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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN JOSE DIVISION

APPLE INC., a California corporation,

Plaintiff,

v.

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

Defendants.

Case No. 11-cv-01846-LHK

**DECLARATION OF RAVIN
BALAKRISHNAN, PH.D. IN
SUPPORT OF APPLE'S MOTION
FOR A PRELIMINARY
INJUNCTION**

1 I, RAVIN BALAKRISHNAN, do hereby declare as follows:

2 **I. INTRODUCTION**

3 1. I am a tenured Professor in the Department of Computer Science at the University
4 of Toronto, and have been asked to provide an expert declaration on behalf of Apple Inc.
5 (“Apple”) in the above-captioned case. I understand that Apple has alleged that Defendants
6 Samsung Electronics Co. Ltd., Samsung Electronics America, Inc., and Samsung
7 Telecommunications America, LLC (collectively, “Samsung”) have engaged in patent
8 infringement.

9 2. I submit this declaration in support of Apple’s Motion for a Preliminary
10 Injunction. I reserve the right to supplement or amend this declaration if additional data or other
11 information that affects my opinions becomes available. I may testify at a hearing regarding the
12 matters expressed in this declaration and any supplemental declarations that I may prepare for this
13 litigation. I also may prepare and rely on audiovisual aids to demonstrate various aspects of my
14 testimony at a hearing. I also may testify with respect to any matters addressed by any expert
15 testifying on behalf of Samsung, if asked to do so. If I am asked to testify at trial, I intend to
16 prepare an expert report in compliance with Federal Rule of Civil Procedure 26(a)(2) according to
17 the schedule to be set by the Court.

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

21 **II. QUALIFICATIONS**

22 4. Here, I provide a brief summary of my qualifications. My qualifications are stated
23 more fully in my curriculum vitae, which is attached to this declaration as Exhibit 1.

24 5. I earned my B.Sc. (1st Class Honours) degree in computer science from the
25 University of New Brunswick, Canada, in May 1993. Subsequently, I received my M.Sc. and
26 Ph.D. degrees in computer science from the University of Toronto, Canada, in January 1997 and
27 February 2001, respectively.

1 6. As an undergraduate, I worked as a research assistant in the human interface lab,
2 working with different kinds of novel input technologies, including touch input systems for three
3 dimensional data interaction. Since then, I have either trained or worked in the field of human-
4 computer interfaces, including interfaces for touch sensitive input devices, multi degree-of-
5 freedom input devices, two-handed input, multi-touch input, haptic feedback interfaces, tablet-
6 based input, large and small scale displays, and interactive 3D graphics.

7 7. I have published 13 refereed journal papers, 98 refereed conference full-length
8 papers, three refereed conference notes and short papers, and two technical reports in the field of
9 human-computer interfaces. I have further presented numerous conference abstracts, posters,
10 talks, and demonstrations in my field. I am a named inventor on nine issued patents in my area of
11 work, plus an additional eleven filed (though not yet issued) patents.

12 8. I joined the University of Toronto faculty in July 2001 as an Assistant Professor.
13 In 2006, I was promoted to Associate Professor with tenure, and in 2011 was promoted to full
14 Professor. As a professor, I have taught nine undergraduate courses and nine graduate courses in
15 topics related to human-computer interaction. Nine Ph.D. students and twenty research masters
16 students have completed their degrees and research under my supervision, and five postdoctoral
17 fellows have completed their research training under my supervision. In addition to these
18 graduated students and postdoctoral fellows, I currently supervise 4 Ph.D. and 4 masters students,
19 and 2 postdoctoral fellows. In addition to my professorship, I am also Canada Research Chair in
20 Human-Centred Interfaces in the Department of Computer Science, and I co-direct the Dynamic
21 Graphics Project laboratory.

22 9. My research at The University of Toronto has involved nearly every broad aspect
23 of human-computer interaction and data visualization. For instance, I have done significant work
24 in the areas of input devices, sensing technologies, and interaction techniques, in particular touch
25 and multi-touch interaction, gestural, sketching, and multi degree-of-freedom interaction,
26 interfaces to small and/or mobile computers, and interfaces to displays of the future. As another
27 example, I have done work in the evaluation of user interfaces, including associated metrics and
28 predictive models of human performance. I have previously served as a visiting researcher at

1 Mitsubishi Electric Research Laboratories. My research program has been funded by leading
2 companies such as Microsoft, IBM, and Hewlett-Packard and also organizations such as the
3 National Sciences and Engineering Research Council of Canada and also the Sloan Foundation.

4 10. I have also served on the organizing and paper reviewing committees of many
5 leading conferences in my field, and have taken on editorial roles for leading technical journals in
6 fields pertinent to my research. For example, I am currently an Associate Editor of the ACM
7 Transactions on Computer-Human Interfaces (the premier journal in the field), and of the IEEE
8 Transactions on Visualization and Computer Graphics. Similarly, I have been the paper's chair
9 for the ACM UIST Symposium on User Interface Software and Technology, and have served
10 multiple times as an associate chair for the premier ACM CHI Conference on Human-Computer
11 Interaction.

12 11. I have also received major awards and honors in my field, including:

- 13 • Alfred P. Sloan Research Fellowship.
- 14 • Nine best paper awards and honorable mentions at the leading
15 conferences in my field.
- 16 • Ontario Premier's Research Excellence Award, which included a
17 \$100,000 research grant.
- 18 • Election to the ACM SIGCHI Academy in 2011, which honors the
19 principal leaders in the research field of human-computer
20 interaction.

21 12. As set forth in my CV, I have over twenty years of experience studying and
22 teaching computer programming. I have been a professor of computer science for over nine
23 years. I can read and program using object-oriented programming languages fluently, including
24 in C++.

25 13. I have previously testified as an expert during administrative proceedings before
26 the International Trade Commission and by deposition in connection with those same
27 proceedings. Specifically, I have testified in the ITC Investigation In re Certain Video Game
28 Machines and Related Three-Dimensional Pointing Devices, Inv. No. 337-TA-658 on behalf of
respondent Nintendo. I also testified in the ITC Investigation In re Certain Electronic Devices
With Multi-Touch Enabled Touchpads And Touchscreens, No. 337-TA-714 on behalf of

1 respondent Apple. During that proceeding, the parties stipulated, and Chief Administrative Law
2 Judge Paul J. Luckern acknowledged, that I was an expert in the field of computer user input
3 devices.

4 **III. MATERIALS CONSIDERED**

5 14. In forming my opinions and views expressed in this declaration, I reviewed U.S.
6 Patent No. 7,469,381 C1, its prosecution file history, and the file history for Reexamination
7 Application No. 90/090,963. I also have examined the following Samsung products: the Galaxy
8 S 4G, the Infuse 4G; the Droid Charge; and the Galaxy Tab 10.1.

9 15. In addition, I have reviewed portions of Samsung's website regarding these
10 products. Attached hereto as Exhibits 2-5 are true and correct copies of printouts from
11 www.samsung.com, printed on June 29, 2011. (Exhibit 2 – Galaxy S 4G product information;
12 Exhibit 3 – Infuse 4G product information; Exhibit 4 – Droid Charge product information;
13 Exhibit 5 – Galaxy Tab 10.1 product information.) I have also reviewed portions of the user
14 manuals for these products. Attached hereto as Exhibits 6-9 are true and correct copies of
15 printouts from www.samsung.com, printed on June 29, 2011. (Exhibit 6 - Galaxy S 4G user
16 manual; Exhibit 7 – Infuse 4G user manual; Exhibit 8 – Droid Charge user manual; Exhibit 9 –
17 Galaxy Tab 10.1 user manual.)

18 16. I have also reviewed portions of the publicly available Android source code and
19 related documentation available at the Android developers website located at the following URL:
20 <http://developer.android.com/index.html>.

