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11 Attorneys for Plaintiff and  
 Counterclaim-Defendant APPLE INC.

13 UNITED STATES DISTRICT COURT  
 14 NORTHERN DISTRICT OF CALIFORNIA  
 15 SAN JOSE DIVISION

17 APPLE INC., a California corporation,  
 18 Plaintiff,  
 19 v.  
 20 SAMSUNG ELECTRONICS CO., LTD., a  
 Korean business entity; SAMSUNG  
 21 ELECTRONICS AMERICA, INC., a New  
 York corporation; SAMSUNG  
 22 TELECOMMUNICATIONS AMERICA,  
 LLC, a Delaware limited liability company,  
 23 Defendants.  
 24

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

**DECLARATION OF RAVIN  
 BALAKRISHNAN, PH.D. IN  
 SUPPORT OF APPLE'S  
 OPPOSITION TO SAMSUNG'S  
 MOTION FOR SUMMARY  
 JUDGMENT**

25 **\*\*CONFIDENTIAL – CONTAINS MATERIAL DESIGNATED AS HIGHLY**  
 26 **CONFIDENTIAL – ATTORNEYS' EYES ONLY PURSUANT**  
 27 **TO A PROTECTIVE ORDER\*\***

28 SUBMITTED UNDER SEAL

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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 in response to Apple’s allegations  
5 of patent infringement, Defendants Samsung Electronics Co. Ltd., Samsung Electronics America,  
6 Inc., and Samsung Telecommunications America, LLC (collectively “Samsung”) have asserted  
7 that United States Patent No. 7,469,381 (“the ’381 patent”) is invalid, and submitted in support of  
8 its position the Declaration of Andries van Dam, Ph.D. in Support of Samsung’s Motion for  
9 Summary Judgment Regarding the Invalidity of U.S. Patent No. 7,469,381 (“Van Dam  
10 Declaration”). I have been asked to provide opinions as to whether claim 19 of the ’381 patent is  
11 valid and to address the Van Dam Declaration. My opinions are set forth below in this  
12 declaration and in the accompanying 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 my standard consulting rate of \$430 per hour for my  
20 work in connection with this action. My compensation is not based in any way on the outcome of  
21 the litigation.

22 4. I hereby incorporate by reference the Rebuttal Expert Report of Ravin  
23 Balakrishnan, Ph.D. Regarding Validity of U.S. Patent No. 7,469,381, submitted on April 16,  
24 2012.

25 **I. QUALIFICATIONS**

26 5. Here, I provide a brief summary of my qualifications. My qualifications are stated  
27 more fully in my curriculum vitae, which is attached to this report as Exhibit 1.

28

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

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

11          8.       I have published over one hundred refereed publications in the field of human-  
12 computer interaction. I have further presented numerous conference abstracts, posters, talks, and  
13 demonstrations in my field. I am a named inventor on fourteen issued patents in my area of work,  
14 plus an additional seven pending (though not yet issued) patents.

15          9.       I joined the University of Toronto faculty in July 2001 as an Assistant Professor.  
16 In 2006, I was promoted to Associate Professor with tenure, and in 2011 was promoted to full  
17 Professor. As a professor, I have taught numerous undergraduate and graduate courses in topics  
18 related to human-computer interaction. Ten Ph.D. students and twenty research masters students  
19 have completed their degrees and research under my supervision, and seven postdoctoral fellows  
20 have completed their research training under my supervision. In addition to these graduate  
21 students and postdoctoral fellows, I currently supervise one postdoctoral fellow, six Ph.D.  
22 students, and two Masters students. In addition to my professorship, I also hold the Canada  
23 Research Chair in Human-Centered Interfaces in the Department of Computer Science, and I co-  
24 direct the Dynamic Graphics Project laboratory.

25          10.       My research at The University of Toronto has involved nearly every broad aspect  
26 of human-computer interaction and data visualization. For instance, I have done significant work  
27 in the areas of input devices, sensing technologies, and interaction techniques, in particular touch  
28 and multi-touch interaction, gestural, sketching, and multi degree-of-freedom interaction,

1 interfaces to small and/or mobile computers, and interfaces to displays of the future. As another  
2 example, I have done work in the evaluation of user interfaces, including associated metrics and  
3 predictive models of human performance. I have previously served as a visiting researcher at  
4 Mitsubishi Electric Research Laboratories. My research program has been funded by leading  
5 companies such as Microsoft, IBM, and Hewlett-Packard and also organizations such as the  
6 National Sciences and Engineering Research Council of Canada and also the Sloan Foundation.

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

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

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

23 13. As set forth in my CV, I have over twenty years of experience studying and  
24 teaching computer programming. I have been a professor of computer science for over ten years.  
25 I can read and program using both procedural and object-oriented programming languages  
26 fluently, including the C, C++, Objective C and Java languages.

27 14. I have previously testified as an expert during administrative proceedings before  
28 the International Trade Commission and by deposition in connection with those same  
29 proceedings. I have also submitted reports or testified in connection with proceedings before

1 United States District Courts and one foreign court. Specifically, I have submitted reports or  
2 testified in:

- 3 • In re Certain Electronic Digital Media Devices and Components Thereof, Inv. No.  
4 337-TA-796, on behalf of complainant Apple.
- 5 • In re Certain Electronic Devices, Including Wireless Communication Devices,  
6 Portable Music and Data Processing Devices, and Tablet Computers, Inv. No. 337-  
7 TA-794, on behalf of respondent Apple.
- 8 • In re Certain Mobile Devices, and Related Software Thereof, Inv. No. 337-TA-750, on  
9 behalf of complainant Apple.
- 10 • In re Certain Video Game Machines and Related Three-Dimensional Pointing  
11 Devices, Inv. No. 337-TA-658, on behalf of respondent Nintendo.
- 12 • In re Certain Electronic Devices With Multi-Touch Enabled Touchpads And  
13 Touchscreens, Inv. No. 337-TA-714, on behalf of respondent Apple. During that  
14 proceeding, the parties stipulated, and Chief Administrative Law Judge Paul J.  
15 Luckern acknowledged, that I was an expert in the field of computer user input  
16 devices.
- 17 • In re Certain Portable Electronic Devices and Related Software, Inv. No. 337-TA-797,  
18 on behalf of complainant Apple.
- 19 • Apple Inc. v. Samsung Electronics Co. Ltd., et al., 12-cv-630-LHK (N.D. Cal.) on  
20 behalf of plaintiff Apple.
- 21 • Apple Inc. v. Samsung Electronics Co. Ltd., et al., 11-cv-1846-LHK (N.D. Cal.) on  
22 behalf of plaintiff Apple.
- 23 • Mobilemedia Ideas LLC v. Apple Inc., 10-cv-258 (D. Del.) on behalf of defendant  
24 Apple.
- 25 • Apple Inc. v. Samsung Electronics Co. Ltd., et al., KG ZA 11-730 and KG ZA 11-731  
26 (District Court of the Hague).

1     **II.     MATERIALS CONSIDERED**

2             15.     In forming my opinions and views expressed in this declaration, I reviewed (1) the  
3     '381 patent, its prosecution file history, and the file history for Reexamination Application No.  
4     90/090,963; (2) the file history of U.S. Provisional Patent Application No. 60/883.801; (3)  
5     portions of the deposition transcript of Bas Ording, the named inventor of the '381 patent, as well  
6     as certain exhibits marked during that deposition; (4) the Van Dam Declaration with exhibits; (5)  
7     the declarations, with exhibits, of Clifton Forlines and Adam Bogue in support of Samsung's  
8     Motion for Summary Judgment; (6) the deposition transcripts, and certain exhibits marked during  
9     those depositions, of Andries Van Dam, Clifton Forlines, and Adam Bogue; (7) Samsung's Patent  
10    Local Rule 3-3 and 3-4 Disclosures; (8) the Expert Report of Jeffrey Johnson, Ph.D. Regarding  
11    Non-Infringement of U.S. Patent No. 7,469,381 with exhibits; (9) the Order Construing Disputed  
12    Claim Terms of U.S. Patent Nos. 7,698,711; 6,493,002; 7,469,381; 7,663,607; 7,812,828;  
13    7,844,915; and 7,853,891 (Dkt. No. 849); and (10) the Order Denying Motion for Preliminary  
14    Injunction (Dkt. No. 452).

