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9 Attorneys for Plaintiff and  
Counterclaim-Defendant APPLE INC.

10  
11 UNITED STATES DISTRICT COURT  
12 NORTHERN DISTRICT OF CALIFORNIA  
13 SAN JOSE DIVISION

14  
15 APPLE INC., a California corporation,

16 Plaintiff,

17 v.

18 SAMSUNG ELECTRONICS CO., LTD., a  
Korean business entity; SAMSUNG  
19 ELECTRONICS AMERICA, INC., a New  
York corporation; SAMSUNG  
20 TELECOMMUNICATIONS AMERICA,  
LLC, a Delaware limited liability company,

21 Defendants.  
22

Case No. 11-cv-01846-LHK (PSG)

**DECLARATION OF RAVIN  
BALAKRISHNAN, PH.D. IN  
SUPPORT OF APPLE'S  
OPPOSITION TO SAMSUNG'S  
MOTION FOR NEW TRIAL  
REGARDING '381 PATENT  
PURSUANT TO RULE 59 BASED ON  
"NEWLY DISCOVERED  
EVIDENCE" OR, ALTERNATIVELY,  
FOR ENTRY OF JUDGMENT OF  
LIABILITY**

23 **\*\*HIGHLY CONFIDENTIAL – CONTAINS MATERIAL DESIGNATED AS HIGHLY**  
24 **CONFIDENTIAL – OUTSIDE ATTORNEYS' EYES ONLY –**  
**SOURCE CODE PURSUANT TO A PROTECTIVE ORDER\*\***

25 **PUBLIC REDACTED VERSION**  
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1 I, Ravin Balakrishnan, Ph.D., do hereby declare as follows:

2 1. I am a tenured Professor in the Department of Computer Science at the University  
3 of Toronto, and have been asked by counsel for Apple Inc. (“Apple”) to provide analysis and  
4 expert opinions in the above-captioned case. I understand that Defendants Samsung Electronics  
5 Co. Ltd., Samsung Electronics America, Inc., and Samsung Telecommunications America, LLC  
6 (collectively “Samsung”) have filed a motion for a new trial regarding Samsung’s liability for  
7 infringement of United States Patent No. 7,469,381 (“the ’381 patent”), and submitted in support  
8 of its motion the Declaration of Andries Van Dam, Ph.D. in Support of Samsung’s Motion for a  
9 New Trial Regarding ’381 Patent Pursuant to Federal Rule of Civil Procedure 59 Based on Newly  
10 Discovered Evidence (“Van Dam Declaration”). I have been asked to provide opinions as to  
11 whether Samsung’s accused products infringe claim 19 of the ’381 Patent and to address the Van  
12 Dam Declaration. My opinions are set forth below in this declaration and in the attached exhibits.

13 2. I reserve the right to supplement or amend this declaration if additional data or  
14 other information that affects my opinions becomes available. I may testify at a hearing or at trial  
15 regarding the matters expressed in this declaration and any supplemental declarations that I may  
16 prepare for this litigation. I also may prepare and rely on audiovisual aids to demonstrate various  
17 aspects of my testimony at a hearing. I also may testify with respect to any matters addressed by  
18 any expert testifying on behalf of Samsung, if asked to do so.

19 3. I am being compensated at a rate of \$430 per hour for my work in connection with  
20 this action. My compensation is not based in any way on the outcome of the litigation.

21 4. I incorporate by reference the Expert Report of Ravin Balakrishnan, Ph.D.  
22 Regarding Infringement of U.S. Patent No. 7,469,381 (“Infringement Report”), submitted on  
23 March 22, 2012, a copy of which is attached hereto as Exhibit A.

24 5. I incorporate by reference the Rebuttal Expert Report of Ravin Balakrishnan,  
25 Ph.D. Regarding Validity of U.S. Patent No. 7,469,381, submitted on April 16, 2012, a copy of  
26 which was attached as Exhibit 6 to the declaration of Robert J. Becher that Samsung filed in  
27 support of its motion for a new trial. (Dkt. No. 2338-13.)  
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1 **I. QUALIFICATIONS**

2 6. My qualifications are discussed in my Infringement Report submitted on March  
3 22, 2012, and are also stated more fully in my curriculum vitae, attached as Exhibit 1 to that  
4 report.

5 **II. OPINION**

6 7. I have reviewed Apple's May 2013 filings before the United States Patent &  
7 Trademark Office in the reexamination of the '381 Patent, and the examiner's statements  
8 concerning his decision to issue a reexamination certificate for the '381 Patent. The discussion of  
9 the scope of claim 19 and of the Lira prior art is consistent with my understanding of the scope of  
10 claim 19 at the time of trial and as I understood the claim in expressing my infringement and  
11 validity opinions, and nothing in those filings changes my opinions regarding the validity of the  
12 '381 Patent or my infringement analysis.