21 **IV. LEGAL PRINCIPLES**

22 17. I have not been asked to offer an opinion on the law; however, as an expert
23 assisting the Court in determining infringement, I understand that I am obliged to follow existing
24 law. I have therefore been asked to apply the following legal principles to my analysis of
25 infringement:

26 18. Infringement requires that every limitation of a claim be met, either literally or
27 equivalently, by the accused device. The “All Limitations Rule,” applied to a process, means that
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1 infringement of a process claim occurs only when all steps of the claim are performed literally or
2 by equivalents.

3 19. To prove infringement, a plaintiff must show that a defendant “makes, uses, offers
4 to sell, or sells,” within the United States, or imports into the United States, an accused device
5 that reads on every limitation of the patent.

6 20. A device or method literally and directly infringes a claim of a patent if all of the
7 asserted claim elements are found in or performed by the accused device or method. A device
8 may be found to infringe an apparatus claim if it is reasonably capable of satisfying the claim
9 limitations, even if it is also capable of operating in non-infringing modes. For method patent
10 claims, direct infringement occurs when someone performs all of the steps of the claim.

11 **V. DETAILED OPINION**

12 21. I understand that in this lawsuit, Apple has accused Samsung of infringing the
13 ’381 patent. In particular, Apple alleges that Samsung infringes at least claims 1-5, 7, 9-10, 13,
14 14, 16, and 19-20 of the ’381 patent (collectively, the “Asserted Claims”).

15 22. Specifically, I understand Apple has alleged that certain products that are made,
16 manufactured, produced, or sold by Samsung infringe the ’381 patent, including at least the
17 Galaxy S 4G; the Infuse 4G; the Droid Charge; and the Galaxy Tab 10.1. I will refer to these
18 products individually by their names, or collectively as the “Accused Products” or “Samsung
19 devices.” I understand that other Samsung products contain similar features and functions, and
20 therefore also infringe the ’381 patent.

21 23. If I am called as an expert witness, I expect to testify regarding general
22 background and technical matters relating to the subject matter of the ’381 patent and its claims,
23 including the operation of graphical user interfaces. I may also provide testimony regarding the
24 level of skill, education, and experience of a person of ordinary skill in the art at the time the
25 patent application that led to the ’381 patent was filed. I further expect to testify regarding
26 matters pertaining to Samsung’s infringement of the ’381 patent.

27 24. I have been asked to analyze the ’381 patent and the Samsung devices and provide
28 technical teaching and opinions regarding that patent. In reading the claims of the patent, I have

1 used the plain meanings of the terms used in the claims. I believe the plain meanings are
2 consistent with the meanings that would be ascribed to the claim terms by one of ordinary skill in
3 the art at the time the patent application was filed.

4 25. The explanation of my opinion regarding infringement of the Asserted Claims of
5 the '381 patent includes (1) the claim charts attached hereto as Exhibits 10-12, and (2) the videos
6 on the DVD attached hereto as Exhibits 13a-13h, which are an integral part of my declaration,
7 and which provide documentary and demonstrative proof of infringement of each of the Asserted
8 Claims. (Exhibit 10 – Galaxy S 4G claim chart; Exhibit 11 – Droid Charge claim chart; Exhibit
9 12 – Galaxy Tab 10.1 claim chart; Exhibit 13a – Infuse 4G gallery video; Exhibit 13b – Infuse 4G
10 contacts list video; Exhibit 13c – Galaxy S 4G gallery video; Exhibit 13d – Galaxy S 4G contacts
11 list video; Exhibit 13e – Droid Charge gallery video; Exhibit 13f – Droid Charge contacts list
12 video; Exhibit 13g – Galaxy Tab 10.1 gallery video; Exhibit 13h – Galaxy Tab 10.1 web browser
13 video.) These Exhibits are intended to be exemplary and not exhaustive. The discussion below
14 concerning infringement is meant to be read together with the material in Exhibits 10-12 and 13a-
15 13h.

16 26. It is my opinion that the Samsung devices infringe the asserted apparatus claims of
17 the '381 patent, and that any user operating the Samsung devices for their intended purpose,
18 including to view electronic documents, would infringe the method claims.

19 **A. The '381 Patent**

20 27. U.S. Patent no. 7,469,381 C1 (the "'381 patent") is titled List Scrolling and
21 Document Translation, Scaling and Rotation on a Touch-Screen Display. According to the
22 abstract, the patent relates to translation of an electronic document on a touch screen display in
23 response to a user's movement of an object, such as the user's finger, on or near the touch screen.
24 The '381 patent generally claims an innovative method of informing the user of a touch screen
25 mobile device that the edge of an electronic document has been reached by allowing the user to
26 scroll beyond the edge of the document and to view a typically non-content area beyond the edge
27 of the document for as long as the user keeps his finger in contact with the screen. Once the
28 user's finger is removed, the '381 patent describes having the document or image scroll back into

1 place so that the area beyond its edge is no longer shown, and the document or image can be
2 viewed.

3 **B. Use of Samsung's Products Infringes Claim 1 of the '381 Patent**

4 28. **Claim 1, Preamble Limitation**: The preamble of claim 1 recites: "A computer-
5 implemented method." While I understand that the question of whether this preamble is limiting
6 is a legal matter, for the purposes of this declaration, I have assumed that it must be met.

7 29. Use of the Samsung devices meets the claim limitation "[a] computer-
8 implemented method," as recited in claim 1 of the '381 patent. This is because the Samsung
9 devices are mobile computing devices with processors that run the Android software platform,
10 and that implement a number of methods of displaying electronic documents on their screens.

11 30. As Samsung describes its own products, they are mobile computing devices with
12 the following features:

- 13 • Galaxy S 4G: "1.0 GHz processor" (Ex. 2 at 5);
- 14 • Infuse 4G: "1.2 GHz High Speed Processor [that] runs apps and
15 websites..." (Ex. 3 at 6);
- 16 • Droid Charge: "1 GHz processor" that uses the "Android 2.2"
17 platform (Ex. 4 at 5); and
- 18 • Galaxy Tab 10.1: "Dual Core Tegra 2 processor" that uses
"Honeycomb: Google's Android 3.1" (Ex. 5 at 5).

19 31. While the Galaxy S 4G, Infuse 4G, and Droid Charge are often referred to as
20 smartphones, this is analogous to saying that these devices are hand held computers. These
21 devices employ processors similar to those used in laptop computers, and implement software
22 that perform functions typically performed on a computer, such as displaying electronic
23 documents on the screens of those devices. In addition, the "Tab" in Galaxy Tab 10.1 is an
24 abbreviation for "tablet" computer. The Galaxy Tab 10.1 also implements software that displays
25 electronic documents on its screen. Therefore, use of the Samsung devices meets the preamble of
26 claim 1: "[a] computer-implemented method."

27 32. **Claim 1, Element 1**: Claim 1, Element 1 recites: "[method] comprising: at a
28 device with a touch screen display."

1 33. Use of the Samsung devices performs the claimed method on “a device with a
2 touch screen display.” By way of example, the user manual for the Infuse 4G states that the
3 Infuse 4G is a phone, or device, with a touch screen display:

4 **Features of Your Phone**

5 Your phone is lightweight, easy-to-use and offers many useful
6 features. The following list outlines a few of the features included
7 in your phone.

