On information and belief, ASUSTek also has derived substantial revenues from infringing acts in this Judicial District, including from the sale and use of infringing products including, but not limited to, the products accused of infringement below.

9. On information and belief, ASUSTek maintains authorized sellers and sales representatives that offer and sell products pertinent to this Complaint throughout the State of Texas, including this District and to consumers throughout this District, such as: Best Buy at 4627 S Jack Kultgen Expy, Waco, TX 76706; Sam's Club at 2301 E Waco Dr, Waco, TX 76705; Walmart Supercenter at 4320 Franklin Ave, Waco, TX 76710; and Amazon.com.

10. Defendant has established minimum contacts with this forum such that the exercise of jurisdiction over Defendant would not offend traditional notions of fair play and substantial justice.

11. Venue in this Judicial District is proper as to ASUSTek under 28 U.S.C. § 1391(c)(3) because it is a foreign corporation. Defendant has committed acts within this judicial district giving rise to this action, and Defendant continues to conduct business in this judicial district, including one or more acts of selling, using, importing and/or offering for sale infringing products or providing service and support to Defendant's customers in this District. This district is familiar with the technology of the Patents-in-Suit having presided over another lawsuit involving the Patents-in-Suit.

12. In addition, Defendant has knowingly induced and continues to knowingly induce infringement within this District by advertising, marketing, offering for sale and/or selling devices pre-loaded with infringing functionality within this District, to consumers, customers,

manufacturers, distributors, resellers, partners, and/or end users, and providing instructions, user manuals, advertising, and/or marketing materials which facilitate, direct or encourage the use of infringing functionality with knowledge thereof.

13. Personal jurisdiction also exists specifically over Defendant because Defendant, directly or through affiliates, subsidiaries, agents, or intermediaries, transacts business in this State or purposefully directed at this State (including, without limitation, retail stores including Best Buy and Walmart) by making, importing, offering to sell, selling, and/or having sold infringing products within this State and District or purposefully directed at this State or District.

14. In addition, Defendant, directly or through affiliates, subsidiaries, agents, or intermediaries, places infringing products into the stream of commerce knowing they will be sold and used in Texas, and economically benefits from the retail sale of infringing products in this State. For example, Defendant's products have been sold and are available for sale in this District at Best Buy and Walmart retail stores and are also available for sale and offered for sale in this District through online retailers such as Best Buy, Walmart, and Amazon.

15. Via Defendant's agents, intermediaries, distributors, importers, customers, and/or consumers maintaining a business presence, operating in, and/or residing in the U.S., Defendant's products, including products and processes accused of infringing the patents-in-suit, are or have been widely distributed and sold in retail stores, both brick and mortar and online, in Texas including within this judicial district. *See Litecubes, LLC v. Northern Light Products, Inc.*, 523 F.3d 1353, 1369-70 (Fed. Cir. 2008) (“[T]he sale [for purposes of § 271] occurred at the location of the buyer.”); *see also Semcon IP Inc. v. Kyocera Corp.*, No. 2:18-cv-00197-JRG, 2019 WL 1979930, at *3 (E.D. Tex. May 3, 2019) (denying accused infringer's motion to dismiss because plaintiff sufficiently plead that purchases of infringing products outside of the

United States for importation into and sales to end users in the U.S. may constitute an offer to sell under § 271(a)). For example, Defendant's products are sold to end users by online stores and at retail stores located throughout the Western District of Texas.

16. In the alternative, the Court has personal jurisdiction over Defendant under Fed. R. Civ. P. 4(k)(2), because the claims for patent infringement in this action arise under federal law, Defendant is not subject to the jurisdiction of the courts of general jurisdiction of any state, and exercising jurisdiction over Defendant is consistent with the U.S. Constitution.

FACTUAL BACKGROUND

17. SVVTI was founded in 2000 by Dr. Sergiy Vasylyev, a scientist and prolific inventor.

18. Dr. Sergiy Vasylyev has an academic background and more than 20 years of research experience in physical sciences. He received an M.S. equivalent in Physics and Astronomy from the Kharkiv State University, Ukraine in 1992 and a Ph.D. in Physics and Mathematics from the Main Astronomical Observatory of National Academy of Sciences of Ukraine in 1996. From 1996 to 1999, he worked with several major academic research institutions and was involved in diverse research projects in the areas of space physics and solar energy. After immigrating to the U.S., in 2000, Dr. Vasylyev founded SVV Technology Innovations, Inc. to develop and commercialize his ideas in several technical fields ranging from optics and information technology to solar energy and lighting. Dr. Vasylyev is the author of approximately eighty patents and dozens of patent applications, has had numerous talks and presentations at the national and international conferences related to space physics, solar energy and lighting and has authored/co-authored over 30 scientific and technical publications. Dr. Vasylyev's broad technical

expertise areas include IT/IOT, optics, photonics, lightguide-based illumination systems, solar energy, daylighting, and solid-state lighting.

