

EXHIBIT 6
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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

**REBUTTAL EXPERT REPORT
OF RAVIN BALAKRISHNAN,
PH.D. REGARDING VALIDITY
OF U.S. PATENT NO. 7,469,381**

****CONFIDENTIAL – CONTAINS MATERIAL DESIGNATED AS HIGHLY
CONFIDENTIAL – ATTORNEYS’ EYES ONLY PURSUANT
TO A PROTECTIVE ORDER****

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1 **I. INTRODUCTION**

2 1. I, Ravin Balakrishnan, Ph.D., have been asked by counsel for Apple Inc. (“Apple”)
3 to provide an opinion in the above-captioned case. I understand that in response to Apple’s
4 allegations of patent infringement, Defendants Samsung Electronics Co. Ltd., Samsung
5 Electronics America, Inc., and Samsung Telecommunications America, LLC (collectively
6 “Samsung”) have asserted that United States Patent No. 7,469,381 (“the ’381 patent”) is invalid,
7 and submitted in support of its position the Expert Report of Andries van Dam, Ph.D. Regarding
8 Validity of U.S. Patent No. 7,469,381 (“Van Dam Report”). I have been asked to provide
9 opinions as to whether the claims of the ’381 patent are valid and to address the Van Dam Report.
10 My opinions are set forth below in this report and in the accompanying exhibits.

11 2. I submit this expert report in compliance with Federal Rule of Civil Procedure
12 26(a)(2). I reserve the right to supplement or amend this report pursuant to Rule 26(e) and as
13 otherwise provided if additional data or other information that affects my opinions becomes
14 available. I expect to testify at trial regarding the matters expressed in this report and any
15 supplemental reports that I may prepare for this litigation. I also may prepare and rely on
16 audiovisual aids to demonstrate various aspects of my testimony at trial. I also expect to testify
17 with respect to any matters addressed by any expert testifying on behalf of Samsung, if asked to
18 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 Expert Report of Ravin Balakrishnan, Ph.D.
23 Regarding Infringement of U.S. Patent No. 7,469,381, submitted on March 22, 2012. In
24 particular, I reference here the detailed discussion of my qualifications and expert witness
25 experience from that report, as well as my curriculum vitae, which was attached thereto as Exhibit
26 1. I also incorporate by reference the Declaration of Ravin Balakrishnan, Ph.D. in Support of
27 Apple’s Motion for a Preliminary Injunction (Dkt. No. 91) and the Reply Declaration of Ravin
28

1 Balakrishnan, Ph.D. in Support of Apple’s Motion for a Preliminary Injunction (Dkt. No. 278), as
2 well as the exhibits thereto.

3 **II. MATERIALS CONSIDERED**

4 5. In forming my opinions and views expressed in this report, I reviewed (1) the
5 materials listed in Exhibit 2 to my opening expert report, (2) the materials identified in my
6 declarations in support of Apple’s Motion for a Preliminary Injunction, (3) the deposition
7 transcripts and related exhibits of Clifton Forlines and Adam Bogue, (4) the Van Dam Report and
8 related exhibits, (5) SAMNDCA35800-805, (6) SAMNDCA00035993-998, (7) Samsung’s Patent
9 Local Rule 3-3 and 3-4 Disclosures, (8) the articles identified below in footnotes 5 and 6, (9)
10 Nokia Corporation’s and Nokia Inc.’s Opening Brief in Support of their Motion to Stay Apple
11 Inc.’s Patent Claims Pending Reexamination (Dkt. No. 87-40), and (10) the Order Construing
12 Disputed Claim Terms of U.S. Patent Nos. 7,698,711; 6,493,002; 7,469,381; 7,663,607;
13 7,812,828; 7,844,915; and 7,853,891 (Dkt. No. 849).

14 6. I previously reviewed the materials submitted by Samsung in support of its
15 opposition to Apple’s Motion for a Preliminary Injunction.

16 7. I also reviewed portions of the Mitsubishi production from the hard drive labeled
17 MERL00000001.