- 8 • First Rel. 7, HSPA+ (4G) device for AT&T with HSDPA CAT 14 (21.1
9 Mbps) and HSUPA CAT 6 (5.76 Mbps) high speed download capability
- 10 • Touch screen provides quick response to a variety of in-phone menus
11 and options including applications and seven home screens
- 12 • Solid 2.2 Android platform
- 13 • Full HTML Web Browser with Adobe® Flash® 10.1 Support
- 14 • Built-in Bluetooth and Wi-Fi technology
- 15 • Brilliant 4.5" Super AMOLED™ Plus Screen with Ultra-thin Design
- 16 • Video Chatting and 8 Megapixel camera and camcorder
- 17 • AT&T GPS Navigation functionality provides real-time navigation

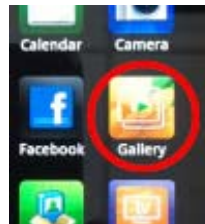


9 (Ex. 7 at 14.)

10 34. Each of the other Accused Products, the Galaxy S 4G, the Droid Charge, and the
11 Galaxy Tab 10.1, also is a device with a touch screen display. (See Exs. 10-12.) It is my opinion
12 that use of the Samsung devices infringes this element of claim 1.

13 35. **Claim 1, Element 2**: Claim 1, Element 2 recites: “displaying a first portion of an
14 electronic document.”

15 36. Use of the Samsung devices meets the claim limitation “displaying a first portion
16 of an electronic document.” Each of the Samsung devices includes an application called
17 “Gallery” that allows for the display of electronic documents, or more specifically, photographs,
18 on the touch screen display of the device. By way of example, the “Gallery” application icon on
19 the Infuse 4G is depicted below, circled in red.



24 (Ex. 13a.)

25 37. An image being viewed on the Samsung devices may be too large to be seen in its
26 entirety, or may be magnified, or zoomed in on, such that the entire image cannot be seen all at
27 once. When this occurs, a user will see only portions of the image, and will need to scroll or
28 translate the image to view the remainder. Accordingly, the Samsung devices can display a first

1 portion of an electronic document, such as a digital photograph. By way of example, the Infuse
2 4G is capable of displaying a first portion of an electronic document, as depicted below.



Figure 1:
*Displaying "first portion"
of electronic document*

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10 (Ex. 13a.)

11 38. Each of the other Accused Products, the Galaxy S 4G, the Droid Charge, and the
12 Galaxy Tab 10.1, can also display a first portion of an electronic document, as demonstrated in
13 Exhibits 10-12, 13c, 13e, and 13g. It is my opinion that use of the Samsung devices infringes this
14 element of claim 1.

15 39. **Claim 1, Element 3**: Claim 1, Element 3 recites: "detecting a movement of an
16 object on or near the touch screen display; in response to detecting the movement, translating the
17 electronic document displayed on the touch screen display in a first direction to display a second
18 portion of the electronic document, wherein the second portion is different from the first portion."

19 40. Use of the Samsung devices meets the claim limitation "detecting a movement of
20 an object on or near the touch screen display; in response to detecting the movement, translating
21 the electronic document displayed on the touch screen display in a first direction to display a
22 second portion of the electronic document, wherein the second portion is different from the first
23 portion." When a user is viewing a photograph in the Gallery application of the accused devices,
24 and places a finger on the touch sensitive screen and moves it, the Samsung devices detect that
25 movement, and translate the electronic document, or in this case, the photograph, in the same
26 direction, resulting in the display of another portion of the photograph which is different from the
27 first portion. By way of example, when running the Gallery application, the Infuse 4G is capable
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1 of detecting the movement of a finger on its touch screen, and in response, scrolling the
2 photograph in the same direction, thus displaying a second, different portion of the photograph, as
3 depicted below.



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10 (Ex. 13a.)

11 41. Each of the other Accused Products, the Galaxy S 4G, the Droid Charge, and the
12 Galaxy Tab 10.1, can also detect the movement of a finger on their touch screens, and in
13 response, scroll a photograph in the direction of the finger movement, displaying a second,
14 different portion of the photograph, as demonstrated in Exhibits 10-12, 13c, 13e, and 13g. It is
15 my opinion that use of the Samsung devices infringes this element of claim 1.

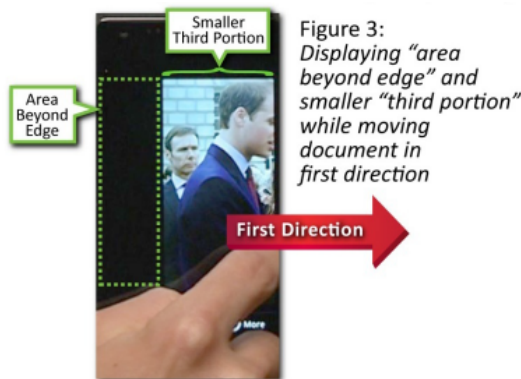
16 42. **Claim 1, Element 4**: Claim 1, Element 4 recites: "in response to an edge of the
17 electronic document being reached while translating the electronic document in the first direction
18 while the object is still detected on or near the touch screen display: displaying an area beyond the
19 edge of the document, and displaying a third portion of the electronic document, wherein the third
20 portion is smaller than the first portion."

21 43. Use of the Samsung devices meets the claim limitation "in response to an edge of
22 the electronic document being reached while translating the electronic document in the first
23 direction while the object is still detected on or near the touch screen display: displaying an area
24 beyond the edge of the document, and displaying a third portion of the electronic document,
25 wherein the third portion is smaller than the first portion."

26 44. Like its physical counterpart, a digital photograph displayed on the Samsung
27 devices has a rectangular shape bounded by four edges. As the user scrolls around the image to
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1 view each portion, he may, while scrolling in one direction, encounter the edge of the photograph,
2 but perhaps not realizing it, attempt to scroll in the same direction beyond the edge. When this
3 occurs, the photograph will keep scrolling in the same direction and, as it is scrolled, a black
4 region will fill in the area beyond the edge of the photograph, in effect providing a visual
5 indication that the image does not extend any further and that the edge of the image has been
6 reached.

7 45. By way of example, the Infuse 4G, in response to reaching an edge of a
8 photograph, while a finger continues to move the photograph in the same direction, will display a
9 black region beyond the edge of the photograph, and thereby display a smaller third portion of the
10 photograph, as depicted below.



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17 (Ex. 13a.)

18 46. Each of the other Accused Products – the Galaxy S 4G, the Droid Charge, and the
19 Galaxy Tab 10.1 – exhibits the same behavior. The Gallery application on each of these Accused
20 Products, in response to reaching an edge of a photograph while scrolling, and while a finger
21 continues to move the photograph in the same direction, will also display a black region beyond
22 the edge of the photograph, and thereby display a smaller third portion of the photograph, as
23 demonstrated in Exhibits 10-12, 13c, 13e, and 13g. It is my opinion that use of the Samsung
24 devices infringes this element of claim 1.

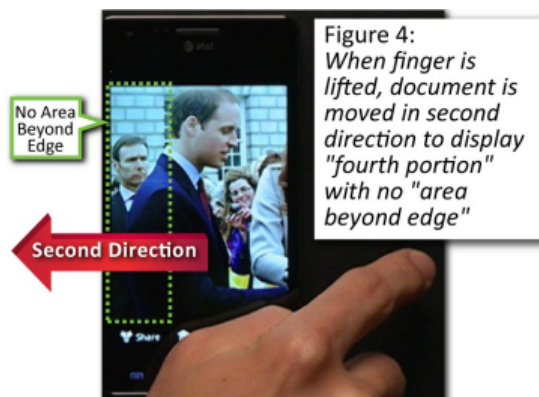
25 47. **Claim 1, Element 5**: Claim 1, Element 5 recites: "in response to detecting that the
26 object is no longer on or near the touch screen display, translating the electronic document in a
27 second direction until the area beyond the edge of the electronic document is no longer displayed
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1 to display a fourth portion of the electronic document, wherein the fourth portion is different from
2 the first portion.”