19. Since its inception, SVVTI has been a vehicle for developing and commercializing Dr. Vasylyev's inventions, particularly being dedicated to creating impactful technology solutions that find utility in energy efficiency, renewable energy and certain types consumer products. One technology focus is optical advances that enhance solar energy harvesting and save energy in illumination systems.

20. SVVTI has invented and validated several ground-breaking technology solutions and has accumulated an extensive knowledge and built a diverse IP portfolio in optics, photonics, solar energy, daylighting and solid-state lighting fields. SVVTI has received innovation awards from TechConnect, Cleantech Open, and Illuminating Engineering Society.

21. SVVTI has developed and demonstrated several novel types of optical collectors for solar energy applications, significantly improving over the traditional technologies in terms of material intensity, concentration ratio, beam uniformity and solar-to-electric conversion efficiency.

22. Another notable technology developed by SVVTI is a unique daylight redirecting film material (Daylighting Fabric®) which is applied to windows of a building façade to redirect natural daylight deep into the interior space for improving natural illumination and saving energy used for lighting.

23. SVVTI has also developed and demonstrated various types of innovative wide-area illumination panels and backlights employing light guides and light emitting diodes (LEDs). These panels can be tailored for specific applications and improving various characteristics of

illumination systems, including, for example, light beam diffusion, emission directionality, material efficiency, luminous efficacy, glare control, design options and aesthetics.

24. On February 25, 2021, ASUSTek received a letter from SVVTI, introducing SVVTI, notifying ASUSTek of several of the patents identified below, and identifying several of ASUSTek's products that utilize SVVTI's intellectual property.

25. Defendant has been aware of the Asserted Patents since, at least, February 25, 2021 when ASUSTek received SVVTI's letter disclosing and attaching each of these patents, and identifying several of ASUSTek's products utilizing claims of such patents which were also identified in SVVTI's letter.

TECHNOLOGY BACKGROUND

26. Several of the products accused of infringement below are products that contain displays using LED-illuminated LCD technology. A LED-illuminated LCD (liquid-crystal display) is a flat-panel display that uses LED (light-emitting diode) illumination. The illumination may come from LEDs along one or more sides of the display (edge-lit) or from full-array backlighting (direct-lit). As explained below, some displays use a quantum dot enhancement film ("QDEF").

27. Several of the products accused of infringement below are QLED monitors. QLED stands for quantum dot LED.

28. ASUS sells monitors that use QLED technology and heavily markets them to the gaming community. Notable products include the ROG SWIFT PG35VQ and ROG SWIFT PG27UQ monitors.

29. Generally, quantum dots are small, semiconductor particles that have unique optical and electronic properties, including the ability to produce pure monochromatic red, green, and/or blue light.

30. A widespread commercial application is using a quantum dot enhancement film (“QDEF”) layer to improve the LED backlighting in LCD TVs. In this application, light from a blue LED backlight is converted by quantum dots to relatively pure red and green. This combination of blue, green and red light incurs less blue-green crosstalk and light absorption in the color filters after the LCD screen, thereby increasing useful light throughput and providing a better color gamut.

31. The QDEF layer is able to replace a diffuser used in traditional LCD backlight units.

32. The use of quantum dots to produce monochromatic red, green and blue light is an improvement over traditional LCD backlight units which fed a blue LED through a yellow filter to create white light which was then passed through red, green and blue color filters.

THE ACCUSED PRODUCTS

33. The Accused Products are products which utilize LED-backlit LCD display panels.

34. The Accused Products are distinguishable into two categories. Products which utilize display panels containing one or more QDEF layers (“QDEF Accused Products”) and products which utilize display panels that do not contain QDEF layers (“Non-QDEF Accused Products”). The QDEF Accused Products are further distinguishable into two subcategories. QDEF Accused Products which are direct-lit, in that they use an LED array on the back side of the panel (“Direct-lit QDEF Accused Products”) and QDEF Accused Products which are edge-

lit, in that they use LEDs around one or more edges of the panel (“Edge-lit QDEF Accused Products”).

35. The QDEF Accused Products include, but are not limited to, PA32UCX-PK, PA27UCX-K, PA32UCG-K, PG65UQ, PG35VQ, PG32UQX, PG27UQ, PA329Q, PA32UCG, PA32UCX, PG27UQ, PG32UQ, and PG35VQ.

36. The Direct-lit QDEF Accused Products include, but are not limited to, PA32UCX-PK, PA27UCX-K, PA32UCG-K, PG65UQ, PG35VQ, PG32UQX, PG27UQ, PA329Q, PA32UCG, PA32UCX, PG27UQ, and PG35VQ.