15            16.     I also reviewed portions of the Mitsubishi production from the hard drive labeled  
16    MERL00000001, including source code for the Tablecloth program ("Tablecloth"), as well as a  
17    DiamondTouch system running Tablecloth. Attached hereto as Exhibits 2 and 3 are videos  
18    demonstrating certain functionality of the Tablecloth program.

19     **II.     LEGAL PRINCIPLES**

20            17.     I have not been asked to offer an opinion on the law; however, as an expert  
21    assisting the Court in determining validity, I understand that I am obliged to follow existing law.  
22    Attorneys for Apple have informed me of a number of legal principles, and my opinions in this  
23    report take into account my understanding of those principles.

24            18.     I have been informed by counsel regarding the standards for invalidity. I have  
25    been informed by counsel that a patent claim is invalid if it is "anticipated" or "obvious" in view  
26    of the "prior art."

27            19.     I have been informed by counsel that a patent is presumed valid, and each patent  
28    claim is independently presumed valid, even if other claims within the patent are held invalid. I

1 have been informed by counsel that the burden of proving invalidity rests on the person  
2 challenging the patent, who must demonstrate that it is anticipated or obvious by clear and  
3 convincing evidence. I have been informed by counsel that “clear and convincing” evidence is  
4 evidence indicating that the thing to be proved is highly probable or reasonably certain.

5 **A. Anticipation**

6 20. I have been informed by counsel that a claimed invention is invalid if it is  
7 anticipated by a single prior art reference. I have been informed by counsel that a prior art  
8 reference anticipates a patent claim if each and every limitation of that claim is found, either  
9 expressly or inherently, in that single prior art reference. I have been informed by counsel that a  
10 claim limitation is inherent in the prior art if it is necessarily present in the prior art, not merely  
11 probably or possibly present. I have been informed by counsel that, to anticipate, there must be  
12 no difference between the claimed invention and the reference disclosure, as viewed by a person  
13 of ordinary skill in the field of the invention. I have been informed by counsel that anticipation  
14 requires that the disclosure in the prior art reference be sufficient to enable one skilled in the art to  
15 carry out the claimed invention.

16 21. I also understand that a claim is invalid under 35 U.S.C. §102 (a) if the claimed  
17 invention was known or used by others in the U.S., or was patented or published anywhere,  
18 before the applicant’s invention. I further understand that a claim is invalid under 35 U.S.C. §102  
19 (b) if the invention was patented or published anywhere, or was in public use, on sale, or offered  
20 for sale in this country, more than one year prior to the filing date of the patent application. And a  
21 claim is invalid, as I understand, under 35 U.S.C. §102 (e), if an invention described by that claim  
22 was described in a U.S. patent granted on an application for a patent by another that was filed in  
23 the U.S. before the date of invention for such a claim. A claim is also invalid, as I understand,  
24 under 35 U.S.C. §102 (f) if the invention was invented by another prior to the claimed invention.  
25 It is also my understanding that a claim is invalid under 35 U.S.C. §102 (g)(2) if, prior to the date  
26 of invention for the claim, the invention was made in the U.S. by another who had not abandoned,  
27 suppressed or concealed the invention.



1           **B.     Obviousness**

2           22.     I have been informed by counsel that a claimed invention is only unpatentable  
3 under 35 U.S.C. § 103 if the differences between the invention and the prior art are such that the  
4 subject matter as a whole would have been obvious at the time the invention was made to a  
5 person having ordinary skill in the art to which the subject matter pertains.

6           23.     I am informed and understand that certain factors must be evaluated to determine  
7 if a patent claim is obvious. These factors include: (1) the scope and content of the prior art; (2)  
8 the differences between each claim of the patent and the prior art; (3) the level of ordinary skill in  
9 the art at the time the claimed invention was made; and (4) “secondary considerations” of non-  
10 obviousness.

11          24.     I understand that a claim of obviousness may be based on one or more references,  
12 taken in combination. I understand that a patent composed of several elements is not proved  
13 obvious merely by demonstrating that each of its elements was known in the prior art. There  
14 must be a reason for combining the elements in the manner claimed. That is, there must be a  
15 showing that a person of ordinary skill in the art at the time of the invention would have thought  
16 of either combining two or more references or of modifying a reference to achieve the claimed  
17 invention. It is not sufficient to show that it was obvious to try a combination.

18          25.     In determining whether an invention is obvious, I understand that it is  
19 impermissible to engage in hindsight reconstruction of the claimed invention, using the  
20 applicant’s invention as a template and selecting elements from the references to fill the gaps. In  
21 order for a combination of multiple references to be obvious, a person of ordinary skill in the art  
22 should have some reason to combine the references. When considering a reference for purposes  
23 of an obviousness analysis, the reference must be taken for everything it teaches, including  
24 information that that diverges from or teaches away from the claimed invention.

25          26.     I also understand that a combination of known elements can be obvious when it  
26 does no more than yield predictable results. In other words, where it is obvious to try a particular  
27 combination of known elements to solve a problem and there are a finite number of known,  
28 predicable solutions, the result is likely the product not of innovation but of ordinary skill and

1 common sense. At the same time, a finding of obviousness may not be proper where the prior art  
2 merely provides a person of ordinary skill in the art a promising field for experimentation. I have  
3 further been informed that a proper obviousness analysis focuses on what was known or obvious  
4 to a person of ordinary skill in the art, not just to the patentee, at the time of the invention. I also  
5 understand that practical and common sense considerations should guide a proper obviousness  
6 analysis.

7 27. I also understand that the law distinguishes between one of ordinary skill in the art  
8 and inventors. Under this distinction, one should not go about determining obviousness by  
9 inquiring into what patentees or inventors would have known or would likely have done faced  
10 with the revelation of references. A person of ordinary skill in the art is one who thinks along the  
11 lines of conventional wisdom and is not one who undertakes to innovate.

12 28. I have been informed by counsel that secondary considerations of non-obviousness  
13 should be considered and include: (1) commercial success of the claimed invention; (2) long-felt  
14 but previously unsolved needs for the claimed invention; (3) copying of the invention by others in  
15 the field; (4) initial expressions of disbelief or skepticism by experts in the field; (5) praise or  
16 industry acclamation for the claimed invention; and (6) failure of others to solve the problem that  
17 the inventor solved.

18 **C. Invention and Patent Application Dates**

19 29. I understand that there are several significant dates that are relevant to my analysis.  
20 The first is the date of conception. Specifically, an invention is complete when the inventor has  
21 formed a definite and permanent idea of the complete and operative invention, as it is to be  
22 applied in practice. I understand that conception must include every feature or limitation of the  
23 claimed invention.

24 30. A second significant date is that of reduction to practice. I understand that there are  
25 two types of reduction to practice. An actual reduction to practice requires that the inventor  
26 constructed an embodiment or performed a process that met all the limitations of the claim that  
27 would work for its intended purpose. A constructive reduction to practice is the filing of a patent  
28 application. I understand that for a patentee to be entitled to rely upon a conception date as of the

1 date of invention for purposes of a prior art analysis, he or she must have been reasonably diligent  
2 from conception through reduction to practice.

3 31. The filing date of a patent is the date that the application for the patent was filed  
4 with the United States Patent and Trademark Office (“PTO”). That date is printed on the first  
5 page of the patent. I understand that, to claim the benefit of the date of an earlier patent  
6 application, the earlier application must disclose and support the subject matter of the claims.

7 32. I understand that the “critical date” for a patent is one year before its priority date.

### 8 **A. Claim Construction**

9 33. I understand that the Court construed the term “edge of [an or the] electronic  
10 document” to have its plain and ordinary meaning, and that the term is not limited to “only an  
11 external edge,” and “may be internal.” (Dkt. No. 849 at 23.) The Court also declined to adopt  
12 “boundary” as a substitute for the word “edge.” (*Id.* at 20.) I have applied the Court’s  
13 construction in coming to my opinions about the validity of claim 19 of the ’381 patent.

14 34. I also understand that the Court ruled in its order on Apple’s Motion for a  
15 Preliminary Injunction that “Claim 1 of the ’381 patent is fatalistic: if a user scrolls past the edge  
16 of an electronic document in the first direction, the screen must snap back to that document when  
17 the user lifts her finger.” (Dkt. No. 452 at 60.) I have performed my analysis under the Court’s  
18 interpretation of claim 1 as well as under an alternative interpretation that claim 19 does not  
19 prohibit behavior other than the rubber banding functionality.