3 48. Use of the Samsung devices meets the claim limitation “in response to detecting
4 that the object is no longer on or near the touch screen display, translating the electronic
5 document in a second direction until the area beyond the edge of the electronic document is no
6 longer displayed to display a fourth portion of the electronic document, wherein the fourth portion
7 is different from the first portion.”

8 49. In the Gallery application on the Samsung devices, once the user encounters the
9 edge of a photograph, if he continues to move his finger in the same direction, more of the area
10 beyond the edge of the photograph will be revealed as long as the user keeps his finger on or near
11 the touch screen device. Eventually, either because he has reached the edge of the touch screen
12 itself or otherwise wants to stop scrolling, the user will lift his finger off the screen, thereby
13 terminating contact. When this happens, the photograph will scroll back to cover the area beyond
14 the edge that was previously displayed.

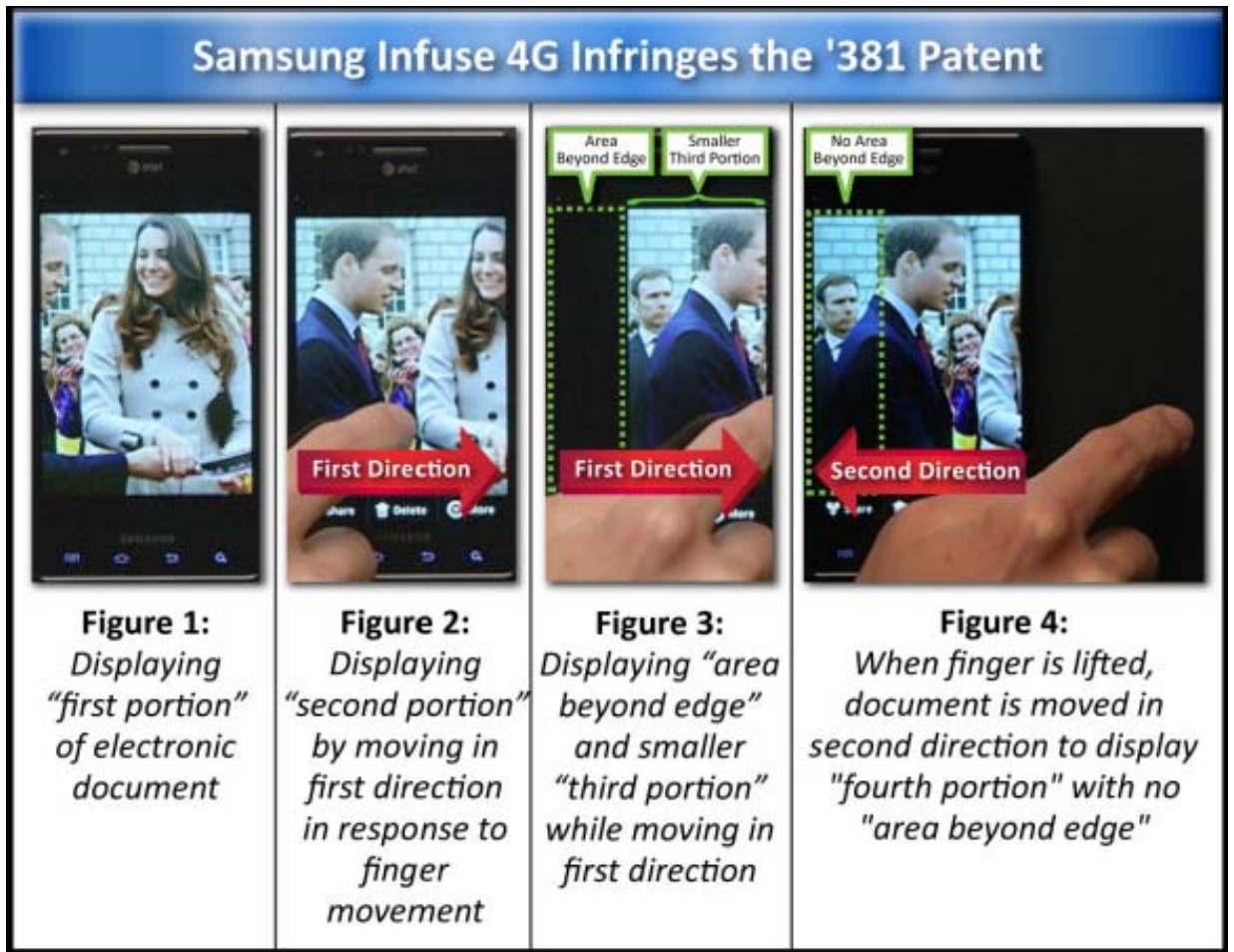
15 50. By way of example, the Infuse 4G, in response to detecting that the finger is no
16 longer on the touch screen, will scroll the photograph in the other direction until the area beyond
17 the edge of the photograph is no longer displayed. What is then displayed constitutes a fourth
18 portion of the photograph that is different from the first portion, as depicted below.



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25 (Ex. 13a.)

26 51. The entire sequence is depicted below in a side by side comparison. None of the
27 portions of the photograph as represented in Figures 1 – 4 is identical to another displayed portion.
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52. Each of the other Accused Products – the Galaxy S 4G, the Droid Charge, and the Galaxy Tab 10.1 – in response to detecting that the finger is no longer on the touch screen, will scroll the photograph in the other direction until the area beyond the edge of the photograph is no longer displayed. What is then displayed is a fourth portion of the photograph that is different from the first portion, as demonstrated in Exhibits 10-12, 13c, 13e, and 13g. It is my opinion that use of the Samsung devices infringes this element of claim 1.

53. Based on the foregoing analysis of documents and the operation of the Samsung devices, as indicated in more detail in the accompanying claim charts, I conclude that each and every element of claim 1 is met by use of the Samsung devices. Therefore, use of the Samsung devices infringes that claim.

1 **C. Use of Samsung’s Products Infringes Claim 2 of the ’381 Patent**

2 54. **Claim 2:** Claim 2 recites: “The computer-implemented method of claim 1,
3 wherein the first portion of the electronic document, the second portion of the electronic
4 document, the third portion of the electronic document, and the fourth portion of the electronic
5 document are displayed at the same magnification.”

6 55. Claim 2 depends from claim 1 and further requires that each of the four portions of
7 an electronic document, or more specifically in this case, a photograph, is displayed at the same
8 magnification. As can be seen in the side by side comparison of the four figures, or portions, in
9 paragraph 51 and in Exhibits 10-12, 13c, 13e, and 13g, all of the portions are displayed at the
10 same magnification.

11 56. Accordingly, it is my opinion that use of the Samsung devices infringes claim 2.

12 **D. Use of Samsung’s Products Infringes Claim 3 of the ’381 Patent**

13 57. **Claim 3:** Claim 3 recites: “The computer-implemented method of claim 1,
14 wherein the movement of the object is on the touch screen display.”

15 58. Claim 3 depends from claim 1 and further requires that the movement of the
16 object, such as the user’s finger, is on the touch screen display. As can be seen in the side by side
17 comparison of the four figures in paragraph 51 and in Exhibits 10-12, 13c, 13e, and 13g, the
18 movement of the finger is on the touch screen display.

19 59. Accordingly, it is my opinion that use of the Samsung devices infringes claim 3.

20 **E. Use of Samsung’s Products Infringes Claim 4 of the ’381 Patent**

21 60. **Claim 4:** Claim 4 recites: “The computer-implemented method of claim 1,
22 wherein the object is a finger.”

23 61. Claim 4 depends from claim 1 and further requires that the object in contact with
24 or proximity to the touch screen is a finger. As can be seen in the side by side comparison of the
25 four figures in paragraph 51 and in Exhibits 10-12, 13c, 13e, and 13g, the object in contact with
26 the touch screen is a finger.

27 62. Accordingly, it is my opinion that use of the Samsung devices infringes claim 4.