37. The Edge-lit QDEF Accused Products include, but are not limited to, PG32UQ.

38. The Non-QDEF Accused Products include, but are not limited to, the following monitors: XG438Q, MG28UQ, PB287Q, VA24DQ, VG249Q, VG27VQ, VG279Q1A, VG328H1B, USB Monitor MB169, VA27EHE, VG259Q, VG278QR, VG279Q1R, VG27VH1B, VG27WQ1B, VL279HE, VP279HE, VY279HE, VA24EHE, VG279QMY, VG30VQL1A, VG24VQ1BY, VG24VQ1B, VG247Q1AY, VP349CGL, VG32AQL1A, VG277Q1A, PA328CGV, VG28UQL1A, VG247Q1A, VG32VQR, VG27AQGL1A, VG248QEZ, VG258QM, VG34VQL1B, VG249Q1A, VG24VQE, VG259QR, VG279QR, VG27AQ1A, VG259QM, VG24VQR, VG279QL1A, VG259QMY, VG27AQL1A, VG32VQ, VG32VQ1B, VZ249HEG1R, VZ279HEG1R, VG249Q1R, VZ249QG1R, VG248QG, VG27WQ, VG259Q, VG279QM, VG24VQ, VG279Q, VG289Q, VP249QGR, VG35VQ, VP28UQGL, VG258QR, VG27BQ, VG27AQ, VP348QGL, VG278Q, VP278QGL, VP278QG, VP248QGL, VP228QG, VG275Q, VP248QG, VP28UQG, MG248QR, VA325H, MG279Q, VG245H, XG276Q, XG27AQ-W, XG249CM, XG43UQ, XG27UQR, XG27AQM, XG349C, XG16AHPE, XG279Q-G, PG279QM, XG16AHP-W, XG27AQ, PG259QNR, XG32VC,

PG259QN, PG329Q, XG43UQ, PG43UQ, XG43VQ, XG27UQ, XG279Q, XG248Q, PG278QR, XG49VQ, VG289Q1A, PA329CV, PA148CTV, PA278CV, PA247CV, PA279CV, PA278QV, PA248QV, PA34VC, PA329C, MB166C, MB165B, MB16ACV, MB16AHP, MB16AH, MB14AC, MB169B+, MB168B, MB16ACE, MB16AMT, MB16AC, VA279HAE, VY279HE-W, VT168HR, BE27ACSBK, VZ24EHE, VA247HE, VP299CL, VZ27EHE, VA24DQSB, VA24DQSBY, VA27DCP, BE279QSK, VA24DCP, VA27DQ, VP32AQ, VP32UQ, BE24EQSK, VY249HE, VG246H, VL249HE, VP229HE, VP229Q, VA27DQSB, VP279HE, VN279QL, VA24DQLB, VA24DQ, BE24EQK, VA32UQ, MX279HS, VA229HR, VP249HE, VT229H, VZ279HE, VP228HE, VA249HE, VZ239H-W, VT168H, MG248Q, BE24WQLB, and VB178N.

39. The Non-QDEF Accused Products also include, but are not limited to, the following laptop computers: M241, V241, V161, S300MA, S340MF, M509, M415, M3700 (AMD Ryzen 5000 Series), BR1100C, BR1100F, R543, E510, L210, L410, L510, X543, E410, X509, M415 (AMD Ryzen 5000 Series), M515 (AMD Ryzen 5000 Series), M570, W202, ExpertBook B1 B1400, ExpertBook B1 B1500, ExpertBook B9 B9450 (11th Gen Intel), ExpertBook B9 B9450, ExpertBook P2, ASUSPRO P3540, ASUSPRO P5440, ASUSPRO D641SC, ASUSPRO D340MC, ProArt StudioBook Pro 15 W500, ProArt StudioBook Pro 17 W700, ProArt StudioBook Pro X W730, ProArt StudioBook 15 H500, ProArt StudioBook 17 H700, ProArt StudioBook One W590, ROG Flow X13 GV301QH-DS96, ROG Flow X13 GV301QH-XS98-B, ROG Mothership GZ700GX-XB98K, ROG G703VI-XH74K, G10DK-WS764 G10DK-WB764, ROG Strix G15 Advantage Edition G513QY-212.SG15, ROG Strix G17 G713QM-ES74, ROG Strix G15 G513QM-ES74, ROG Strix SCAR 15 G533QRDS76Q, ROG Strix SCAR 15 G533QS-DS76, ROG Strix SCAR 17 G732LWS-DS76, ROG Strix SCAR