18 8. I have also reviewed WO 03/081458 (SAMNDCA00001641-704) and U.S. Patent
19 No. 7,872,640 to Lira (SAMNDCA00020541-575) (“Lira”), the Tablecloth program for the
20 DiamondTouch system (“Tablecloth”), and the LaunchTile application running on an iPaq device
21 (“LaunchTile”). Attached hereto as Exhibits R1 – R4 are videos demonstrating certain features of
22 the LaunchTile software and Tablecloth program.

23 **III. LEGAL PRINCIPLES**

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

1 10. My understanding of the law with respect to claim construction is set forth in my
2 opening report regarding infringement of the '381 patent.

3 11. I have been informed by counsel regarding the standards for invalidity. I have
4 been informed by counsel that a patent claim is invalid if it is “anticipated” or “obvious” in view
5 of the “prior art.”

6 12. I have been informed by counsel that a patent is presumed valid, and each patent
7 claim is independently presumed valid, even if other claims within the patent are held invalid. I
8 have been informed by counsel that the burden of proving invalidity rests on the person
9 challenging the patent, who must demonstrate that it is anticipated or obvious by clear and
10 convincing evidence. I have been informed by counsel that “clear and convincing” evidence is
11 evidence indicating that the thing to be proved is highly probable or reasonably certain.

12 13. I have been informed by counsel that a patent claim can be invalid for lack of
13 “enablement” or “written description,” or if the claim is “indefinite.”

14 **A. Anticipation**

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

25 15. I also understand that a claim is invalid under 35 U.S.C. §102 (a) if the claimed
26 invention was known or used by others in the U.S., or was patented or published anywhere,
27 before the applicant’s invention. I further understand that a claim is invalid under 35 U.S.C. §102
28 (b) if the invention was patented or published anywhere, or was in public use, on sale, or offered

1 for sale in this country, more than one year prior to the filing date of the patent application. And a
2 claim is invalid, as I understand, under 35 U.S.C. §102 (e), if an invention described by that claim
3 was described in a U.S. patent granted on an application for a patent by another that was filed in
4 the U.S. before the date of invention for such a claim. A claim is also invalid, as I understand,
5 under 35 U.S.C. §102 (f) if the invention was invented by another prior to the claimed invention.
6 It is also my understanding that a claim is invalid under 35 U.S.C. §102 (g)(2) if, prior to the date
7 of invention for the claim, the invention was made in the U.S. by another who had not abandoned,
8 suppressed or concealed the invention.

9 **B. Obviousness**

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

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

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

26 19. In determining whether an invention is obvious, I understand that it is
27 impermissible to engage in hindsight reconstruction of the claimed invention, using the
28 applicant’s invention as a template and selecting elements from the references to fill the gaps. In

1 order for a combination of multiple references to be obvious, a person of ordinary skill in the art
2 should have some reason to combine the references. When considering a reference for purposes
3 of an obviousness analysis, the reference must be taken for everything it teaches, including
4 information that that diverges from or teaches away from the claimed invention.

5 20. I also understand that a combination of known elements can be obvious when it
6 does no more than yield predictable results. In other words, where it is obvious to try a particular
7 combination of known elements to solve a problem and there are a finite number of known,
8 predictable solutions, the result is likely the product not of innovation but of ordinary skill and
9 common sense. At the same time, a finding of obviousness may not be proper where the prior art
10 merely provides a person of ordinary skill in the art a promising field for experimentation. I have
11 further been informed that a proper obviousness analysis focuses on what was known or obvious
12 to a person of ordinary skill in the art, not just to the patentee, at the time of the invention. I also
13 understand that practical and common sense considerations should guide a proper obviousness
14 analysis.

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

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

26 **C. Written Description, Enablement, Best Mode, and Indefiniteness**

27 23. I have been informed by counsel that the application for a patent must satisfy the
28 written description requirement of 35 U.S.C. § 112. I have been informed that, to satisfy the

1 written description as to a given claim, the disclosure must convey with reasonable clarity to
2 those skilled in the art that, as of the filing date of the patent, the inventor was in possession of the
3 invention as claimed.