20 35. For those claim terms for which the parties did not dispute their construction, I  
21 have interpreted the claims as one of ordinary skill in the art would have at the time the patent  
22 was filed in light of the teachings of the patent and its prosecution history, which may limit claim  
23 scope, either affirmatively or by implication.

## 24 **III. DETAILED OPINION**

### 25 **A. Background of the ’381 Patent**

26 36. U.S. Patent no. 7,469,381 (Arnold Decl. Ex. 83) is titled List Scrolling and  
27 Document Translation, Scaling and Rotation on a Touch-Screen Display. The filing date of the  
28 patent application (Application No. 11/956,969) is December 14, 2007, and its date of issue is

1 December 23, 2008. There are a number of related patent applications to which the '381  
2 application claims priority, including U.S. Provisional Patent Application No. 60/883,801, filed  
3 on January 7, 2007. (Bartlett Decl. Ex. 55.) That application contains either verbatim or near  
4 verbatim the same written description, figures, and claim language as the '381 patent, and  
5 accordingly fully supports and enables claim 19 of the '381 patent.

6 37. I understand that the critical date for the claims of the '381 patent is January 7,  
7 2006, one year before the filing date of the first provisional application.

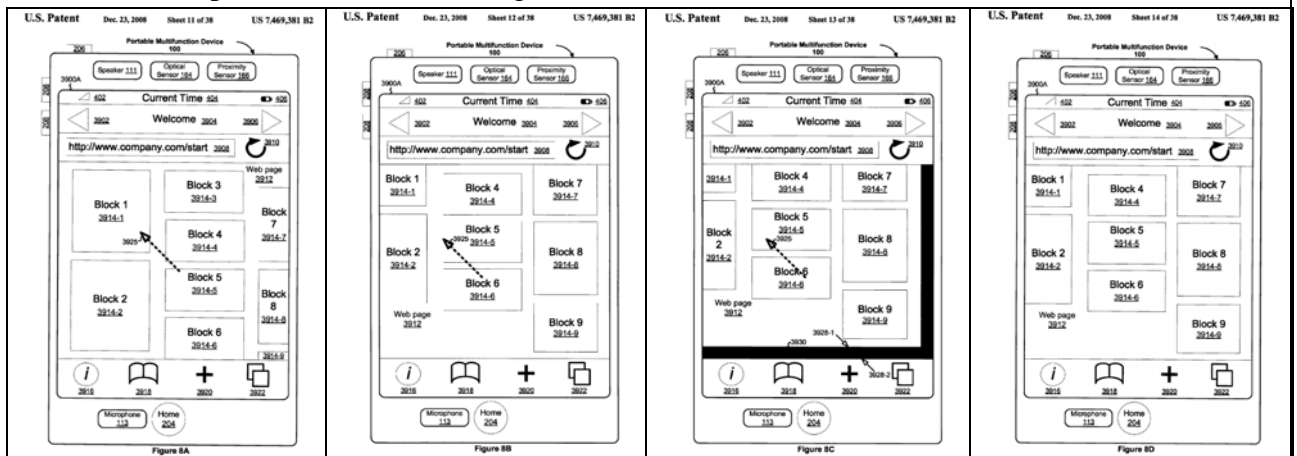
8 38. I have reviewed portions of the deposition transcript of Bas Ording, the named  
9 inventor of the '381 patent, and understand that Mr. Ording conceived of his invention in early  
10 February 2005, and reduced it to practice in a prototype by February 11, 2005. (Bartlett Decl. Ex.  
11 56 [8/9/11 Ording Dep.] at 126:3 – 130:7.)

12 39. I understand that on April 28, 2010, a Request for Reexamination was filed at the  
13 request of Nokia Corporation (*see* Dkt. No. 87-40), which was then involved in a patent  
14 infringement lawsuit with Apple regarding the '381 patent, with the Patent Office, asserting that a  
15 substantial new question of patentability existed in light of certain patents and printed  
16 publications. (Bartlett Decl. Ex. 57.) On July 14, 2010, the Patent Office granted this request for  
17 *ex parte* reexamination. On January 13, 2011, the Patent office issued a Notice of Intent to Issue  
18 *Ex Parte* Reexamination Certificate, and confirmed that the identified patents and printed  
19 publications, "either singularly or in combination fail to teach or suggest, 'in response to  
20 detecting that the object is no longer on or near the touch screen display, translating the electronic  
21 document in a second direction until the area beyond the edge of the electronic document is no  
22 longer displayed to display a fourth portion of the electronic document, wherein the fourth portion  
23 is different from the first portion.'" (Bartlett Decl. Ex. 58 [APLPROS0000019626-32].) On  
24 April 26, 2011, the Patent Office issued an *Ex Parte* Reexamination Certificate in which the  
25 patentability of all of the claims of the '381 patent was confirmed. (Bartlett Decl. Ex. 59  
26 [SAMNDCA00000030-31].)

27 40. The '381 patent relates to translation of an electronic document on a touch screen  
28 display in response to a user's movement of an object, such as the user's finger, on or near the

1 touch screen. (See Arnold Decl. Ex. 83 [’381 patent] at Abstract.) The ’381 patent generally  
 2 claims an innovative method of informing the user of a touch screen mobile device that the edge  
 3 of an electronic document has been reached by allowing the user to scroll beyond the edge of the  
 4 document and to view an area beyond the edge of the document for as long as the user keeps his  
 5 finger in contact with the screen. Once the user’s finger is removed, the ’381 patent describes  
 6 having the document or image scroll back into place so that the area beyond its edge is no longer  
 7 shown, and the document or image can be viewed.

8 41. An overview of the invention is depicted in Figures 8A-8D of the patent, which  
 9 show the ’381 patent’s “rubber banding” feature in action:



17 42. This invention provides an elegant and appealing form of visual feedback to a user  
 18 that there is no more of a document to be seen. For example, if a user is zoomed in on one part of  
 19 a large photo, he may continue to scroll the photo as he looks at other parts of the image. Not  
 20 knowing exactly where the photo ends, he may continue to scroll in a direction even when there is  
 21 no more of the photo to display. When this happens, an area beyond the edge of the photo will be  
 22 displayed, and once the user lifts his finger, the photo will “bounce” or “rubber band” back until  
 23 the area beyond the edge is no longer visible. This form of visual feedback is readily understood  
 24 and makes clear to the user that he cannot continue to scroll in that direction.

25 43. This visual feedback also provides an intuitive solution to a vexing user interface  
 26 issue: what to do when a user scrolls to the edge of an electronic document. In the prior art, when  
 27 a user scrolled to the edge of a document, one of two scenarios would play out. Either she would  
 28

1 scroll continuously past the edge of the document into nothingness (*i.e.* beyond a place where  
2 there was any meaningful content), or she would hit a “hard stop” and not be allowed to scroll  
3 any further.

4 44. Each of these scenarios has its own disadvantages. Allowing a user to move  
5 through virtual space going absolutely anywhere, including beyond a place that has any  
6 meaningful content, can cause the user to become disoriented. (*See* Bartlett Decl. Ex. 60 [9/17/11  
7 Bederson Dep. Ex. 222] at 4; Bartlett Decl. Ex. 61 [9/17/11 Bederson Dep.] at 204:6-24; 205:6-  
8 207:5; 213:2-214:1.) In a paper he wrote in 2011, Benjamin Bederson referred to this as the  
9 “Desert Fog” phenomenon, citing an earlier article written by Jul and Furnas. (*Id.*; *see also*  
10 (Bartlett Decl. Ex. 62 [9/14/11 Van Dam Dep.] at 63:3-17 (referring to the empty area as “no  
11 man’s land”).) Users who navigate into these empty spaces may get lost and not know how to  
12 find their way back. (*Id.*; *see also* Van Dam Decl. (Dkt. No. 168) ¶ 144.)

13 45. Most user interfaces avoided the “Desert Fog” problem by inserting a hard stop at  
14 the edge of a document. But that solution has its own disadvantages. If the user does not realize  
15 he has hit the edge of a document, he may keep trying to move the document in vain. No matter  
16 how hard he tries, however, the device will not allow the document to move. As a result, the user  
17 may think his device has frozen or locked up, or that it is otherwise not registering his input. In  
18 any case, the user could become frustrated when the scrolling or translating does not reflect his  
19 intent. (Arnold Decl. Ex. 83 [’381 Patent] at 2:26-28; *see also* Van Dam Decl. (Dkt. No. 168) ¶  
20 144 (one way to prevent a user from moving an electronic document beyond the edge is “to  
21 prevent the document from moving beyond the edge by ignoring further requests for any such  
22 movement”).)