17 G733QSA-XS99, ROG Strix G17 G713QR-ES96, ROG Strix G15 G513QM-ES94, ROG Strix G15 G513QR-ES96, ROG Strix G17 G713QM-ES94, ROG Strix SCAR 15 G533QRXS98Q, ROG Strix SCAR 15 G533QS-XS98Q, ROG Strix SCAR 17 G732LWS-XS98, ROG Strix SCAR 17 G732LXS-XS94, ROG Strix SCAR 17 G733QR-DS98, ROG Strix SCAR 17 G733QSXS98Q, ROG Strix G15 G512LWS-PH74, ROG Strix G15 G512LW-ES76, ROG Strix G15 G512LW-XS78, ROG Strix G15 G512LU-RS74, ROG Strix G15 G512LU-XS74, ROG Strix G15 G512LWWS74, ROG Strix G15 G512LI-RS73, ROG Strix G17 G712LW-XS78, ROG Strix G17 G712LURS73, ROG Strix G17 G712LW-ES74, ROG Strix SCAR 15 G532LWS-DS76, ROG Strix GT35 G35CZ-XS991, ROG Strix SCAR 15 G532LWS-XS96, ROG Strix SCAR 15 G532LWS-XS99, ROG Strix SCAR 17 G732LXS-XS99, ROG Strix GA15 GA15DH-ES557, ROG Strix GA15 GA15DH-DS757, ROG Strix GL10DH-PH552, ROG Strix G GL531GU-WB53, ROG Strix G GL531GU-WB53-B, ROG Strix G G531GT-AL123T, ROG Strix G GL531GU-WB74, ROG Strix Hero III G531GW-XB74, ROG Strix SCAR III G531GV-DB76, ROG Strix SCAR III G531GW-DB76, ROG Strix SCAR III G531GW-KB71, ROG Strix SCAR III G531GW-XB96, G15 GA502IV-WS74, G15 GA502IV-XS76, ROG Zephyrus G14-ACRNM GA401IVC-RMT01, ROG Zephyrus G14 GA401IV-BR9N6, ROG Zephyrus G14 GA401IV-BS96-WH, ROG Zephyrus G14 GA401IV-XS96, GX701GVR GA401IU-PB96, G15 GA502IV-PH96, ROG Zephyrus S17 GX703HM-DB76, ROG Zephyrus S17 GX703HM-KF001R, ROG Zephyrus Duo 15 SE GX551QR-XS78, ROG Zephyrus Duo 15 SE GX551QM-ES76, ROG Zephyrus G15 GA503QM-BS94Q, ROG Zephyrus G15 GA503QS-BS96Q, ROG Zephyrus G15 GA503QSXS98Q-WH, ROG Zephyrus G14 GA401QM-XS98Q-WH, ROG Zephyrus Duo 15 SE GX551QS-XS99, ROG Zephyrus Duo 15 SE GX551QR-XS98, ROG Zephyrus M16 GU603HRK8004R, ROG Zephyrus M16 GU603HE-K8035R, ROG

Zephyrus M16 GU603HM-K8030R, ROG Zephyrus S17 GX703HR-KF051R, ROG Zephyrus S17 GX703HR-XB96, ROG Zephyrus S17 GX703HS-KF004R, ROG Zephyrus S17 GX703HS-XB98, ROG Zephyrus S17 GX703HSXB99, ROG Zephyrus S17 GX701LWS-XS76, ROG Zephyrus M15 GU502LU-BI7N4, ROG Zephyrus M15 GU502LV-BI7N8, ROG Zephyrus S17 GX701LV-DS76, S17 GX701LXS-XS78, S15 GX502LWS-XS76, S15 GX502LXS-XS79, ROG Zephyrus Duo 15 GX550LWS-XS79, ROG Zephyrus G14 GA401IH-BR7N2BL, GX701GVR GA401IU-BS76, ROG Zephyrus S GX531GX-XB76, S-GX531GX-XB77, ROG Zephyrus G15 GA502DU-WB73, SGX531GXXS74, M GM501GS-XS74, S GX531GW-AS76, GX501GI-XS74, ROG Zephyrus S GX531GWAB76, 2021 TUF Dash F15, 2021 TUF Gaming F15, 2021 TUF Gaming F17, TUF Gaming F15, TUF Gaming F17, TUF Gaming A17, TUF Gaming A15, 2021 TUF Gaming A17, 2021 TUF Gaming A15, TUF Gaming FX505DY, TUF Gaming FX705DY, TUF Gaming FX705DD/DT/DU, TUF Gaming FX505DD/DT/DU, VivoBook 14 X412, VivoBook 17 M712, VivoBook 15 M513 (AMD Ryzen 5000 Series), VivoBook 15 K513 (11th gen Intel), VivoBook 14 K413 (11th gen Intel), VivoBook 15 F513IA, VivoBook 17 X712, VivoBook Flip 14 TM420 (AMD Ryzen 5000 Series), VivoBook Flip 14 TP412, VivoBook Flip 14 TP470, VivoBook Flip 14 TM420, VivoBook Flip 14 TP401, VivoBook Flip 12 TP202, K571GT, VivoBook 14 M413, VivoBook S14 (S435), VivoBook S13 S333 (11th Gen Intel), VivoBook S14 S433 (11th Gen Intel), VivoBook S15 S532 (11th Gen Intel), VivoBook S15 S533 (11th Gen Intel), VivoBook 15 M513, VivoBook S13 S333, VivoBook S15 S532, VivoBook S15 S533, VivoBook 14 (M413, AMD Ryzen 5000 Series), VivoMini VC66-C2, Q528EH, ZenBook 14 UM425, ZenBook 13 UX325 (11th Gen Intel), ZenBook 14 UX425, ZenBook 14 UX435, ZenBook Duo 14 (UX482), ZenBook 14 UM425 (UA), Q507IQ, ZenBook 14 UX425 (11th GenIntel), ZenBook Duo UX481, ZenBook 15 UX534, ZenBook 14 UX434,