4 24. I have been informed by counsel that the enablement requirement means that the
5 patent specification must teach those of ordinary skill in the art to make and use the invention
6 without undue experimentation.

7 25. I have been informed by counsel that a patent claim is indefinite under the patent
8 laws if it does not reasonably apprise those skilled in the art as to its scope and, therefore, is
9 insolubly ambiguous.

10 26. I understand that certain claims may be drafted under 35 U.S.C. § 112 ¶ 6 in the
11 form of disclosing a means for performing a specified function without the recital of structure,
12 material, or acts in support thereof. Unless the term “means” is recited in the claim, I understand
13 that there is a presumption that this statute is not invoked.

14 **D. Invention and Patent Application Dates**

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

20 28. A second significant date is that of reduction to practice. I understand that there are
21 two types of reduction to practice. An actual reduction to practice requires that the inventor
22 constructed an embodiment or performed a process that met all the limitations of the claim that
23 would work for its intended purpose. A constructive reduction to practice is the filing of a patent
24 application. I understand that for a patentee to be entitled to rely upon a conception date as of the
25 date of invention for purposes of a prior art analysis, he or she must have been reasonably diligent
26 from conception through reduction to practice.

27 29. The filing date of a patent is the date that the application for the patent was filed
28 with the United States Patent and Trademark Office (“PTO”). That date is printed on the first

1 page of the patent. I understand that, to claim the benefit of the date of an earlier patent
2 application, the earlier application must disclose and support the subject matter of the claims.

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

4 **E. Reexamined Patents**

5 31. I have been informed by counsel that a patent may undergo a reexamination
6 process in which the patentability of a patent’s claims are reexamined on the basis of prior art
7 patents and printed publications. I understand that reexamination may result in the rejection or
8 confirmation of patent claims.

9 **IV. DETAILED OPINION**

10 **A. Background of the ’381 Patent**

11 32. U.S. Patent no. 7,469,381 (APLNDC00022467-527) is titled List Scrolling and
12 Document Translation, Scaling and Rotation on a Touch-Screen Display. The filing date of the
13 patent application (Application No. 11/956,969) is December 14, 2007, and its date of issue is
14 December 23, 2008. There are a number of related patent applications to which the ’381
15 application claims priority, the earliest of which is dated January 7, 2007. I have reviewed
16 portions of the deposition transcript of Bas Ording, the named inventor of the ’381 patent, and
17 understand that [REDACTED]

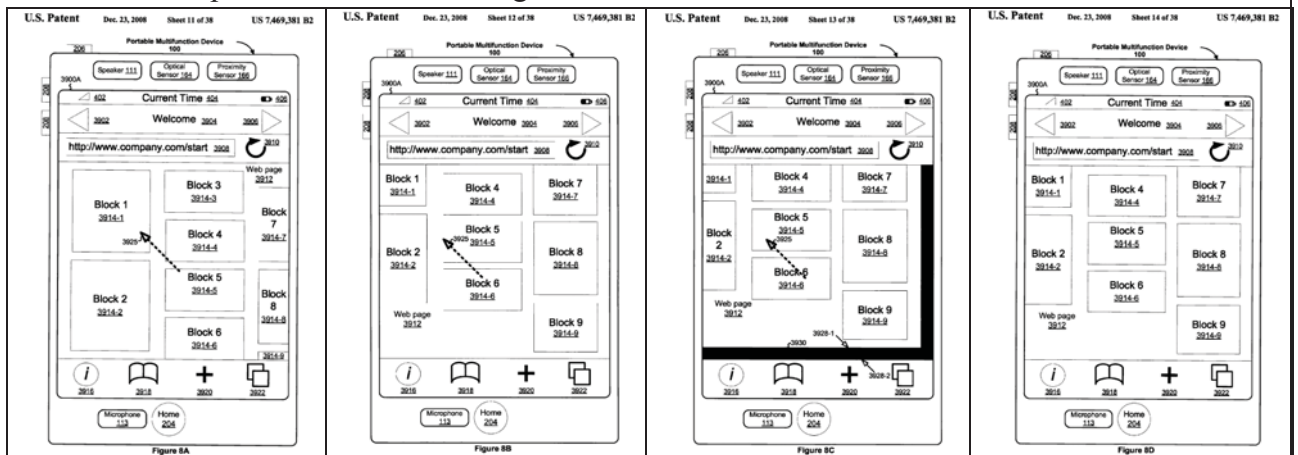
18 [REDACTED]
19 33. The critical date for the claims of the ’381 patent is January 7, 2006, one year
20 before the filing date of the first provisional application.