23 46. I reserve my right to discuss the general background of the technology and user  
24 interfaces that existed at the time of the invention of the ’381 patent.

25 47. The inventor of the ’381 patent recognized these disadvantages and created a novel  
26 solution to overcome them. By displaying an area beyond the edge of an electronic document,  
27 the invention of the ’381 patent provides the user with an instant visual cue informing him that  
28 the edge of the document has been reached, and importantly, in an exemplary embodiment shown

1 in Figures 8A-8D of the patent, this area beyond the edge is displayed adjacent to a portion of the  
2 electronic document, enabling the user to maintain context and avoid the “Desert Fog” problem.

3 48. The elegant solution proposed by the ’381 patent significantly enhances the user’s  
4 experience in viewing photos, web pages, lists, and other electronic documents. To my  
5 knowledge, touch screen devices prior to the Apple iPhone did not have a visually intuitive way  
6 to alert a user when he or she had reached the edge of the document when scrolling or panning.  
7 Now, this feature is nearly ubiquitous, including in Samsung’s own devices. Accordingly, the  
8 inventions of the ’381 patent make possible a user interface that is more visually appealing and  
9 intuitive in its handling of the display of electronic documents.

10 49. The hardware and structural components on which the instructions for performing  
11 the “bounce” or “rubber banding” functionality claimed in the ’381 patent are disclosed, for  
12 example, in Figure 17 of the patent, as well as the text in columns 34:47 – 35:19. There, a device  
13 with a touch-screen display, a central processing unit, memory, and communication buses is  
14 described. Flow charts of exemplary algorithms for performing the aforementioned  
15 functionalities can be found, for example, in Figures 5 and 7 of the patent, along with the  
16 accompanying text.

17 **B. Person of Ordinary Skill in the Art**

18 50. If called to testify on the topic of the definition of a person of ordinary skill in the  
19 art for the ’381 patent, I expect to testify regarding the skill, education, and experience that a  
20 person of ordinary skill in the relevant art would have had at the time of the invention of the ’381  
21 patent. In my opinion, and as submitted by Apple in a January 19, 2012 Joint Statement (Dkt.  
22 No. 650), a person of ordinary skill in the relevant art of the ’381 patent at the time of the  
23 invention would have a Bachelor’s degree in computer science or electrical engineering, or the  
24 equivalent, and one or more years experience working on designing and/or implementing user  
25 interfaces.

26 51. I would have met the criteria for being such a person of ordinary skill in the art at  
27 the time of the invention of the ’381 patent.  
28

1           **C.     Validity of the '381 Patent**

2           52.     The Van Dam Declaration limits itself to a discussion of a single software  
3 application named Tablecloth. The Tablecloth program refers to a software program that uses the  
4 DTFlash library and runs on a Mitsubishi Electric Research Laboratories (“MERL”)  
5 DiamondTouch system. The DiamondTouch system included a number of components including  
6 a touch sensing table, an overhead projector, and pads on which users sat. A typical configuration  
7 for the system is depicted below.



14 (Bogue Decl. Ex. 1 at SAMNDCA00035802.)

15           53.     I am familiar with the DiamondTouch system based on my time as a visiting  
16 researcher at MERL. To my recollection, there was a DiamondTouch system in the lobby of the  
17 research lab, and a key card was necessary to access that area. I was required to sign a non-  
18 disclosure agreement before working in the research lab.

19           54.     The designers of Tablecloth created a program that auto-centers on an image  
20 regardless of the distance it is scrolled, and regardless of whether an edge of the document has  
21 been reached. The Tablecloth program was not designed to display an area beyond the edge of a  
22 document. Below are two screen captures from the Tablecloth program in which no additional  
23 scrolling is possible after pulling the image down as far as it will go (the mouse crosshairs  
24 towards the top right in the first image (circled in red) indicates the starting point for the drag  
25 downwards, and the crosshairs towards the bottom right (circled in red) indicate the ending  
26 point):

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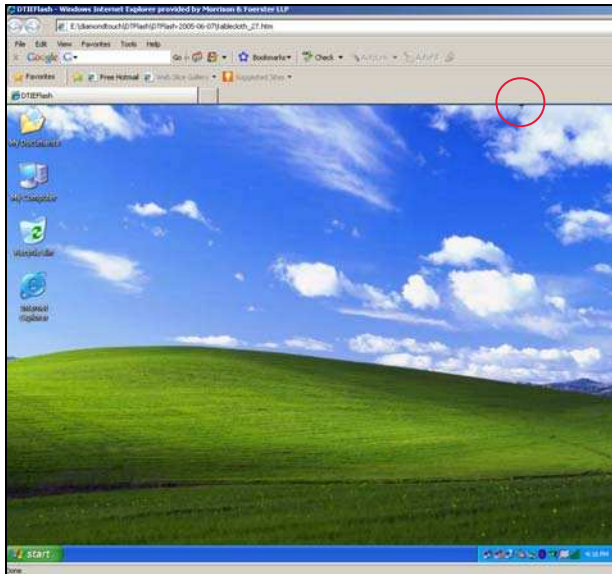


Fig. 1



Fig. 2

55. In the Tablecloth program, individuals are not allowed to scroll past the borders of the repeated images of the Windows desktop. Attempting to do so will result in a hard stop. In the examples provided in the Van Dam Declaration, a user drags her finger over the Internet Explorer toolbar region and past the Internet Explorer program window, which does not comport with the intended operation of the program. As discussed below, the DiamondTouch system described in the Van Dam Declaration was configured in a particular manner so that the window containing the Tablecloth program was minimized and did not fill the entire DiamondTouch system touch surface.

56. I have reviewed Dr. Van Dam's discussion of the Tablecloth reference and disagree with his conclusions regarding that program. I also believe that his discussion of Tablecloth's functionality is incomplete.

### 1. The Tablecloth program is not equivalent to DTFlash

57. There is considerable ambiguity in the way that the Tablecloth program is described in the Van Dam Declaration. References to the program conflate the single Tablecloth program with DTFlash as "Tablecloth/DT Flash." (See, e.g., Van Dam Decl. at ¶ 51.) This conflation is misleading to the extent that the Van Dam Declaration sets forth arguments and opinions relating to DTFlash separate from the Tablecloth program, which I understand is the only program written for DTFlash that has been asserted as prior art. Similarly, I note that the

1 article about DTFlash attached to the Bogue Declaration as Exhibit 2 does not mention  
2 Tablecloth.

3 58. DTFlash is not, as suggested in the Van Dam Declaration, a specific software  
4 application. Rather, it is a software library. Therefore, it is inaccurate to say that the DTFlash  
5 libraries are a prior art reference.

6 **2. The Van Dam Declaration does not demonstrate that the Tablecloth**  
7 **program was used in public, publicly known, or commercially sold**  
8 **before the critical date for the '381 patent**

9 59. The Van Dam Declaration states that “the DiamondTouch system was publicly  
10 available running Tablecloth by at least by [sic] January 6, 2006, before the earliest possible  
11 critical date of the '381 patent, and is therefore prior art to the '381 patent.” (Van Dam Decl. ¶  
12 50.) The basis for this assertion is attributed to “the declaration of and phone conversations with  
13 Adam Bogue,” yet this date does not appear in the Bogue Declaration. (*Id.*)

14 **3. The DiamondTouch system required precise calibration in order to**  
15 **function as intended**

16 60. The DiamondTouch system on which the Tablecloth application was operated in  
17 the video exhibits accompanying the Bogue Declaration required a very specific configuration,  
18 any deviation from which could have led to different results. I note that in the photographs and  
19 videos in Dr. Van Dam’s earlier expert report, it was impossible to see the set up of the  
20 DiamondTouch system being discussed, and that the setup discussed in the Van Dam Declaration  
21 may be different.