ZenBook 13 UX325, ZenBook 13 UX334, Q506, ZenBook Flip S UX371 (11th Gen Intel), ZenBook Flip S13 OLED (UX371, 11th Gen Intel), ZenBook Flip 15 Q538EI, ZenBook Flip 13 UX363, Zenbook Flip 13 UX363 (11th gen Intel), ZenBook Pro 15 UX535, ZenBook Pro Duo UX581, ZenBook S UX393 (11th Gen Intel), Chromebook C223, Chromebook C403, Chromebook C423, Chromebook C523, Chromebook CX1 (CX1100), Chromebook CX1 (CX1400), Chromebook Flip CM5 (CM5500), Chromebook Flip C536, Chromebook Flip CX5 (CX5500), Chromebook Flip C436, Chromebook Flip C214, Chromebook Flip C433, Chromebox 4, Fanless Chromebox, and other devices.

40. The Non-QDEF Accused Products also include, but are not limited to, the Chromebook CT100PA tablet computer.

COUNT I

DEFENDANT'S INFRINGEMENT OF U.S. PATENT NO. 8,290,318

41. On October 16, 2012, United States Patent No. 8,290,318 entitled "Light Trapping Optical Cover" was duly and legally issued after full and fair examination. SVVTI is the owner of all right, title, and interest in and to the patent by assignment, with full right to bring suit to enforce the patent, including the right to recover for past infringement damages and the right to recover future royalties, damages, and income. A true copy of the '318 patent is incorporated by reference herein and may be accessed at <http://patft1.uspto.gov/netacgi/nph-Parser?patentnumber=8290318> or <https://patents.google.com/patent/US8290318B2>.

42. Defendant has directly infringed, and is continuing to directly infringe, literally or under the doctrine of equivalents, at least claims 1, 2, 3, 5, 6, 8, 11, 13, 14, and 15 of the '318 patent by importing into the United States, making, using, selling, and/or offering for sale, at least, the Edge-lit QDEF Accused Products and other products containing LED-illuminated LCD

displays, including computer monitors and laptops in the United States, in violation of 35 U.S.C. § 271(a).

43. The Edge-lit QDEF Accused Products use an optical cover, specifically, a backlight including various light-management optical sheets (including, for example, a light guiding plate (LGP)) covering light harvesting device (plastic sheet incorporating quantum dot materials) within a backlighting/LCD panel assembly. The quantum dot materials are used to absorb blue light emitted from the backlight and re-emit the absorbed energy in other spectral bands¹ of light (e.g., red and/or green colors). The LCD/backlighting panel assembly includes a layer of optically transparent material (LGP). The LGP is formed by a plastic sheet made from a highly transparent material (such as optical-grade acrylic). The LGP includes two opposing broad-area surfaces extending parallel to each other. The LGP (layer of optically transparent material) contains a large number of light-deflecting elements (microstructures). These light deflecting elements are formed in the back surface of the LGP and distributed along the prevailing plane of the LGP. Both the front and back surfaces of the LGP receive light and therefore are input surfaces. Furthermore, both of the surfaces are characterized by a stepped drop in refractive index outwardly from the respective layer (LGP) and by a critical angle of a Total Internal Reflection (the LGP guides light emitted by the LEDs using Total Internal Reflection). Each of the light deflecting elements (microstructures) receive light that propagate between the opposing front and back surfaces (e.g., the light that is recycled within the LCD/backlighting panel assembly and passed through the LGP.

COUNT II

DEFENDANT'S INFRINGEMENT OF U.S. PATENT NO. 9,880,342

44. On January 30, 2018, United States Patent No. 9,880,342 entitled “Collimating Illumination Systems Employing Planar Waveguide” was duly and legally issued after full and fair examination. SVVTI is the owner of all right, title, and interest in and to the patent by assignment, with full right to bring suit to enforce the patent, including the right to recover for past infringement damages and the right to recover future royalties, damages, and income. A true copy of the ’342 patent is incorporated by reference herein and may be accessed at <http://patft1.uspto.gov/netacgi/nph-Parser?patentnumber=9880342> or <https://patents.google.com/patent/US9880342B2>.

45. Defendant has directly infringed, and is continuing to directly infringe, literally or under the doctrine of equivalents, at least claims 1-7, 9-11, 13-16, 18-25, 28-31, and 33 of the ’342 patent by importing into the United States, making, using, selling, and/or offering for sale, at least, the Non-QDEF and Edge-lit QDEF Accused Products and other products containing LED-illuminated LCD displays, including computer monitors and laptops in the United States, in violation of 35 U.S.C. § 271(a).