13 8. In my Infringement Report, I demonstrated that all of the elements of claim 19 of  
14 the '381 Patent were met by the operation of the accused Samsung products. Specifically, I  
15 discussed how the Gallery, Web Browser ("Browser"), and Contacts applications on those  
16 devices infringed claim 19 by performing a snap back to the edge of the document when the user  
17 had dragged certain content off the screen to display the area beyond the edge of the document. I  
18 discussed how this behavior of the accused products running those applications met all of the  
19 elements of claim 19. In my report I also included videos showing the infringing behavior and  
20 discussed the Samsung Gallery and Browser source code performing this behavior.

21 9. At trial, I testified regarding the behavior of these applications in the Samsung  
22 accused products and explained how it established infringement of claim 19. Videos of some of  
23 those behaviors were admitted at trial as PX64. A selection of source code for the Gallery and  
24 Browser application infringing applications was admitted as PX31.

25 10. During my trial testimony, videos demonstrating infringing behavior for the  
26 Samsung accused products running the Gallery, Browser and Contacts applications were shown  
27 to the jury, and excerpts of the infringing Gallery and Browser source code were shown as  
28 demonstrative exhibits. Additional videos were admitted as PX64, and a copy of PX64 is being

1 provided with this Declaration as Exhibit B. The source code shown to the jury in PDX27.31 was  
2 for a small portion of the Gallery and Browser applications, as I testified at trial.

3 11. I have reviewed the Van Dam Declaration, as well as its exhibits and the relevant  
4 source code. Dr. Van Dam opines that “Apple failed to make a showing at trial that the new post-  
5 reexamination limitations discussed above are present in the Captivate, Continuum, Droid  
6 Charge, Epic 4G, Exhibit 4G, Fascinate, Galaxy Prevail, Galaxy S 4G, Galaxy S II (AT&T),  
7 Galaxy Tab, Galaxy Tab 10.1 (WiFi), Gem, Indulge, Infuse 4G, Mesmerize, Nexus S 4G,  
8 Replenish and Vibrant, under the Browser, Gallery, or Contacts applications.” (Van Dam Decl. ¶  
9 30.)

10 12. In my opinion, Dr. Van Dam fails to rebut proof of infringement for any of the  
11 devices. As I detail below, Dr. Van Dam’s analysis has numerous flaws. These include that he  
12 limits his discussion to documents that are not zoomed in but that are equal to or smaller in size  
13 than the visible area of the screen, thus ignoring the scenario of a zoomed in document that Apple  
14 demonstrated infringes claim 19 in the Gallery application. Further, Dr. Van Dam’s analysis of  
15 the computer instructions underlying the infringing behavior in Gallery is incorrect.

16 13. Dr. Van Dam’s analysis and opinions concerning the Browser code are also  
17 flawed. The Samsung source code produced in this litigation and admitted as part of PX31  
18 demonstrates that [REDACTED]

19 [REDACTED]  
20 [REDACTED] Because Dr. Van Dam’s  
21 declaration does not identify what version of the Browser code he reviewed and does not cite any  
22 Bates numbers corresponding to the Samsung code produced in this litigation, it is not clear  
23 whether Dr. Van Dam reviewed the Samsung code produced in this case or code from some  
24 different version of Android. In any event, as discussed below, his analysis of the Browser code  
25 is simply wrong.

