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8 *Attorneys for VDPP LLC*

9  
10 **UNITED STATES DISTRICT COURT**  
11 **NORTHERN DISTRICT OF CALIFORNIA**

12  
13 VDPP LLC,

14 Plaintiff,

15 v.

16 ASUSTEK COMPUTER INC. and  
17 ASUS COMPUTER  
INTERNATIONAL,

18 Defendants  
19

Case No. 3:20-CV-02473-AGT

**AMENDED COMPLAINT FOR  
PATENT INFRINGEMENT**

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**JURY TRIAL DEMANDED**

1 **Jurisdiction and Venue**

2 1. This action arises under the patent laws of the United States, 35 U.S.C.  
3 §§ 101 et seq. This Court has subject matter jurisdiction over this action under 28  
4 U.S.C. §§ 1331 and 1338(a). This Court may exercise personal jurisdiction over  
5 ASUSTeK Computer Inc. and ASUS Computer International (“Asus” or  
6 “defendants”), which conduct continuous and systematic business in California and  
7 in this District. Asus has a regular and established place of business located in this  
8 District. These patent-infringement claims arise directly from Asus’s continuous and  
9 systematic activity in this District. In short, this Court’s exercise of jurisdiction over  
10 Asus would be consistent with the California long-arm statute and traditional notions  
11 of fair play and substantial justice. Venue is proper in this District pursuant to 28  
12 U.S.C. § 1400(b).

13 **Parties**

14 2. Plaintiff VDPP LLC (“VDPP”) is a limited liability company organized  
15 under the laws of Oregon with a principal place of business located in Corvallis,  
16 Oregon.

17 3. ASUSTeK Computer Inc. is a corporation organized under the laws of  
18 Taiwan with a regular and established place of business located at 15, Li-De Road,  
19 Beitou District, Taipei 112, Taiwan.

20 4. ASUS Computer International is a California corporation with its  
21 principal place of business located at 800 Corporate Way, Fremont, California 94539.

**Count 1 – Infringement of U.S. Patent No. 9,699,444**

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2 5. VDPP is the exclusive owner of United States Patent No. 9,699,444 (the  
3  
4 “‘444 patent”), which is attached hereto as “Exhibit 1.”

5 6. The ‘444 patent is valid and enforceable.

6  
7 7. Asus has been and is directly infringing at least one of the 27 claims of  
8 the ‘444 patent. Asus has made and sold and is making and selling the following  
9 models: ProArt PA32UCX, PA329C; ROG Swift PG27UQ, PG35UQ, PG65UQ;  
10 CG32UQ (the “Accused Models”). The Accused Models embody claims of the ‘444  
11 patent, performing routines and functionality described in the filed of invention as,  
12 “local dimming.” Without limiting the claims that will be asserted or the products  
13 that will be accused of infringement in this action, Asus infringes Claim 1 of the ‘444  
14 patent by making and selling the Accused Models, which are designed to perform  
15 local dimming.  
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18 a. Claim 1 of the ‘444 patent claims an “apparatus comprising: a  
19 storage adapted to: store one or more image frames[.]” (Ex. 1 at 47:40-42.) The  
20 Accused Models each constitute an apparatus with storage to store a sequence  
21 of image frames.  
22

23 b. The Claim 1 apparatus comprises “a processor adapted to: obtain  
24 a first image frame from a first video stream; [and] expand the first image  
25 frame to generate a modified image frame, wherein the modified image frame  
26 is different from the first image frame[.]” (Ex. 1 at 47:43-47.) The Accused  
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1 Models each uses over 1,000 local dimming zones. The Accused Models  
2 contain a processor adapted to upscale lower resolutions to match the Accused  
3 Models' native resolution.  
4

5 c. The processor of Claim 1 is adapted to “generate a bridge frame,  
6 wherein the bridge frame is a non-solid color, wherein the bridge frame is  
7 different from the first image frame and different from the modified image  
8 frame[.]” (Ex. 1 at 47:48-51.) Each Accused Models is a direct-backlight LED  
9 LCD TV, which means that each of the Accused Models displays video using  
10 two separate layers. The front layer is liquid crystal layer (the “LCM Layer”)  
11 containing millions of pixels, each of which is split into subpixels of the  
12 primary colors: red, green, and blue. The back layer is a backlight unit of LED  
13 lights (the “BLU”) that illuminates the LCM Layer. In order to achieve deeper  
14 black levels and higher contrast levels, the Accused Models will dynamically  
15 turn off localized areas of the BLU—areas where the image should be black,  
16 resulting in a bridge frame that is non-solid, i.e., parts of the frame are black,  
17 parts of the frame are white, and parts of the frame are a gradient thereof.  
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22 d. In Claim 1, the processor is adapted to “blend the modified image  
23 frame with the bridge frame to generate a blended modified image frame; and  
24 display the blended modified image frame.” (Ex. 1 at 47:52-54.) Each of the  
25 Accused Models blends the bridge frame (the locally-dimmed BLU image)  
26 with the modified image frame (the upscaled RGB image of the LCM) to create  
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1 and display the blended modified image frame.