46. The Non-QDEF and Edge-lit QDEF Accused Products use an illumination apparatus, specifically, a display screen. The display screen incorporates a liquid crystal display (LCD) which is backlit using a backlighting assembly (backlight). The backlight uses multiple light-emitting diodes (LEDs) which are placed along an edge of the visible area of the display and provide a light source. The display screen incorporates a planar waveguide formed by a thin layer of an optically transmissive material. For example, light from the backlighting LEDs is distributed and transmitted through the LCD using a planar waveguide (LGP). The planar waveguide (LGP) has four edges along its perimeter. The edges exist within the thickness of the waveguide, i.e., between the front surface (three-dimensionally textured surface) and the back

surface (planar surface). One of those four edges is lit by LEDs. This edge (the light input edge) is transparent and allows light to freely enter the waveguide. The light source (the LEDs) is adjacent to the light input edge of the waveguide (LGP). The LEDs are optically coupled to (i.e., illuminate directly into the edge of) the LGP. The planar waveguide (LGP) receives light from the LEDs on its light input edge and propagates the received light through the planar waveguide in response to the optical transmission of the light from the LEDs. The back surface (planar surface) of the waveguide (LGP) contains a large number of light-deflecting elements (microstructures) that can be seen with magnifying optics (e.g., macro lens or microscope). These light-deflecting elements span along the entire length and width of the LGP, and do not follow a fixed geometric positioning pattern (e.g., an ordered grid pattern). The front surface (three-dimensionally textured surface) of the waveguide (LGP) contains a planar array of elongated cylindrical lenses (rounded ridges extending between opposing edges of the LGP). Each of the rounded ridges of the front surface has the shape of a section of a cylinder and represents linear cylindrical lenses. The cylindrical lenses (rounded ridges) are formed directly in the front surface of the planar waveguide (LGP) such that the array of cylindrical lenses and the planar waveguide (LGP) collectively constitute a single monolithic structure which transmits light. At least one of the light-deflecting elements (microstructures) residing on the back surface of the waveguide (LGP) has a curved surface. For example, the sidewalls of each microstructure have curved surfaces that are sloped with respect to the overall plane constituting the back surface of the waveguide. At least one of the light-deflecting elements (microstructures) formed in the back surface of the waveguide is in a predetermined alignment (e.g., in relative orientation and/or positions) with the elongated cylindrical lenses residing on the front surface (three-dimensionally textured surface) of the planar waveguide (LGP). The area of each light

deflecting element (microstructure) is less than one square millimeter. The light receiving aperture (light receiving area) of each elongated cylindrical lens (rounded ridge) is at least of the order of several tens of square millimeters. Each of the light deflecting elements (microstructures) formed in the back surface of the waveguide redirects light propagating in the waveguide (LGP) towards the elongated cylindrical lenses residing on the front surface of the waveguide. At least a substantial portion of the light entering the planar waveguide (LGP) on the light input edge is emitted through the elongated cylindrical lenses (rounded ridges) residing on the front surface (three-dimensionally textured surface) of the planar waveguide and towards an LCD located in front of the backlighting assembly.

COUNT III

DEFENDANT'S INFRINGEMENT OF U.S. PATENT NO. 10,439,089

47. On October 8, 2019, United States Patent No. 10,439,089 entitled "Light Converting System Employing Planar Light Trapping and Light Absorbing Structures" was duly and legally issued after full and fair examination. SVVTI is the owner of all right, title, and interest in and to the patent by assignment, with full right to bring suit to enforce the patent, including the right to recover for past infringement damages and the right to recover future royalties, damages, and income. A true copy of the '089 patent is incorporated by reference herein and may be accessed at <http://patft1.uspto.gov/netacgi/nph-Parser?patentnumber=10439089> or <https://patents.google.com/patent/US10439089B2>.

48. Defendant has directly infringed, and continues to directly infringe, literally or under the doctrine of equivalents, at least claims 1-20 of the '089 patent by importing into the United States, making, using, selling, and/or offering for sale, at least, the QDEF Accused

Products and other products containing LED-illuminated LCD displays, including computer monitors, tablets, and handheld devices, in the United States, in violation of 35 U.S.C. § 271(a).

49. Defendant has directly infringed, and continues to directly infringe, literally or under the doctrine of equivalents, at least independent claim 20 of the '089 patent by importing into the United States, at least, the QDEF Accused Products and other products containing LED-illuminated LCD displays, including computer monitors, tablets, and handheld devices, in violation of 35 U.S.C. § 271(g).