26 **B. Dr. Van Dam’s Gallery Code Analysis is Flawed**

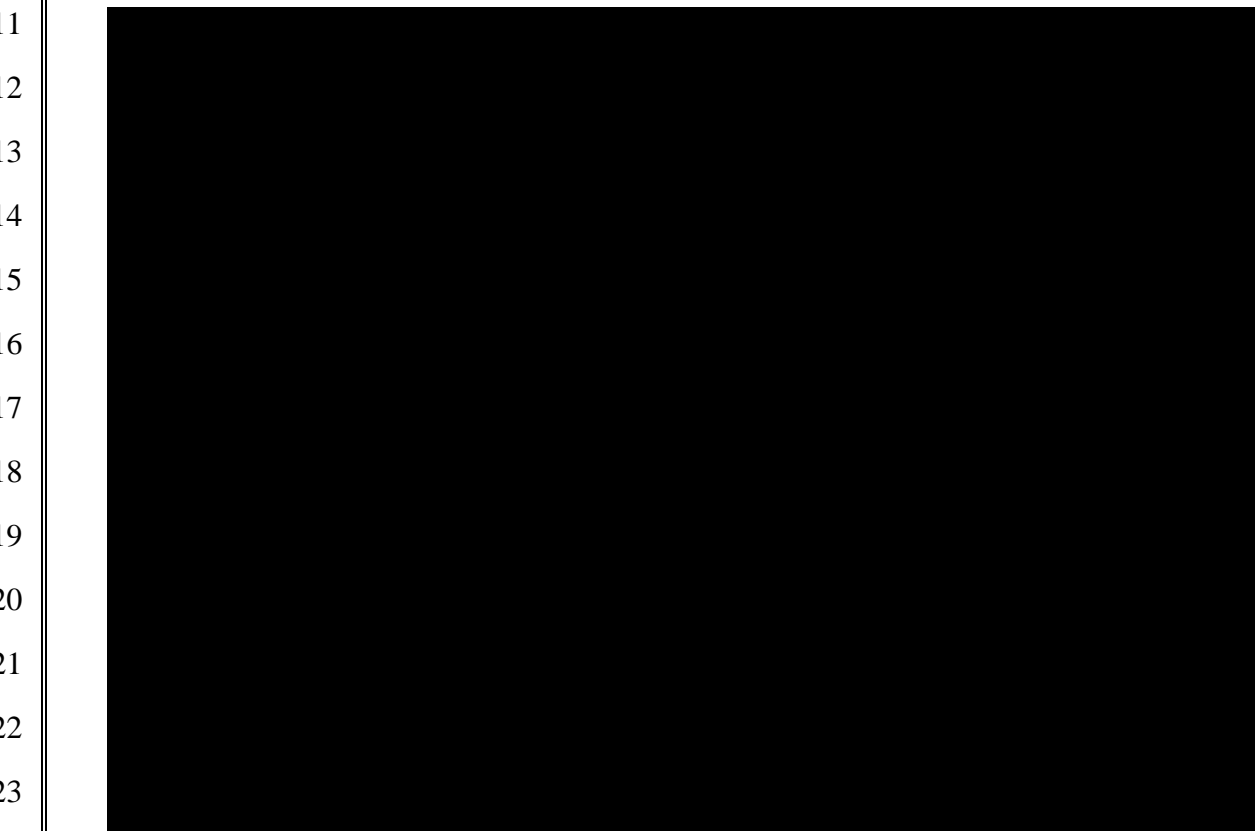
27 14. Dr. Van Dam argues that the Gallery code cited by Apple in its trial demonstrative  
28 exhibit does not perform edge alignment, and instead performs “centering.” (Van Dam

1 Declaration ¶¶ 32-33.) Even assuming that Dr. Van Dam’s argument about the scope of claim 19  
2 is correct, his conclusion that the Gallery code that Apple showed demonstrates “centering” and  
3 not “edge alignment” is flawed. As I detailed in my Infringement Report and explained at trial,  
4 the code that Apple showed at trial is a key component of the code that performs edge alignment  
5 on zoomed images in the Gallery application. Contrary to Dr. Van Dam’s assertions, the code  
6 that Apple showed at trial [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 15. The following is the demonstrative exhibit that showed excerpts of relevant  
10 Gallery and Browser code. The Gallery code is shown on the left-hand side.



24 16. [REDACTED]

25 [REDACTED]

26 [REDACTED]

27 [REDACTED]

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[REDACTED]

[REDACTED] This is precisely edge alignment, not centering as Dr. Van Dam alleges.

17. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

18. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] As I demonstrated in my Infringement Report, and as was shown at trial, the Gallery application's edge alignment of zoomed images infringes claim 19. [REDACTED]

[REDACTED]

19. Thus, Dr. Van Dam is incorrect when he asserts that [REDACTED]

[REDACTED]

[REDACTED] As I showed in my Infringement Report and at trial, the Gallery application has software instructions for performing edge alignment, and in fact does perform edge alignment when a zoomed document is dragged beyond the edge and released.

<sup>1</sup> See SAMNDCA-C000007738-39, -7782-83, -7982-84, -8002-03, -8156-58, -8175-77.

<sup>2</sup> See SAMNDCA-C000007738-39, -7771-72, -7781-82, -7948-53, -7982-84, -8001-02, -8123-28, -8156-58, -8174-75.

1 20. Further, Dr. Van Dam is incorrect when he states that [REDACTED]  
2 [REDACTED]  
3 [REDACTED]  
4 [REDACTED]

5 **C. Dr. Van Dam’s Browser Code Analysis is Flawed**

6 21. Dr. Van Dam asserts that [REDACTED]  
7 [REDACTED]  
8 [REDACTED]

9 [REDACTED] Dr. Van Dam is mistaken. [REDACTED]  
10 [REDACTED]  
11 [REDACTED]

12 22. As noted above, Samsung’s version of the Browser code [REDACTED]  
13 [REDACTED] The source code produced by  
14 Samsung in this case confirms that the code, as it pertains to the infringing behavior here,  
15 [REDACTED]

16 23. For example, in Samsung’s code— [REDACTED]  
17 [REDACTED]  
18 [REDACTED]  
19 [REDACTED]

20 [REDACTED]  
21 [REDACTED]