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1 **F. Use of Samsung’s Products Infringes Claim 5 of the ’381 Patent**

2 63. **Claim 5:** Claim 5 recites: “The computer-implemented method of claim 1,
3 wherein the first direction is a vertical direction, a horizontal direction, or a diagonal direction.”

4 64. Claim 5 depends from claim 1 and further requires that the first direction that the
5 electronic document, such as a photograph, is moved in is either a vertical, horizontal, or diagonal
6 direction. As can be seen in Figure 2 and the side by side comparison of the four figures in
7 paragraph 15 and in Exhibits 10-12, 13c, 13e, and 13g, the first movement of the photograph is in
8 a horizontal direction.

9 65. Accordingly, it is my opinion that use of the Samsung devices infringes claim 5.

10 **G. Use of Samsung’s Products Infringes Claim 7 of the ’381 Patent**

11 66. **Claim 7:** Claim 7 recites: “The computer-implemented method of claim 1,
12 wherein the electronic document is a digital image.”

13 67. Claim 7 depends from claim 1 and further requires that the electronic document
14 that is displayed and moved across the touch screen is a digital image. As can be seen in the side
15 by side comparison of the four figures in paragraph 51 and in Exhibits 10-12, 13c, 13e, and 13g,
16 the electronic document being displayed and moved is a digital image.

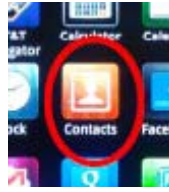
17 68. Accordingly, it is my opinion that use of the Samsung devices infringes claim 7.

18 **H. Use of Samsung’s Products Infringes Claim 9 of the ’381 Patent**

19 69. **Claim 9:** Claim 9 recites: “The computer-implemented method of claim 1,
20 wherein the electronic document includes a list of items.”

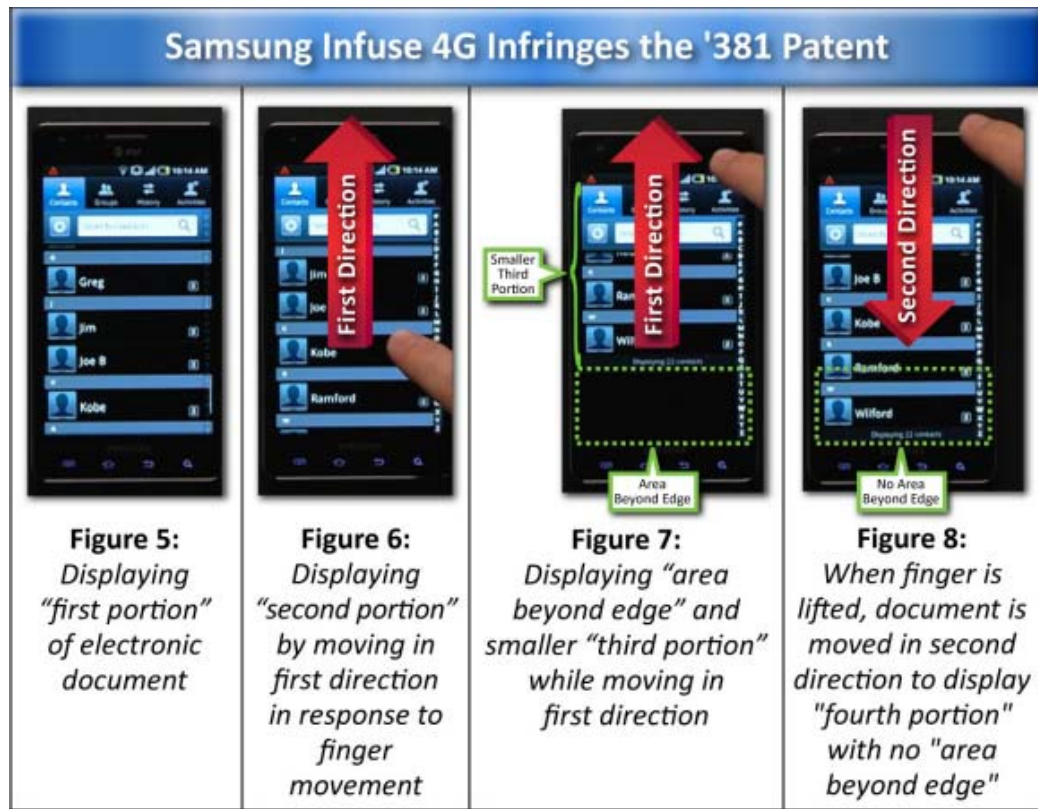
21 70. Claim 9 depends from claim 1 and further requires that the electronic document
22 that is displayed includes a list of items. The Infuse 4G, Galaxy S 4G, and the Droid Charge each
23 includes an application called “Contacts” that allows for the display of an electronic document
24 containing a list of contacts on the touch screen display of the device. By way of example, the
25 “Contacts” application icon on the Infuse 4G is depicted below, circled in red.

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(Ex. 13b.)

71. As can be seen in a side by side comparison of the four figures below, the Infuse 4G performs the same scroll back as discussed above, with a list of items – namely, a list of contact names. When moved upwards in a first direction, the first portion (Figure 5) of the contacts list transitions to a second portion (Figure 6) that displays the beginning of a new section of contacts. When the edge of the list is reached, an area beyond the edge is displayed (Figure 7). When contact with the list is terminated, the list bounces back to cover the area beyond the edge of the list that was previously displayed (Figure 8). None of the second (Figure 6), third (Figure 7), or fourth (Figure 8) portions of the list is the same as the first portion (Figure 5).



(Ex. 13b.)

72. The Galaxy S 4G and the Droid Charge each utilizes this scroll back feature in its "Contacts" list, as demonstrated in Exhibits 10-11, 13d, and 13f. The Galaxy Tab 10.1 utilizes

1 this scroll back feature in its “Browser” application, which displays a web page containing a list
2 of items, namely news articles, as demonstrated in Exhibits 12 and 13h.

3 73. Accordingly, it is my opinion that use of the Samsung devices infringes claim 9.

4 **I. Use of Samsung’s Products Infringes Claim 10 of the ’381 Patent**

5 74. **Claim 10:** Claim 10 recites: “The computer-implemented method of claim 1,
6 wherein the second direction is opposite the first direction.”

7 75. Claim 10 depends from claim 1 and further requires that the second direction in
8 which the electronic document, such as a photograph, scrolls back is opposite the first direction.
9 As can be seen in Figure 4 above, and the side by side comparison of the figures in paragraph 51
10 and Exhibits 10-12, 13c, 13e, and 13g, the second direction in which the photograph moves is
11 opposite the first direction.

12 76. Accordingly, it is my opinion that use of the Samsung devices infringes claim 10.

13 **J. Use of Samsung’s Products Infringes Claim 13 of the ’381 Patent**

14 77. **Claim 13:** Claim 13 recites: “The computer-implemented method of claim 1,
15 wherein the area beyond the edge of the document is black, gray, a solid color, or white.”

16 78. Claim 13 depends from claim 1 and further requires that the area beyond the edge
17 of the document is black or certain other colors. As can be seen in Figure 3 above and Exhibits
18 10-12, 13c, 13e, and 13g, the area beyond the edge of the photograph is black.

19 79. Accordingly, it is my opinion that use of the Samsung devices infringes claim 13.

20 **K. Use of Samsung’s Products Infringes Claim 14 of the ’381 Patent**

21 80. **Claim 14:** Claim 14 recites: “The computer-implemented method of claim 1,
22 wherein the area beyond the edge of the document is visually distinct from the document.”