50. The QDEF Accused Products use a light converting optical system, specifically, a display screen. The display screen incorporates a liquid crystal display (LCD) which is backlit using a backlighting assembly (backlight). The backlight uses multiple light-emitting diodes (LEDs) which are placed along an edge of the visible area of the display and provide a light source. The LEDs emit blue light, a portion of which is absorbed and converted to other wavelengths within the backlight. The LCD/backlighting assembly contains a broad-area optically transmissive surface. For example, the LCD/backlighting assembly includes a composite prism sheet, sometimes also called brightness enhancement film (BEF) or optical enhancement film, having a front¹ surface which transmits light (e.g., towards the front side of the display). The LCD/backlighting assembly contains a broad-area reflective surface (back reflector) on a back side of the assembly. The back reflector extends parallel to the optically transmissive surface (front surface of composite prism sheet) and is configured for scattering light (e.g., has a diffuse reflective coating). The LCD/backlighting assembly contains a first photoresponsive layer disposed between the optically transmissive surface and the reflective surface. For example, the backlight contains a Quantum Dot Enhancement Film (QDEF) which is disposed between the front surface of the composite prism sheet and the back reflector. The

LCD/backlighting assembly contains a second photoresponsive layer disposed between the optically transmissive surface (front surface of composite prism sheet) and the reflective surface (back reflector). For example, the backlight includes a phosphor layer formed on the back reflector, which is used to convert blue light into other wavelengths to create a perception of white light (e.g., when illuminated by the LEDs). The LCD/backlighting assembly contains a planar lens array (an array of cylindrical lenses arranged on a planar plastic substrate) extending parallel to the optically transmissive and reflective surfaces (front surface of composite prism sheet and back reflector, respectively). The first photoresponsive layer (QDEF) incorporates quantum dots. The quantum dots are distributed within an optically transmissive material. The thickness of the first photoresponsive layer is less than a minimum thickness sufficient for absorbing substantially all incident light in a single pass. For example, QDEF transmits at least some light without absorption in a single pass.

COUNT IV

DEFENDANT'S INFRINGEMENT OF U.S. PATENT NO. 10,627,562

51. On April 21, 2020, United States Patent No. 10,627,562 entitled "Illumination System Using Edge-Lit Waveguide and Microstructured Surfaces" was duly and legally issued after full and fair examination. SVVTI is the owner of all right, title, and interest in and to the patent by assignment, with full right to bring suit to enforce the patent, including the right to recover for past infringement damages and the right to recover future royalties, damages, and income. A true copy of the '562 patent is incorporated by reference herein and may be accessed at <http://patft1.uspto.gov/netacgi/nph-Parser?patentnumber=10627562> or <https://patents.google.com/patent/US10627562B2>.

52. Defendant has directly infringed, and continues to directly infringe, literally or under the doctrine of equivalents, at least claims 1-8, 10, and 13-20 of the '562 patent by importing into the United States, making, using, selling, and/or offering for sale, at least, the QDEF Accused Products and other products containing LED-illuminated LCD displays, including computer monitors, tablets, and handheld devices, in the United States, in violation of 35 U.S.C. § 271(a).

53. The QDEF Accused Products use an edge-lit waveguide illumination system, specifically, a display screen. The display screen incorporates a liquid crystal display (LCD) which is backlit using a backlighting panel assembly (backlight). The backlight uses multiple light-emitting diodes (LEDs) which are placed along an edge of the visible area of the display and provide a light source. Light emitted by the LEDs is redistributed within the backlight using an optical waveguide. The display screen incorporates a thin planar body of an optically transmissive material having edges disposed between a first broad-area surface and an opposing second broad-area surface. For example, the backlight of the display screen contains a large-area light guiding plate (LGP) which is 3 mm in thickness and which transmits light. The LGP has edges disposed between its front surface and opposing back surface. Both the front and back surfaces have broad areas (e.g., extending along approximately the entire length and width of the visible portion of the display screen). The display screen also incorporates a plurality of light emitting diodes (LEDs) optically coupled to an edge of said optically transmissive material (LGP). For example, multiple LEDs are positioned along and oriented towards a light input edge of LGP such that the edge is illuminated when LEDs are turned on. The display screen incorporates a plurality of linear lenses formed in said first broad-area surface (front surface of LGP). For example, the front surface of LGP has a large number of long and narrow lenses

which extend along straight lines between opposite edges of LGP. The display screen incorporates a plurality of surface relief features formed in said second broad-area surface (back surface of LGP) according to a predetermined two-dimensional pattern. For example, the back surface of LGP has a two-dimensional pattern of microstructures which are distributed over both length and width dimensions of the surface and are used to extract light from LGP. The two-dimensional pattern is predetermined (e.g., designed to make LGP to uniformly emit light from its surface). The optically transmissive material (LGP) is configured to receive light on said edge and propagate the received light towards an opposing edge in response to optical transmission and total internal reflection. For example, LGP receives light from LEDs on its light input edge and propagates it towards the opposite edge using optical transmission and total internal reflection (TIR)³ from its front and back surfaces. The plurality of surface relief features (microstructures) is configured to extract light from said optically transmissive material (LGP) such that the extracted light is distributed from a surface of said plurality of linear lenses. For example, as explained above, the microstructures are used to extract light from LGP. The extracted light is distributed through the front surface of LGP, in which the linear lenses are formed, towards the front side of the display screen. Thus, the extracted light is distributed from the surface of linear lenses.