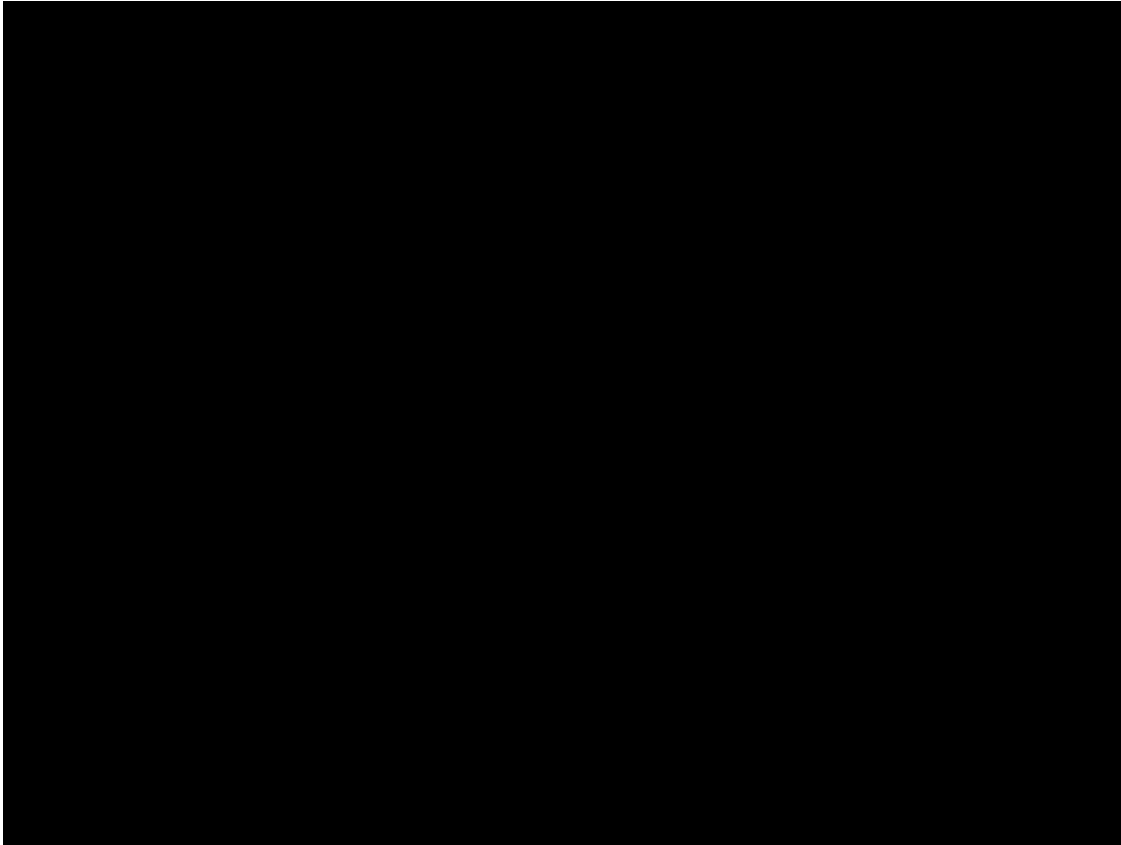
22 24. The following is the demonstrative exhibit that showed excerpts of relevant  
23 Gallery and Browser code. The Browser code is shown on the right-hand side.

24 \_\_\_\_\_  
25 <sup>3</sup> See code cited *supra* notes 1 & 2.

26 <sup>4</sup> See SAMNDCA-C000003544-46 [REDACTED]  
[REDACTED]

27 <sup>5</sup> SAMNDCA-C000003546-47.  
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25. My analysis of infringement in my Infringement Report and in my trial testimony

[REDACTED] Instead, I relied on my analysis of the source code produced by Samsung in this action. In particular, Samsung's version adds several methods, [REDACTED]

[REDACTED]

26. In Samsung's Browser code, when [REDACTED]

[REDACTED]

<sup>6</sup> See SAMNDCA-C000003510, -3544-46.



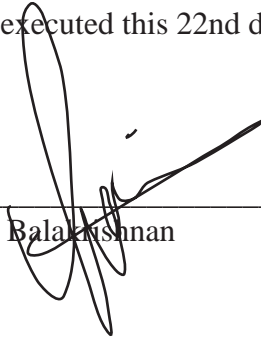
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27. The code shown in PDX27.31 for the Browser application is [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

28. This code corresponds to what a user sees when operating the accused products and what I showed at trial and in PX64. Samsung's code [REDACTED]  
[REDACTED]  
[REDACTED] Visual observation of that code in action confirms that the Browser in the accused products does edge detection and performs the steps of claim 19, and neither centers the electronic document nor causes it to oscillate.

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I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct and that this Declaration was executed this 22nd day of July, 2013 in Toronto, Canada.



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Ravin Balakrishnan