2 8. Further, the Accused Models infringe Claim 27 of the ‘444 patent by  
3 performing “black frame insertion” in a manner that infringes the ‘444 patent.  
4 Without limiting the claims that will be asserted or the products that will be accused  
5 of infringement in this action, the Accused Models infringe Claim 27 as follows:  
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7  
8 a. Claim 27, which is dependent on claim 26, claims an “apparatus  
9 comprising: a storage adapted to: store one or more image frames[.]” (Ex. 1 at  
10 50:37-39.) An Accused Model is an apparatus with storage to store a sequence  
11 of image frames.  
12

13 b. The Claim 27 apparatus comprises “a processor adapted to: obtain  
14 a first image from a first video stream [.]” (Ex. 1 at 50:40-41.) An Accused  
15 Model is equipped with a graphics-processing unit adapted to obtain images  
16 that together make a video stream.  
17

18 c. The Claim 27 processor is adapted to “generate a modified image  
19 frame by . . . expanding the first image frame . . . wherein the modified image  
20 frame is different from the first image frame[.]” (Ex. 1 at 50:42-49.) The  
21 Accused Models each uses over 1,000 local dimming zones. The Accused  
22 Models contain a processor adapted to upscale lower resolutions to match the  
23 Accused Models’ native resolution.  
24

25 d. The Claim 27 processor is further adapted to “generate a bridge  
26 frame, wherein the bridge frame is a solid color, wherein the bridge frame is  
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1 different from the first image frame and different from the modified image  
2 frame[.]” (Ex. 1 at 50:50-53.) The bridge frame is black. (*Id.* at 50:56-57.) All  
3 televisions display video as a series of still images. These images change  
4 quickly enough to produce the illusion of motion—much like a flip book.  
5 Because televisions are unable to produce truly moving images, the human eye  
6 perceives the “moving” object as blurred. To reduce this perceived motion  
7 blur, the Accused Model practices the invention of Claim 27 by generating a  
8 solid black bridge frame and inserting the bridge frame between the modified  
9 image frames.  
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13 e. The Claim 27 apparatus then will “display the modified image  
14 frame; and display the bridge frame.” (Ex. 1 at 50:54-55.) An Accused Model  
15 displays the modified image frame, and then displays the solid black bridge  
16 frame.  
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## 18 **Count 2 – Infringement of U.S. Patent No. 9,948,922**

19 9. VDPP is the exclusive owner of United States Patent No. 9,948,922 (the  
20 “‘922 patent”), which is attached hereto as “Exhibit 2.”  
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22 10. The ‘922 patent is valid and enforceable.  
23

24 11. Asus infringes at least one of the 12 claims of the ‘922 patent. Asus has  
25 made and sold and is making and selling the monitor VG248QE, which embodies  
26 claims of the ‘922 patent. Without limiting the claims that will be asserted or the  
27 products that will be accused of infringement in this action, Asus infringes Claim 2  
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1 of the ‘922 patent by making and selling the VG248QE, which is designed to perform  
2 “black frame insertion” in a manner that infringes the ‘922 patent.

3  
4 a. Claim 2 of the ‘922 patent, which is dependent on claim 1, claims  
5 an “apparatus comprising: a storage adapted to: store one or more image  
6 frames[.]” (Ex. 2 at 113:27-29.) The VG248QE is an apparatus with storage to  
7 store a sequence of image frames.  
8

9 b. The Claim 2 apparatus includes “a processor adapted to: obtain a  
10 first image frame and a second image frame from a first video stream[.]” (Ex.  
11 2 at 113:30-32.) The VG248QE has a processor adapted to acquire a sequence  
12 of images that make a video stream.  
13

14 c. The processor of Claim 2 is adapted to “generate a first modified  
15 image frame by expanding the first image frame, wherein the first modified  
16 image frame is different from the first image frame; [and] generate a second  
17 modified image frame by expanding the second image frame, wherein the  
18 second modified image frame is different from the second image frame[.]” (Ex.  
19 2 at 113:33-39.) The VG248QE is adapted to upscale lower resolutions to  
20 match its native resolution.  
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23  
24 d. The Claim 2 apparatus’ processor is adapted to “generate a bridge  
25 frame, wherein the bridge frame is a solid color, wherein the bridge frame is  
26 different from the first image frame and different from the second image  
27 frame[.]” (Ex. 2 at 113:40-43.) “[T]he bridge frame is black.” (*Id.* at 113:47-  
28

1 48.) All televisions display video as a series of still images. These images  
2 change quickly enough to produce the illusion of motion—much like a flip  
3 book. Because televisions are unable to produce truly moving images, the  
4 human eye perceives the “moving” object as blurred. To reduce this perceived  
5 motion blur, the VG248QE practices the invention of Claim 2 by generating a  
6 solid black bridge frame and inserting the bridge frame between the modified  
7 image frames.  
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9  
10 e. The processor of Claim 2 is adapted to “display the first modified  
11 image frame; display the bridge frame; and display the second modified image  
12 frame.” (Ex. 2 at 113:44-46.) The VG248QE displays the first modified image  
13 frame, then displays the solid black bridge frame, then displays the second  
14 modified image frame.  
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17 **Prayer for Relief**

18 WHEREFORE, VDPP prays for the following relief against Asus:  
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- 20 (a) Judgment that Asus has directly infringed the ‘444 and ‘922 patents;  
21 (b) A fair and reasonable royalty;  
22 (c) Pre-judgment interest and post-judgment interest at the maximum rate  
23 allowed by law;  
24 (d) A post-judgment injunction; and  
25 (e) Such other and further relief as the Court may deem just and proper.  
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28 **Demand for Jury Trial**



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VDPP demands a trial by jury on all matters and issues triable by jury.

Date: December 15, 2020

*/s/ Todd Atkins*

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