22 61. The Van Dam Declaration depicts the laptop, projector, and touch table  
23 components to the DiamondTouch system in paragraph 110. An image from the laptop is  
24 projected onto the touch sensing table from a perched projector. If the projector were suspended  
25 too far above the table, the projected image would exceed the dimensions of the table. If it were  
26 suspended too close to the table, the projected image would be smaller than the dimensions of the  
27 table, leaving an empty border region around the projected image. To my understanding, the  
28 DiamondTouch was designed to have the projector set at a height where the projected image  
would fill the available table space.

1           62.     The DiamondTouch system needed to be calibrated to function properly, and the  
2 projected image was “mapped” to the table by pressing on certain highlighted points. In the  
3 image below, the green square indicates one of these mapping points.



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**Fig. 3**

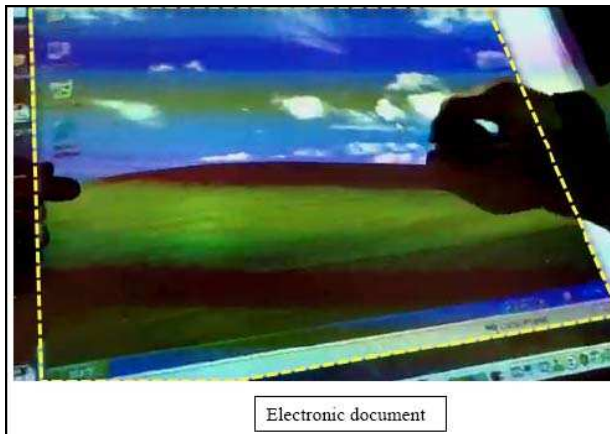
10           63.     If the projected image and the table were not properly aligned, the DiamondTouch  
11 system would not function as intended. Adam Bogue, a MERL employee, testified that during  
12 demonstrations of the DiamondTouch system, one of the “[t]hings that could go wrong with the  
13 DiamondTouch” was that the table could be “bumped.” (Bartlett Decl. Ex. 63 [3/9/12 Bogue  
14 Dep.] at 104:18-105:10.) If the table were bumped, the solution was to “realign the projected  
15 image onto the surface.” (*Id.*)

16           64.     I personally have had extensive exposure to the DiamondTouch system, both in  
17 my time at MERL and in academia. In all that time, I have never seen anyone deliberately  
18 calibrate the projected image to be smaller than the touch sensitive area of the DiamondTouch  
19 table.

20                   **4.     The “electronic document” in the Tablecloth program differs in the**  
21                   **Van Dam Declaration, Dr. Van Dam’s Expert Report, and Samsung’s**  
22                   **Invalidity Contentions**

23           65.     Dr. Van Dam’s declaration does not make clear what the “electronic document” in  
24 the Tablecloth program is. I note that Samsung previously represented in its Invalidity  
25 Contentions that the electronic document in the Tablecloth program was a picture of a Windows  
26 desktop showing a green meadow and blue sky with clouds. (Bartlett Decl. Ex. 64 [Invalidity  
27 Contentions Ex. G-7] at 2.) As seen below on the left, the electronic document included the  
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1 green “Start” button of the desktop, as well as the grey bar underneath with the word “Done” in it.  
2 In the next figure, Samsung omitted the grey bar from the electronic document.



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Fig. 4

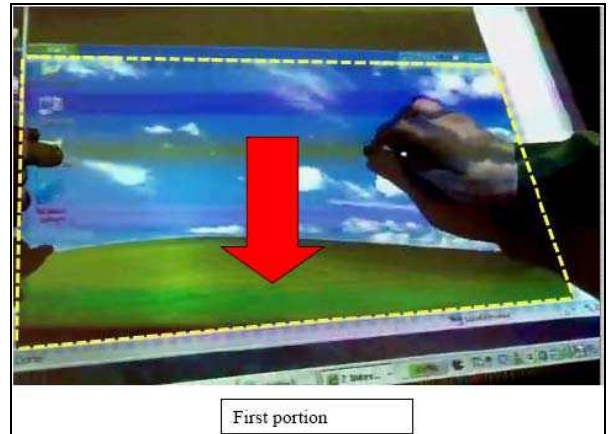


Fig. 5

22 66. Samsung then went on to represent that the portion of the desktop with the green  
23 “Start” button was the edge of the electronic document, and that a second instance of the original  
24 image was the “area beyond the edge.” (*Id.* at 6.)

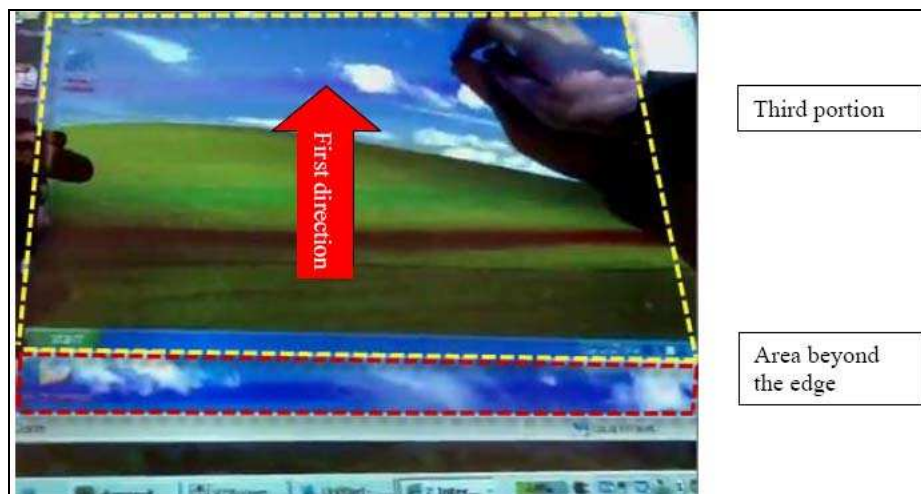
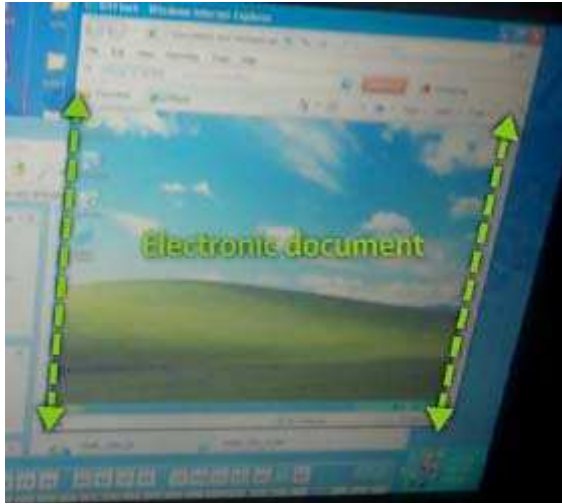


Fig. 6

25 67. In his expert report, Dr. Van Dam departed from Samsung’s position and  
26 contended that the electronic document extends beyond what is visible on the table when the  
27 desktop image is at rest, and actually comprises two identical instances of the same image. (*See*  
28 Bartlett Decl. Ex. 65 [Van Dam Expert Report Ex. 8] at 4.)

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Van Dam Expert Report Ex. 8 at 4

68. Finally, the Van Dam Declaration goes beyond the disclosure in Dr. Van Dam’s expert report and claims that the electronic document can be either (1) what is visible when the Tablecloth application is at rest, or (2) two copies of the same image.



(1) Van Dam Decl. Ex. 4 at 6



(2) Van Dam Decl. Ex. 3 at 7

69. These arbitrary identifications of what constitutes the electronic document in Dr. Van Dam’s representative examples are inconsistent.

70. First, I note that Dr. Van Dam’s identification of the electronic document in example (1) is different from Samsung’s identification in Figure 4, above, which included the grey window bar just below the dotted line that Dr. Van Dam uses to demarcate his electronic document.





1 gallery would not be considered one electronic document, a person of ordinary skill in the art  
2 would not have considered the second copy of the Windows desktop image to be part of the same  
3 electronic document with the first copy.

4 75. Accordingly, neither of the inconsistent theories set forth in either Samsung's  
5 Invalidity Contentions or in the Van Dam Declaration properly identifies an electronic document  
6 for purposes of conducting an invalidity analysis.