23 81. Claim 14 depends from claim 1 and further requires that the area beyond the edge
24 of the document is visually distinct from, for example, the displayed photograph. As can be seen
25 in Figure 3 above and Exhibits 10-12, 13c, 13e, and 13g, the area beyond the edge of the
26 photograph is black, and therefore visually distinct from the portion of the photograph that is
27 displayed.

28 82. Accordingly, it is my opinion that use of the Samsung devices infringes claim 14.

1 **L. Use of Samsung’s Products Infringes Claim 16 of the ’381 Patent**

2 83. **Claim 16:** Claim 16 recites: “The computer-implemented method of claim 1,
3 wherein changing from translating in the first direction to translating in the second direction until
4 the area beyond the edge of the document is no longer displayed makes the edge of the electronic
5 document appear to be elastically attached to an edge of the touch screen display or to an edge
6 displayed on the touch screen display.”

7 84. Claim 16 depends from claim 1 and further requires that when the displayed image
8 is no longer being moved in the first direction and scrolls back in the second direction to cover
9 the area beyond the edge of the photograph that was previously displayed, the edge of the
10 photograph appears to be elastically attached to the edge of the touch screen display.

11 85. When the photograph scrolls back to cover the previously displayed area beyond
12 the edge of the photograph, it does so with a “snapping” or “bouncing back” animation that
13 makes the edge of the photograph appear to be elastically attached to the edge of the touch screen
14 display. For example, the Infuse 4G displays this elastic animation, as can be seen in Exhibit 13a.

15 86. Each of the other Accused Products – the Galaxy S 4G, the Droid Charge, and the
16 Galaxy Tab 10.1 – displays this elastic animation, as can be seen in Exhibits 13c, 13e, and 13g.

17 87. Accordingly, it is my opinion that use of the Samsung devices infringes claim 16.

18 **M. Samsung’s Products Infringe Claim 19 of the ’381 Patent**

19 88. **Claim 19, Preamble Limitation:** The preamble of claim 19 recites: “A device.”
20 While I understand that the question of whether this preamble is limiting is a legal matter, for the
21 purposes of this declaration, I have assumed that it must be met.

22 89. The Samsung devices meet the claim limitation “[a] device,” as recited in claim 19
23 of the ’381 patent. They are, quite simply, devices, and therefore meet the preamble of claim 19.

24 90. **Claim 19, Element 1:** Claim 19, Element 1 recites: “a touch screen display.”

25 91. The Samsung devices meet the claim limitation “a touch screen display,” as recited
26 in claim 19 of the ’381 patent. By way of example, the user manual for the Infuse 4G states that
27 the Infuse 4G has a touch screen display:
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Features of Your Phone

Your phone is lightweight, easy-to-use and offers many useful features. The following list outlines a few of the features included in your phone.

- First Rel. 7, HSPA+ (4G) device for AT&T with HSDPA CAT 14 (21.1 Mbps) and HSUPA CAT 6 (5.76 Mbps) high speed download capability
- **Touch screen** provides quick response to a variety of in-phone menus and options including applications and seven home screens
- Solid 2.2 Android platform
- Full HTML Web Browser with Adobe® Flash® 10.1 Support
- Built-in Bluetooth and Wi-Fi technology
- Brilliant 4.5" Super AMOLED™ Plus Screen with Ultra-thin Design
- Video Chatting and 8 Megapixel camera and camcorder
- AT&T GPS Navigation functionality provides real-time navigation



(Ex. 7 at 14.)

92. Each of the other Accused Products, the Galaxy S 4G, the Droid Charge, and the Galaxy Tab 10.1, also has a touch screen display. (See Exs. 10-12.) It is my opinion that the Samsung devices infringe this element of claim 19.

93. **Claim 19, Element 2:** Claim 19, Element 2 recites: “one or more processors.”

94. The Samsung devices meet the claim limitation “one or more processors,” as recited in claim 19 of the ’381 patent.

95. As Samsung describes its own products, they are devices with the following processors:

- Galaxy S 4G: “1.0 GHz processor” (Ex. 2 at 5);
- Infuse 4G: “1.2 GHz High Speed Processor” (Ex. 3 at 6);
- Droid Charge: “1 GHz processor” (Ex. 4 at 5); and
- Galaxy Tab 10.1: “Dual Core Tegra 2 processor” (Ex. 5 at 5).

96. It is my opinion that the Samsung devices infringe this element of claim 19.

97. **Claim 19, Element 3:** Claim 19, Element 3 recites: “memory.”

98. The Samsung devices meet the claim limitation “memory,” as recited in claim 19 of the ’381 patent.

99. As Samsung describes its own products, they are devices with the following memory:

- 1 • Galaxy S 4G: “On Board Memory” of “ROM: 1GB RAM: 512
- 2 MB” (Ex. 2 at 8);
- 3 • Infuse 4G has “On Board Memory” of “16GB ROM: 512MB
- 4 RAM: 512MB” (Ex. 3 at 10);
- 5 • Droid Charge: “storage capacity to 32 GB” (Ex. 4 at 5); and
- 6 • Galaxy Tab 10.1: “Memory Internal” of “16 GB” (Ex. 5 at 7).

7 100. It is my opinion that the Samsung devices infringe this element of claim 19.

8 101. **Claim 19, Element 4**: Claim 19, Element 4 recites: “one or more programs,

9 wherein the one or more programs are stored in the memory and configured to be executed by the

10 one or more processors, the programs including.”

11 102. The Samsung devices meet the claim limitation “one or more programs, wherein

12 the one or more programs are stored in the memory and configured to be executed by the one or

13 more processors, the programs including,” as recited in claim 19 of the ’381 patent.

14 103. As described above in the discussion of claim 1, the Samsung devices run a

15 number of programs such as the “Gallery” and “Contacts” applications. These programs are

16 stored in the memory of the Samsung devices, and are configured to be executed by the

17 processors in the Samsung devices. In addition, by way of example, Samsung describes the

18 Infuse 4G as follows: “Its 1.2 GHz High Speed Processor runs apps and websites with almost no

19 waiting time.” (Ex. 3 at 6.)

20 104. Because the Samsung devices perform the elements described in claims 1 and 19,

21 they must have instructions for performing those methods and a storage medium for those

22 instructions as recited in those claims. Samsung’s website indicates that the Galaxy S 4G, Infuse

23 4G, Droid Charge, and Galaxy Tab 10.1 each use the Android software platform. (Exs. 2-5.) As

24 the publicly available source code and documentation for the Android software platform available

25 on the Android developers website (<http://developer.android.com>) confirm, this software platform

26 includes executable instructions for displaying electronic documents, as described above.

27 Accordingly, executable instructions for performing the infringing functionalities are stored in

28 memory on the Samsung devices.

105. It is my opinion that the Samsung devices infringe this element of claim 19.

1 106. **Claim 19, Element 5:** Claim 19, Element 5 recites: “instructions for displaying a
2 first portion of an electronic document.”

3 107. The Samsung devices meet the claim limitation “instructions for displaying a first
4 portion of an electronic document,” as recited in claim 19 of the ’381 patent.

5 108. As depicted above in Figure 1 and Exhibit 13a, and by way of example, the Infuse
6 4G can display a first portion of an electronic document such as a photograph through its Gallery
7 application. Because the Infuse 4G performs this element of claim 19, it must have instructions
8 for displaying a first portion of an electronic document such as a photograph.

9 109. Each of the other Accused Products, the Galaxy S 4G, the Droid Charge, and the
10 Galaxy Tab 10.1, can also display a first portion of an electronic document, as demonstrated in
11 Exhibits 10-12, 13c, 13e, and 13g, and therefore must also have instructions for doing so. It is my
12 opinion that the Samsung devices infringe this element of claim 19.