21 34. I understand that on April 28, 2010, a Request for Reexamination was filed at the
22 request of Nokia Corporation (*see* Dkt. No. 87-40), which was then involved in a patent
23 infringement lawsuit with Apple regarding the ’381 patent, with the Patent Office, asserting that a
24 substantial new question of patentability existed in light of certain patents and printed
25 publications. (APLPROS0000019658-708.) On July 14, 2010, the Patent Office granted this
26 request for ex parte reexamination. On January 13, 2011, the Patent office issued a Notice of
27 Intent to Issue Ex Parte Reexamination Certificate, and confirmed that the identified patents and
28 printed publications, “either singularly or in combination fail to teach or suggest, ‘in response to

1 detecting that the object is no longer on or near the touch screen display, translating the electronic
 2 document in a second direction until the area beyond the edge of the electronic document is no
 3 longer displayed to display a fourth portion of the electronic document, wherein the fourth portion
 4 is different from the first portion.” (APLPROS0000019626-32.) On April 26, 2011, the Patent
 5 Office issued an Ex Parte Reexamination Certificate in which the patentability of all of the claims
 6 of the '381 patent was confirmed. (SAMNDCA00000030-31)

7 35. As discussed in my opening expert report regarding Samsung’s infringement of the
 8 '381 patent, the '381 patent relates to translation of an electronic document on a touch screen
 9 display in response to a user’s movement of an object, such as the user’s finger, on or near the
 10 touch screen. (See '381 patent at Abstract.) The '381 patent generally claims an innovative
 11 method of informing the user of a touch screen mobile device that the edge of an electronic
 12 document has been reached by allowing the user to scroll beyond the edge of the document and to
 13 view an area beyond the edge of the document for as long as the user keeps his finger in contact
 14 with the screen. Once the user’s finger is removed, the '381 patent describes having the
 15 document or image scroll back into place so that the area beyond its edge is no longer shown, and
 16 the document or image can be viewed.

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



26 37. This invention provides an elegant and appealing form of visual feedback to a user
 27 that there is no more of a document to be seen. For example, if a user is zoomed in on one part of
 28 a large photo, he may continue to scroll the photo as he looks at other parts of the image. Not

1 knowing exactly where the photo ends, he may continue to scroll in a direction even when there is
2 no more of the photo to display. When this happens, an area beyond the edge of the photo will be
3 displayed, and once the user lifts his finger, the photo will “bounce” or “rubber band” back to fill
4 the screen. This form of visual feedback is readily understood and makes clear to the user that he
5 cannot continue to scroll in that direction.

6 38. This visual feedback also provides an intuitive solution to a vexing user interface
7 issue: what to do when a user scrolls to the edge of an electronic document. In the prior art, when
8 a user scrolled to the edge of a document, one of two scenarios would play out. Either she would
9 scroll continuously past the edge of the document into nothingness (*i.e.* beyond a place where
10 there was any meaningful content), or she would hit a “hard stop” and not be allowed to scroll
11 any further.