7 **5. The DiamondTouch system does not have a touch screen display**

8 76. A person of ordinary skill in the art would not consider a touch-sensitive table with  
9 an image projected on to it to be a touch screen display, as required by claim 19 of the '381  
10 patent. A touch screen display connotes a display screen such as an LCD or LED that is  
11 integrated with the capability of sensing touch input from a user. Simply projecting an image  
12 onto a touch sensor does not make it a touch screen display. For example, one of skill in the art  
13 would simply not consider the DiamondTouch system with an image projected on it to be a touch  
14 screen any more than they would consider a laptop's touchpad with an image projected onto it to  
15 be a touch screen. For this reason alone, it is my opinion that the Tablecloth program does not  
16 anticipate or render obvious this claim.

17 77. The Van Dam Declaration largely glosses over the fact that the DiamondTouch  
18 system does not have a touch screen display. Dr. Van Dam states that it would have been obvious  
19 to combine the DiamondTouch system with a display device such as an LCD touchscreen, but  
20 provides no support for this assertion. (Van Dam Decl. ¶ 65.) Indeed, during his deposition,  
21 Clifton Forlines, who was involved with the DiamondTouch system, admitted that he had never  
22 seen the implementation of a program utilizing the DTFlash libraries on a touch-sensitive surface  
23 overlaying a display. (*See* Bartlett Decl. Ex.66 [3/8/12 Forlines Dep.] at 51:4-8.)

24 **6. Dr. Van Dam's opinion requires a particular motion**

25 78. Dr. Van Dam's analysis requires a user to first scroll the image in a first direction  
26 prior to commencing movement in the opposite "first direction" to attempt to meet the limitations  
27 of the '381 patent's claims. Dr. Van Dam offers no explanation why any user would choose to do  
28 this particular movement.





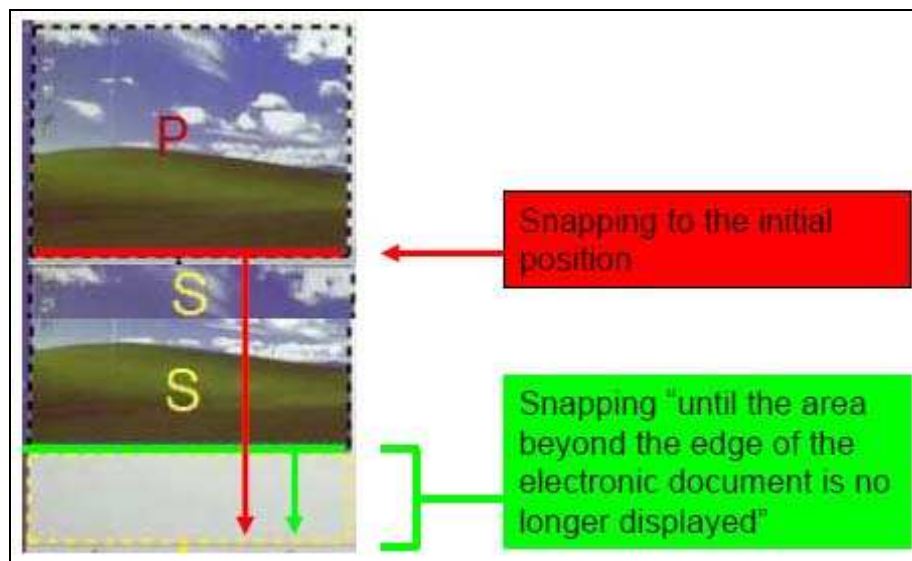


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86. In Van Dam Declaration representative example (2), in which he defines the “electronic document” as the combined set of two copies of the Windows desktop image, “snapBack” is not performed in response to the edge of the electronic document being reached – it is triggered any time the image is moved off center.

87. In addition, “snapBack” does not translate the electronic document in a second direction “until the area beyond the edge is no longer displayed.” As depicted below, the translation in the second direction does not stop at “until the area beyond the edge of the electronic document is no longer displayed,” which would be from the bottom of the grey space to the green line, but rather continues all the way back to the red line indicating the initial position.



Cropped and Annotated Figures from Van Dam Decl. Ex. 3

88. As can be seen from Figure 8C from the '381 patent, the invention claimed in the '381 patent is very different from the functionality of Tablecloth. The solution provided by the '381 patent to a difficult user interface problem was to bounce back until the area beyond the edge of an electronic document was no longer displayed, not to snap all the way back to the center of a document.

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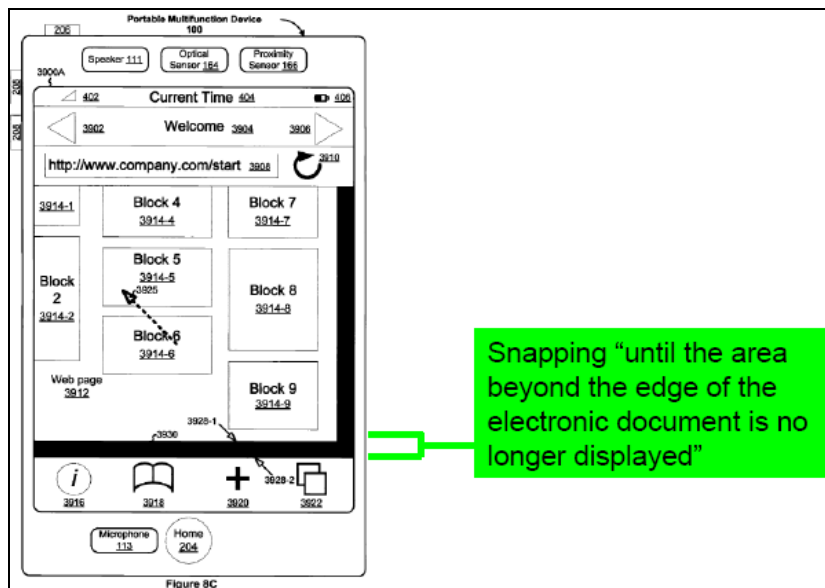


Figure 8C  
Annotated Figure 8C from '381 Patent

89. The Tablecloth functionality is not the same as that of the '381 patent, and would not have been an acceptable functionality for photographs, contacts lists, Internet browsers, and productivity documents, as constantly auto-centering after any user contact would have rendered them unusable.

### 9. Tablecloth does not always snap back

90. I understand that the Court ruled in its order on Apple's Motion for a Preliminary Injunction that "Claim 1 of the '381 patent is fatalistic: if a user scrolls past the edge of an electronic document in the first direction, the screen must snap back to that document when the user lifts her finger." (Dkt. No. 452 at 60.) Tablecloth does not always snap back, and displays two additional behaviors not discussed in the Van Dam Declaration.

91. First, Tablecloth exhibits a "hold still" behavior wherein the image of the Windows desktop holds still and does not move when a user lifts her finger from the DiamondTouch table. Jeffrey Johnson, Samsung's expert on non-infringement, opined that this behavior does not meet the limitations of the claims of the '381 patent because there is no translation of the document in a second direction. (Bartlett Decl. Ex. 67 [4/16/12 Johnson Rebuttal Rpt.] ¶ 65.) If Dr. Johnson is correct, then Tablecloth does not meet the limitations of the claims of the '381 patent. Depicted below is a screen capture from video Exhibit 2 to my declaration, which shows this functionality in action.

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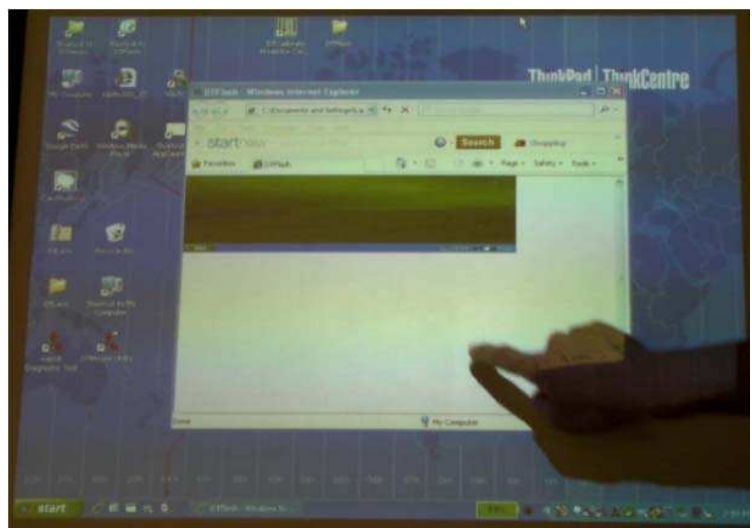
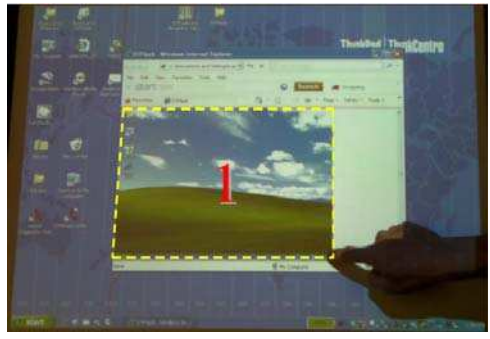


Fig. 9

(Ex. 2.)