13 110. **Claim 19, Element 6:** Claim 19, Element 6 recites: “instructions for detecting a
14 movement of an object on or near the touch screen display; instructions for translating the
15 electronic document displayed on the touch screen display in a first direction to display a second
16 portion of the electronic document, wherein the second portion is different from the first portion,
17 in response to detecting the movement.”

18 111. The Samsung devices meet the claim limitation “instructions for detecting a
19 movement of an object on or near the touch screen display; instructions for translating the
20 electronic document displayed on the touch screen display in a first direction to display a second
21 portion of the electronic document, wherein the second portion is different from the first portion,
22 in response to detecting the movement,” as recited in claim 19 of the ’381 patent.

23 112. As depicted above in Figure 2 and Exhibit 13a, the Infuse 4G can detect when a
24 user places a finger on the touch screen display and moves his finger in a first direction. The
25 Samsung devices then translate the electronic document, in this case a photograph, in the same
26 direction, resulting in the display of another portion of the photograph which is different from the
27 first portion. By way of example, the Infuse 4G is capable of detecting the movement of a finger
28 on its touch screen, and in response, scrolling the photograph in the same direction, displaying a

1 second, different portion of the photograph. Because the Infuse 4G performs this element of
2 claim 19, it must have instructions for detecting the movement of a finger on its touch screen, and
3 in response, scrolling a photograph in the direction of the finger movement and displaying a
4 second, different portion of the photograph.

5 113. Each of the other Accused Products, the Galaxy S 4G, the Droid Charge, and the
6 Galaxy Tab 10.1, can also detect the movement of a finger on their touch screens, and in
7 response, scroll a photograph in the direction of the finger movement and display a second,
8 different portion of the photograph, as demonstrated in Exhibits 10-12, 13c, 13e, and 13g, and
9 therefore must also have instructions for doing so. It is my opinion that the Samsung devices
10 infringe this element of claim 19.

11 114. **Claim 19, Element 7**: Claim 19, Element 7 recites: “instructions for displaying an
12 area beyond an edge of the electronic document and displaying a third portion of the electronic
13 document, wherein the third portion is smaller than the first portion, in response to the edge of the
14 electronic document being reached while translating the electronic document in the first direction
15 while the object is still detected on or near the touch screen display.”

16 115. The Samsung devices meet the claim limitation “instructions for displaying an area
17 beyond an edge of the electronic document and displaying a third portion of the electronic
18 document, wherein the third portion is smaller than the first portion, in response to the edge of the
19 electronic document being reached while translating the electronic document in the first direction
20 while the object is still detected on or near the touch screen display,” as recited in claim 19 of
21 the '381 patent.

22 116. As depicted above in Figure 3 and Exhibit 13a, the Infuse 4G, in response to
23 reaching an edge of a photograph in the Gallery application while a finger continues to move the
24 photograph in the same direction – that is, to scroll it beyond the edge – will display a black
25 region beyond the edge of the photograph, and thereby display a smaller third portion of the
26 photograph.

27 117. Because the Infuse 4G performs this element of claim 19, it must have instructions
28 for displaying a black region beyond the edge of the photograph and displaying a smaller third

1 portion of the photograph, all in response to the edge of the photograph being reached while
2 translating the photograph in the first direction while the finger is still detected on the touch
3 screen display.

4 118. Each of the other Accused Products, the Galaxy S 4G, the Droid Charge, and the
5 Galaxy Tab 10.1, can also, in response to reaching an edge of a photograph, while a finger
6 continues to move the photograph in the same direction, display a black region beyond the edge
7 of the photograph, and thereby display a smaller third portion of the photograph, as demonstrated
8 in Exhibits 10-12, 13c, 13e, and 13g, and therefore must also have instructions for doing so. It is
9 my opinion that the Samsung devices infringe this element of claim 19.

10 119. **Claim 19, Element 8:** Claim 19, Element 8 recites: “instructions for translating
11 the electronic document in a second direction until the area beyond the edge of the electronic
12 document is no longer displayed to display a fourth portion of the electronic document, wherein
13 the fourth portion is different from the first portion, in response to detecting that the object is no
14 longer on or near the touch screen display.”

15 120. The Samsung devices meet the claim limitation “instructions for translating the
16 electronic document in a second direction until the area beyond the edge of the electronic
17 document is no longer displayed to display a fourth portion of the electronic document, wherein
18 the fourth portion is different from the first portion, in response to detecting that the object is no
19 longer on or near the touch screen display,” as recited in claim 19 of the '381 patent.

20 121. As depicted above in Figure 4 and Exhibit 13a, the Infuse 4G, in response to
21 detecting that the finger is no longer on the touch screen, will scroll the photograph in the other
22 direction until the area beyond the edge of the photograph is no longer displayed. What is then
23 displayed is a fourth portion of the photograph that is different from the first portion.

24 122. Because the Infuse 4G performs this element of claim 19, it must have instructions
25 for scrolling the photograph in the other direction until the area beyond the edge of the
26 photograph is no longer displayed. It must also have instructions to display a fourth portion of
27 the photograph that is different from the first portion, all in response to detecting that the finger is
28 no longer on the touch screen.

1 123. Each of the other Accused Products, the Galaxy S 4G, the Droid Charge, and the
2 Galaxy Tab 10.1, can also, in response to detecting that the finger is no longer on the touch
3 screen, scroll the photograph in the other direction until the area beyond the edge of the
4 photograph is no longer displayed, thereby displaying a fourth portion of the photograph that is
5 different from the first portion, as demonstrated in Exhibits 10-12, 13c, 13e, and 13g, and
6 therefore must also have instructions for doing so. It is my opinion that the Samsung devices
7 infringe this element of claim 19.

8 124. Based on the foregoing analysis of documents and the operation of the Samsung
9 devices, as indicated in more detail in the accompanying claim charts and videos, I conclude that
10 each and every element of Claim 19 is met by the Samsung devices, which therefore infringe that
11 claim. Because each of the Samsung devices runs the Android software platform and contains
12 instructions within its source code to display images as described in Claim 19, they each infringe
13 this claim.

14 **N. Samsung's Products Infringe Claim 20 of the '381 Patent**

15 125. **Claim 20, Preamble Limitation**: The preamble of claim 20 recites: "A computer
16 readable storage medium having stored therein instructions, which when executed by a device
17 with a touch screen display, cause the device to." While I understand that whether this preamble
18 is limiting is a legal question, for the purposes of this declaration, I have assumed that it must be
19 met.

20 126. The Samsung devices meet the claim limitation "[a] computer readable storage
21 medium having stored therein instructions, which when executed by a device with a touch screen
22 display, cause the device to," as recited in claim 20 of the '381 patent.

23 127. As described above in the discussion of claims 1 and 19, the Samsung devices
24 have internal memory that is computer readable, and run a number of programs such as the
25 "Gallery" and "Contacts" applications. These programs must be stored in the memory of the
26 Samsung devices, and are configured to be executed by the processors in the Samsung devices,
27 which have touch screen displays. By way of example, Samsung describes the Infuse 4G as
28

1 follows: “Its 1.2 GHz High Speed Processor runs apps and websites with almost no waiting time.”
2 (Ex. 3 at 6.)

3 128. Because the Samsung devices perform the elements described in claims 1 and 20,
4 they must have a computer readable storage medium with executable instructions for performing
5 those methods and actions as recited in those claims. Samsung’s website indicates that the
6 Galaxy S 4G, Infuse 4G, Droid Charge, and Galaxy Tab 10.1 each use the Android software
7 platform. (Exs. 2-5.) As the publicly available source code and documentation for the Android
8 software platform available on the Android developers website (<http://developer.android.com>)
9 confirm, this software platform includes executable instructions for displaying electronic
10 documents, as described above. Accordingly, executable instructions for performing the
11 infringing functionalities are stored on a computer readable medium on the Samsung devices.