FURTHER ASSERTIONS INVOLVING ALL CLAIMS

54. The Asserted Patents are valid and enforceable.

55. Defendant has had knowledge of the Asserted Patents since, at least, February 25, 2021, when ASUSTek received SVVTI's letter disclosing each of these patents, and identifying several of ASUSTek's products utilizing claims of such patents which were also identified in SVVTI's letter.

56. Alternatively, Defendant has had knowledge of the Asserted Patents since, at least, the filing date of the original complaint in this action.

57. Defendant's affirmative acts of selling the Accused Products, causing the Accused Products to be sold, advertised, offered for sale, and/or distributed, and providing instruction manuals for the Accused Products have induced and continue to induce Defendant's customers, and/or end-users to use the Accused Products in their normal and customary way to infringe the Asserted Patents. For example, it can be reasonably inferred that end-users will use the infringing products, which will cause the end-users to use the elements that are the subject of the claimed invention. Defendant specifically intended and was aware that these normal and customary activities would infringe the Asserted Patents. In addition, Defendant provides marketing and/or instructional materials, such as user guides, that specifically teach end-users to use the Accused Products in an infringing manner. By providing such instructions, Defendant knows (and has known), or was willfully blind to the probability that its actions have, and continue to, actively induce infringement. By way of example only, Defendant has induced infringement and continue to induce infringement of, in addition to other claims, at least the specific claims identified above of the Asserted Patents by selling in the United States, without SVVTI's authority, infringing products and providing instructional materials. These actions have induced and continue to induce the direct infringement of the Asserted Patents by end-users. Defendant performed acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the Asserted Patents and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. Upon information and belief, Defendant specifically intended (and intends) that its actions would result in infringement of at least the specific claims identified above of the Asserted Patents, or

subjectively believed that its actions would result in infringement of the Asserted Patents but took deliberate actions to avoid learning of those facts, as set forth above. Upon information and belief, Defendant knew of the Asserted Patents and knew of its infringement, including by way of this lawsuit as described above.

58. Defendant's infringement has been and continues to be willful and deliberate. Upon information and belief, Defendant deliberately infringed the Asserted Patents and acted recklessly and in disregard to the Asserted Patents by making, having made, using, importing, and offering for sale products that infringe the Asserted Patents. Upon information and belief, the risks of infringement were known to Defendant and/or were so obvious under the circumstances that the infringement risks should have been known. Upon information and belief, Defendant has no reasonable non-infringement theories. Upon information and belief, Defendant has not attempted any design/sourcing change to avoid infringement. Defendant has acted despite an objectively high likelihood that its actions constituted infringement of the Asserted Patents. In addition, this objectively-defined risk was known or should have been known to Defendant. Upon information and belief, Defendant has willfully infringed and/or continues to willfully infringe the Asserted Patents. Defendant exhibited egregious behavior beyond typical infringement in that, despite being aware of its infringement, defendant did not develop any non-infringement theories, did not attempt any design or sourcing change, and did not otherwise cease its infringement.

59. To the extent any marking or notice was required by 35 U.S.C. § 287, Plaintiff has complied with the applicable marking and/or notice requirements of 35 U.S.C. § 287.

DEMAND FOR JURY TRIAL

Plaintiff hereby demands a jury for all issues so triable.

PRAYER

WHEREFORE, Plaintiff prays for judgment that:

1. Defendant has infringed and continues to infringe, one or more claims of the Asserted Patents;
2. Defendant be ordered to pay damages caused to Plaintiff by Defendant's unlawful acts of infringement;
3. Defendant's acts of infringement have been, and are, willful;
4. Plaintiff recover actual damages under 35 U.S.C. § 284;
5. Plaintiff be awarded supplemental damages for any continuing post-verdict infringement up until final judgment;
6. Plaintiff be awarded a compulsory ongoing royalty;
7. Plaintiff be awarded an accounting of damages;
8. Plaintiff be awarded enhanced damages for willful infringement as permitted under the law;
9. A judgment and order requiring Defendant to pay to Plaintiff pre-judgment and post-judgment interest on the damages awarded, including an award of pre-judgment interest, pursuant to 35 U.S.C. § 284, from the date of each act of infringement by Defendant to the day a damages judgment is entered, and a further award of post-judgment interest, pursuant to 28 U.S.C. § 1961, continuing until such judgment is paid, at the maximum rate allowed by law;
10. An award to Plaintiff of the costs of this action and its reasonable attorneys' fees pursuant to 35 U.S.C. §285; and
11. Such other and further relief as the Court deems just and equitable.

DATED: March 24, 2022

Respectfully submitted,

/s/Robert D. Katz

Robert D. Katz

Texas Bar No. 24057936

KATZ PLLC

6060 N. Central Expressway, Suite 560

Dallas, TX 75206

214-865-8000

888-231-5775 (fax)

rkatz@katzfirm.com

ATTORNEY FOR PLAINTIFF

SVV TECHNOLOGY INNOVATIONS INC.