92. Second, Tablecloth exhibits a “snap forward” behavior wherein the image of the Windows desktop snaps forward in the first direction, rather than in a second direction. This behavior is the same as that seen in the prior art asserted by Samsung in opposing Apple’s preliminary injunction motion, and which the Court analyzed in coming to its decision that those references did not anticipate the claims of the ’381 patent. Depicted below are screen captures from video Exhibit 2 to my declaration, which shows this functionality in action. The Tablecloth application was set up in a minimized window, just as in Dr. Van Dam’s representative examples, rather than in a maximized window that would fill the entire DiamondTouch table.



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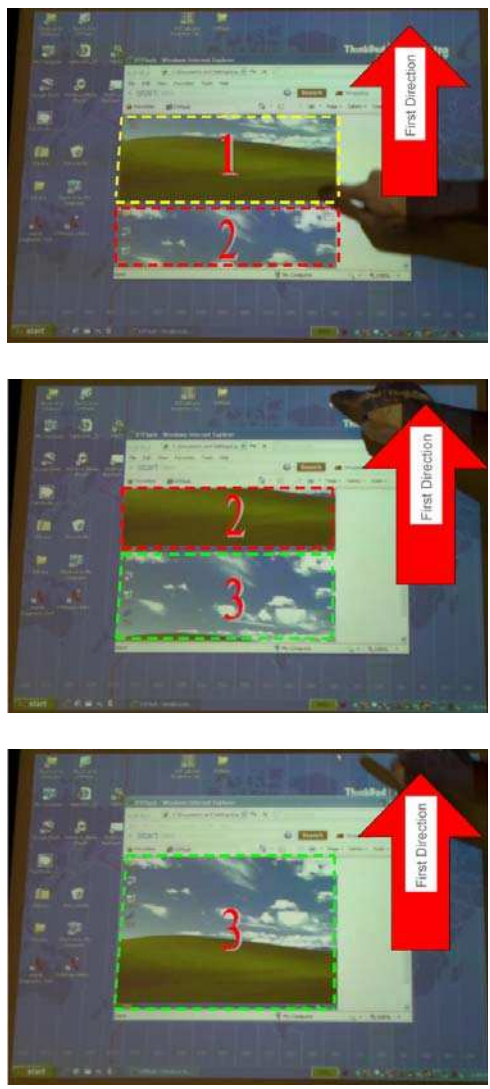


Fig. 10

(Id.)

**10. The Tablecloth program does not anticipate or render obvious claim 19 of the '381 patent**

93. For at least the reasons stated above, claim 19 of the '381 patent is not anticipated or rendered obvious by the Tablecloth program. In particular, Tablecloth does not include or obviously suggest or teach a combination that would meet the limitations of claim 19. There is nothing in the Van Dam Declaration or exhibits that suggests that there was a reason or suggestion at the time of the invention that would have prompted a person of ordinary skill in the art to combine the elements in the way the claimed invention does.

1                   **11. Secondary considerations of non-obviousness**

2           94. I understand that there are secondary considerations of non-obviousness with  
3 respect to the claimed invention that should be considered in determining whether the claimed  
4 invention was obvious. These considerations include, among other things: (1) commercial  
5 success of the claimed invention; (2) praise or industry acclaim for the claimed invention; (3)  
6 initial expressions of disbelief or skepticism by experts in the field; (4) copying; and (5) failure of  
7 others.

8           95. Based on my experience with the general state of the art at the time of the  
9 invention of the '381 patent, I believe that there was nothing like the solution of the '381 patent  
10 before the iPhone. I reserve my right to discuss the general background of the technology and  
11 other products in the marketplace at that time.

12           96. I understand that Terry L. Musika will testify that the claimed inventions of the  
13 '381 patent have been commercially successful. In that regard, I have previously set forth in my  
14 opening expert report my conclusions that numerous Apple products embody the important  
15 inventions of the '381 patent.

16           97. I also believe that there has been undisputed praise or industry acclamation for  
17 Apple's user interface technology as implemented on its iPhone, iPod touch, and iPad products.<sup>1</sup>

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18           <sup>1</sup> Steve Jobs, iPhone Introduction, <http://www.youtube.com/watch?v=6uW-E496FXg>, at  
19 16:16 – 16:33 (audience reaction and statement “isn't that cool, do a little rubber-banding up  
when I went off the edge?”)

20           Lev Grossman, “Invention of the Year: The iPhone,” Time, Nov. 1, 2007,  
21 [http://www.time.com/time/specials/2007/article/0,28804,1677329\\_1678542\\_1677891,00.html](http://www.time.com/time/specials/2007/article/0,28804,1677329_1678542_1677891,00.html);

22           Engadget, “Ten Gadgets that Defined the Decade,” Dec. 30, 2009,  
23 <http://www.engadget.com/2009/12/30/ten-gadgets-that-defined-the-decade/>;

24           Tom Krazit, “Apple's iPhone Wins Second J.D. Power Award,” April 30, 2009,  
25 [http://news.cnet.com/8301-13579\\_3-10231135-37.html](http://news.cnet.com/8301-13579_3-10231135-37.html).

26           David Pogue, “The iPhone Matches Most of Its Hype,” NY Times, June 27, 2007,  
27 [http://www.nytimes.com/2007/06/27/technology/circuits/27pogue.html?](http://www.nytimes.com/2007/06/27/technology/circuits/27pogue.html?pagewanted=1&r=1&ref=iphone)  
28 [pagewanted=1&r=1&ref=iphone](http://www.nytimes.com/2007/06/27/technology/circuits/27pogue.html?pagewanted=1&r=1&ref=iphone);

29           Korea JoongAng Daily, “Apple's iPhone Tops List of Innovative Inventions,” Feb. 18,  
2008, <http://joongangdaily.joins.com/article/view.asp?aid=2886322>; and

(Footnote continues on next page.)

1 As I discussed in my opening expert report, the inventions of the '381 patent contributed to the  
2 intuitive, elegant user interface that was credited with helping make the iPhone a success.

3 98. I also believe that there was significant skepticism in the industry that a  
4 touchscreen phone without a large number of physical buttons could provide an effective user  
5 interface.<sup>2</sup> This comes as little surprise given the poor track record of individuals who had  
6 previously attempted to solve this problem.

7 99. For example, the Dr. van Dam previously mentioned in his expert report a number  
8 of user interfaces that did not resolve the “Frozen Screen” or “Desert Fog” issues described  
9 above. Indeed, Dr. Bederson, one of the developers of the LaunchTile reference, which Samsung  
10 has proffered as prior art, even admitted in a 2011 paper that the problems solved by the '381  
11 patent still plagued other user interfaces. (*See* Bartlett Decl. Ex. 60 [9/17/11 Bederson Dep. Ex.  
12 222] at 5 (“It is also clear that the essential problem of getting lost in Desert Fog has not been  
13 consistently avoided. Furthermore, it is clear that there is no consistency in the mechanisms that  
14 are used to navigate through space”).) He went on to note that LaunchTile, in addition to a  
15 number of other user interfaces, did not succeed. (*See id.* at 3 (“it is fair to say that none of them  
16 have been great commercial successes (defined either monetarily or by large numbers of  
17 users”).).)

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20 \_\_\_\_\_  
(Footnote continued from previous page.)

21 Walter Mossberg & Katherine Boehret, “Testing Out the iPhone, The Wall Street Journal,  
22 June 27, 2007, <http://online.wsj.com/articles/SB118289311361649057.html>.