12 129. It is my opinion that the Samsung devices meet the preamble of claim 20.

13 130. **Claim 20, Element 1**: Claim 20, Element 1 recites: “display a first portion of an
14 electronic document.”

15 131. The Samsung devices meet the claim limitation “display a first portion of an
16 electronic document,” as recited in claim 20 of the ’381 patent.

17 132. As depicted above in Figure 1 and Exhibit 13a, and by way of example, the Infuse
18 4G can display a first portion of an electronic document such as a photograph. Because the
19 Infuse 4G performs this element of claim 20, it must have a computer readable storage medium
20 with executable instructions for displaying a first portion of an electronic document such as a
21 photograph.

22 133. Each of the other Accused Products, the Galaxy S 4G, the Droid Charge, and the
23 Galaxy Tab 10.1, can also display a first portion of an electronic document, as demonstrated in
24 Exhibits 10-12, 13c, 13e, and 13g, and therefore must also have a computer readable storage
25 medium with executable instructions for doing so. It is my opinion that the Samsung devices
26 infringe this element of claim 20.

27 134. **Claim 20, Element 2**: Claim 20, Element 2 recites: “detect a movement of an
28 object on or near the touch screen display; translate the electronic document displayed on the

1 touch screen display in a first direction to display a second portion of the electronic document,
2 wherein the second portion is different from the first portion, in response to detecting the
3 movement.”

4 135. The Samsung devices meet the claim limitation “detect a movement of an object
5 on or near the touch screen display; translate the electronic document displayed on the touch
6 screen display in a first direction to display a second portion of the electronic document, wherein
7 the second portion is different from the first portion, in response to detecting the movement,” as
8 recited in claim 20 of the ’381 patent.

9 136. As depicted above in Figure 2 and Exhibit 13a, the Infuse 4G can detect when a
10 user places a finger on the touch screen display and moves his finger in a first direction. The
11 Samsung devices then translate the electronic document, or in this case, the photograph, in the
12 same direction, resulting in the display of another portion of the photograph which is different
13 from the first portion. By way of example, through its Gallery application, the Infuse 4G is
14 capable of detecting the movement of a finger on its touch screen, and in response, scrolling the
15 photograph in the same direction, displaying a second, different portion of the photograph.
16 Because the Infuse 4G performs this element of claim 20, it must have a computer readable
17 storage medium with executable instructions for detecting the movement of a finger on its touch
18 screen, and in response, scrolling a photograph in the direction of the finger movement and
19 displaying a second, different portion of the photograph.

20 137. Each of the other Accused Products, the Galaxy S 4G, the Droid Charge, and the
21 Galaxy Tab 10.1, can also detect the movement of a finger on their touch screens, and in
22 response, scroll a photograph in the direction of the finger movement and display a second,
23 different portion of the photograph, as demonstrated in Exhibits 10-12, 13c, 13e, and 13g, and
24 therefore must also have a computer readable storage medium with executable instructions for
25 doing so. It is my opinion that the Samsung devices infringe this element of claim 20.

26 138. **Claim 20, Element 3:** Claim 20, Element 3 recites: “display an area beyond an
27 edge of the electronic document and display a third portion of the electronic document, wherein
28 the third portion is smaller than the first portion, if the edge of the electronic document is reached

1 while translating the electronic document in the first direction while the object is still detected on
2 or near the touch screen display.”

3 139. The Samsung devices meet the claim limitation “display an area beyond an edge of
4 the electronic document and display a third portion of the electronic document, wherein the third
5 portion is smaller than the first portion, if the edge of the electronic document is reached while
6 translating the electronic document in the first direction while the object is still detected on or
7 near the touch screen display,” as recited in claim 20 of the ’381 patent.

8 140. As depicted above in Figure 3 and Exhibit 13a, when its Gallery application is in
9 use, the Infuse 4G, will, in response to reaching an edge of a photograph while a finger continues
10 to move the photograph in the same direction, display a black region beyond the edge of the
11 photograph, and thereby display a smaller third portion of the photograph.

12 141. Because the Infuse 4G performs this element of claim 20, it must have a computer
13 readable storage medium with executable instructions for displaying a black region beyond the
14 edge of the photograph and displaying a smaller third portion of the photograph, all in response to
15 the edge of the photograph being reached while translating the photograph in the first direction
16 while the finger is still detected on the touch screen display.

17 142. Each of the other Accused Products, the Galaxy S 4G, the Droid Charge, and the
18 Galaxy Tab 10.1, can also, in response to reaching an edge of a photograph, while a finger
19 continues to move the photograph in the same direction, display a black region beyond the edge
20 of the photograph, and thereby display a smaller third portion of the photograph, as demonstrated
21 in Exhibits 10-12, 13c, 13e, and 13g, and therefore must also have a computer readable storage
22 medium with executable instructions for doing so. It is my opinion that the Samsung devices
23 infringe this element of claim 20.

24 143. **Claim 20, Element 4**: Claim 20, Element 4 recites: “translate the electronic
25 document in a second direction until the area beyond the edge of the electronic document is no
26 longer displayed to display a fourth portion of the electronic document, wherein the fourth portion
27 is different from the first portion, in response to detecting that the object is no longer on or near
28 the touch screen display.”

1 144. The Samsung devices meet the claim limitation “translate the electronic document
2 in a second direction until the area beyond the edge of the electronic document is no longer
3 displayed to display a fourth portion of the electronic document, wherein the fourth portion is
4 different from the first portion, in response to detecting that the object is no longer on or near the
5 touch screen display,” as recited in claim 20 of the ’381 patent.

6 145. As depicted above in Figure 4 and Exhibit 13a, when its Gallery application is in
7 use, the Infuse 4G will, in response to detecting that the finger is no longer on the touch screen,
8 scroll the photograph in the other direction until the area beyond the edge of the photograph is no
9 longer displayed. What is then displayed is a fourth portion of the photograph that is different
10 from the first portion.

11 146. Because the Infuse 4G performs this element of claim 20, it must have a computer
12 readable storage medium with executable instructions for scrolling the photograph in the other
13 direction until the area beyond the edge of the photograph is no longer displayed. It must also
14 have instructions to display a fourth portion of the photograph that is different from the first
15 portion, all in response to detecting that the finger is no longer on the touch screen.

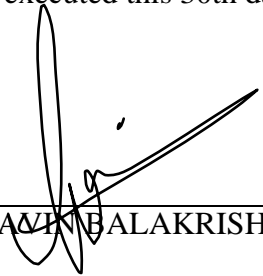
16 147. Each of the other Accused Products, the Galaxy S 4G, the Droid Charge, and the
17 Galaxy Tab 10.1, can also, in response to detecting that the finger is no longer on the touch
18 screen, scroll the photograph in the other direction until the area beyond the edge of the
19 photograph is no longer displayed, thereby displaying a fourth portion of the photograph that is
20 different from the first portion, as demonstrated in Exhibits 10-12, 13c, 13e, and 13g, and
21 therefore must also have a computer readable storage medium with executable instructions for
22 doing so. It is my opinion that the Samsung devices infringe this element of claim 20.

23 148. Based on the foregoing analysis of documents and the operation of the Samsung
24 devices, as indicated in more detail in the accompanying claim charts and videos, I conclude that
25 each and every element of Claim 20 is met by the Samsung devices, which therefore infringe that
26 claim. Because each of the Samsung devices has a computer readable storage medium, runs the
27 Android software platform, and contains instructions within its source code to display images as
28 described in Claim 20, they each infringe this claim.

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I declare under penalty of perjury under the laws of the United States of America that the forgoing is true and correct and that this Declaration was executed this 30th day of June, 2011, at Toronto, Canada.

Dated: June 30, 2011

/s/ 
RAVIN BALAKRISHNAN