23 <sup>2</sup> Olga Kharif, “Another Music Phone? Yawn . . .”, Bloomberg Businessweek, Oct. 18,  
24 2006, [http://www.businessweek.com/technology/content/oct2006/tc20061018\\_099162.htm](http://www.businessweek.com/technology/content/oct2006/tc20061018_099162.htm)  
(noting that “Many analysts are skeptical on the appeal of an iPhone”); and

25 Christopher Meinck, “Palm CEO Remains Skeptical of Apple iPhone”, everythingiCafe,  
26 Feb. 20, 2007, <http://www.everythingicafe.com/palm-ceo-remains-skeptical-of-apple-iphone/2007/02/20/>  
27 (“for businesspeople the touch-sensitive screen without a physical button  
28 keyboard will be a challenge . . . We’ve learned and struggled for a few years here figuring out  
how to make a decent phone. PC guys are not going to just figure this out. They’re not going to  
just walk in”).



1           100. It is also evident that following Apple’s introduction of the technology of the ’381  
2 patent, Samsung quickly saw the merit and commercial value in that technology and planned to  
3 and did copy it for use in its products.

4           101. I have also reviewed a number of documents produced by Samsung in this  
5 litigation, including analyses of features in Apple products and email messages. Based on my  
6 review of these documents, it appears that Samsung studied a number of Apple products that  
7 embody the asserted claims of the ’381 patent, recognized the benefits of the ’381 patent, and  
8 implemented the features of the ’381 patent in Samsung products.

9           102. As just one example, in the document titled “Behold3 Usability Evaluation  
10 Results” (Bartlett Decl. Ex. 68 [SAMNDCA00508318 – 508411]), Samsung evaluated its  
11 Behold3 phone against Apple’s iPhone. (*Id.* at SAMNDCA00508331.) This evaluation  
12 concluded that Samsung’s “Behold3 [was] shown inferior to Apple’s iPhone in both the task  
13 success rate (68.5%) and satisfaction score (86).” (*Id.* at SAMNDCA00508333.) On a page titled  
14 “Aesthetics\_Browsing,” the document notes that the iPhone has “a ‘bouncing’ visual effect,”  
15 which “generates fun for the user,” while the Behold3 has “no visual effect” when “a web page is  
16 dragged to its endpoint.” (*Id.* at SAMNDCA00508383.) On that page, there is a side by side  
17 comparison between the Behold3 and the iPhone, where the rubber-banding feature of the ’381  
18 patent is being demonstrated on a web page displayed on the iPhone. (*Id.*) Specifically, the  
19 displayed web page is being pulled to the upper right hand corner, revealing an area beyond the  
20 edge of the web page to the left and below. (*Id.*) The caption notes that “If a web page is  
21 dragged to the edge, and the hand is released, a ‘bouncing’ visual effect is provided.” At the  
22 bottom of the page, following the column “Direction of Improvement,” is a direction to “Provide  
23 a fun visual effect when dragging a web page.” (*Id.*) Based on the existence of this feature in the  
24 Samsung devices I examined, it appears that this instruction was carried out.

25           103. As another example, in the document titled “P5 Usability Evaluation Results”  
26 (Bartlett Decl. Ex. 69 [SAMNDCA00176053 – 176171]), Samsung evaluated a prototype of its  
27 “GT-P7300” (the Galaxy Tab 8.9) against Apple’s iPad 2. (*Id.* at SAMNDCA00176053.) The  
28 document notes that the “GUI and Visual Effect are lacking in comparison to iPad 2.” (*Id.* at



1 SAMNDCA00176055.) Subsequently, the evaluation notes that when a Browser application  
2 window is scrolled to the top or bottom, the P5 “lack[s] bounce effect,” and that the Samsung’s  
3 product “Lacks Fun, Wow Effect.” (*Id.* at SAMNDCA00176071.) This issue appears to have  
4 been designated “Critical,” with the direction that the “Bounce effect is scheduled to be  
5 reviewed.” (*Id.*) Later in the evaluation, there is a side by side comparison between the P5 and  
6 the iPad 2, where the rubber-banding feature of the ’381 patent is being demonstrated on a web  
7 page displayed on the iPad 2. (*Id.* at SAMNDCA00176125.) Specifically, the displayed web  
8 page is being pulled to the lower right hand corner, revealing an area beyond the edge of the web  
9 page to the left and above. (*Id.*) To the right, it states that “In case of iPad 2, there is a fun  
10 element from a natural Bounce effect that follows hand gestures.” (*Id.*) Based on this statement,  
11 it appears that Samsung understood at least part of the purpose and value of the rubber banding  
12 feature of the ’381 patent, which were to provide a natural, intuitive experience for the user that  
13 could also inspire wonder and a sense of delight. On the other hand, the P5 prototype is described  
14 as lacking the “Bounce effect.” (*Id.*) Finally, the evaluation notes as an area for “Proposed  
15 Improvement” of the P5 the incorporation of the “Bounce effect” from the iPad 2. (*Id.*)

16 104. I have also reviewed a spreadsheet titled “Analysis of Galaxy Tab Operation  
17 Speed and Screen Effects” (Bartlett Decl. Ex. 70 [SAMNDCA00201771 – 201780].) This ten-  
18 page chart shows a detailed side-by-side comparison and analysis of over 70 features in the iPad  
19 and the Galaxy Tab. Samsung concluded that its Memo and Browser applications had “no  
20 emotional impact” because they lacked the “Bounce effect” included in the iPad. (*Id.* at  
21 SAMNDCA00201773-6.) As discussed above, the “bouncing” or “bounce” feature described in  
22 Samsung’s documents is an example of a feature covered by the ’381 patent. Based on my  
23 analysis of the Galaxy Tab and Galaxy Tab 10.1, I conclude that Samsung implemented this  
24 feature in the Galaxy Tab and Galaxy Tab 10.1 products as well.

25 105. I understand that Samsung has identified Mr. Woogyun Kho as a person involved  
26 in the implementation of the “bounce” feature in Samsung products. (*See* Bartlett Decl. Ex. 71  
27 [Samsung’s Supplemental Response to Apple’s Interrogatory No. 16].) Based on Samsung  
28 emails and the portions of the Woogyun Kho deposition transcript I reviewed, it appears that Mr.

1 Kho studied the “bounce” or “bouncing” feature in various Apple products including the iPhone  
2 3GS, iPhone 4, iPad, and iPad 2 in order to improve Samsung’s products. (*See, e.g.*, Bartlett  
3 Decl. Ex. 72 [1/12/12 Kho Dep.] at 40:1-44:11, 48:18-49:21.) In particular, Mr. Kho appears to  
4 have worked with an outside contractor company called NemusTech to emulate the features of  
5 the iPad and make the “bounce effect” in Samsung’s Galaxy Tab prototype similar to the iPad.  
6 (Bartlett Decl. Ex. 73 [SAMNDCA10851706-7]; Bartlett Decl. Ex. 74 [SAMNDCA10850604-  
7 6].)

8 106. That evidence speaks powerfully to the non-obviousness of the inventions of the  
9 ’381 patent. In short, if the inventions of this patent were as obvious and trivial as Dr. Van Dam  
10 claims, it is unclear why no one had previously resolved the user interface issues described above,  
11 and why a multinational company like Samsung would abandon its previous user interface  
12 solutions (such as a hard stop at the edge of an electronic document) and copy Apple’s  
13 functionality. Based on this information, I conclude that the inventions of the ’381 patent were  
14 not trivial or obvious.

15 107. Dr. Van Dam’s opinions on obviousness are limited to general assertions, and  
16 though I disagree with Dr. Van Dam’s position, I note that there is nothing specific I can respond  
17 to based on the fact that the Van Dam Declaration contains no explanation of the aforementioned  
18 motivations to combine. As discussed above, Tablecloth does not anticipate claim 19 of the ’381  
19 patent, and Dr. Van Dam’s contention that Tablecloth renders claim 19 obvious suffers from  
20 hindsight bias. Tablecloth teaches away from the invention of the ’381 patent by implementing  
21 the same traditional user interface features from which the ’381 patent departed.

#### 22 **IV. DEMONSTRATIVES AND EXHIBITS**

23 108. In connection with my anticipated testimony in this action, I may use as exhibits  
24 various documents produced in this case that refer or relate to the matters discussed in this  
25 declaration. In addition, I may have demonstrative exhibits prepared to assist in the presentation  
26 of my testimony and opinions as set forth or cited in my declaration.

1 I declare under penalty of perjury under the laws of the United States of America that the  
2 foregoing is true and correct and that this Declaration was executed this 31st day of May, 2012, at  
3 Washington, D.C.

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6 Ravin Balakrishnan  
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