12 39. Each of these scenarios has its own disadvantages. Allowing a user to move
13 through virtual space going absolutely anywhere, including beyond a place that has any
14 meaningful content, can cause the user to become disoriented. (*See* B. Bederson Dep. Ex. 222 at
15 4; B. Bederson Dep. Tr. at 204:6-24; 205:6-207:5; 213:2-214:1.) In a paper he wrote in 2011,
16 Benjamin Bederson referred to this as the “Desert Fog” phenomenon, citing an earlier article
17 written by Jul and Furnas. (*Id.*; *see also* A. Van Dam Dep. Tr. at 63:3-17 (referring to the empty
18 area as “no man’s land”).) Users who navigate into these empty spaces may get lost and not
19 know how to find their way back. (*Id.*; *see also* A. Van Dam Decl. (Dkt. No. 168) at ¶ 144.)

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

1 41. I reserve my right to discuss the general background of the technology and user
2 interfaces that existed at the time of the invention of the '381 patent.

3 42. The inventor of the '381 patent recognized these disadvantages and created a novel
4 solution to overcome them. By displaying an area beyond the edge of an electronic document,
5 the invention of the '381 patent provides the user with an instant visual cue informing him that
6 the edge of the document has been reached, and importantly, in an exemplary embodiment shown
7 in Figures 8A-8D of the patent, this area beyond the edge is displayed adjacent to a portion of the
8 electronic document, enabling the user to maintain context and avoid the "Desert Fog" problem.

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

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

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

24 45. As noted in my opening expert report, if called to testify at trial on the topic of the
25 definition of a person of ordinary skill in the art for the '381 patent, I expect to testify regarding
26 the skill, education, and experience that a person of ordinary skill in the relevant art would have
27 had at the time of the invention of the '381 patent. In my opinion, and as submitted by Apple in a
28 January 19, 2012 Joint Statement (Dkt. No. 650), a person of ordinary skill in the relevant art of

1 the '381 patent at the time of the invention would have a Bachelor's degree in computer science
2 or electrical engineering, or the equivalent, and one or more years experience working on
3 designing and/or implementing user interfaces.

4 46. I would have met the criteria for being such a person of ordinary skill in the art at
5 the time of the invention of the '381 patent.

6 47. In the Van Dam Report, Dr. Van Dam stated "I understand that the parties have
7 agreed that a person of ordinary skill in the art relevant to the '381 patent at the time of the
8 invention had at least a bachelor's degree in computer science or electrical engineering, and
9 approximately two years of software design and implementation experience, including experience
10 with graphical user interface design and with touch-sensing technologies, or would have
11 equivalent educational and work experience." (Van Dam Report at 6.)

12 48. I understand that the parties have not agreed on the definition of a person of
13 ordinary skill in the art for the '381 patent, and that Dr. Van Dam's definition is different from
14 that set forth by Samsung in the parties' January 19, 2012 Joint Statement, where Samsung
15 asserted that the person of ordinary skill in the art would have "3-5 years of software design and
16 implementation experience, including experience with graphical user interface design." (Dkt. No.
17 650 at 1.)

18 C. Claim Construction

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

24 50. I also understand that the Court ruled in its order on Apple's Motion for a
25 Preliminary Injunction that "Claim 1 of the '381 patent is fatalistic: if a user scrolls past the edge
26 of an electronic document in the first direction, the screen must snap back to that document when
27 the user lifts her finger." (Dkt. No. 452 at 60.) I have performed my analysis under the Court's
28

1 interpretation as well as under an alternative interpretation that Claim 1 does not prohibit
2 behavior other than the rubber banding functionality.

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

7 **D. Summary of Prior Art Identified in the Van Dam Report**

8 52. The Van Dam Report focuses on three references:

- 9
- 10 • LaunchTile and XNav (“LaunchTile”) – a software application depicted in Van Dam
Report Exhibit 10;
 - 11 • WO 03/081458 (SAMNDCA00001641-704) and U.S. Patent No. 7,872,640
12 (SAMNDCA00020541-575) to Luigi Lira (“Lira”) – an international patent
13 application publication and a U.S. patent depicted in Van Dam Report Exhibit 5; and
 - 14 • Tablecloth – a software program using the DTFlash libraries on a DiamondTouch
15 system depicted in Van Dam Report Exhibit 8.

16 53. Collectively, this alleged prior art is markedly different from the ’381 patent. Each
17 of these references at best discloses an automatic re-centering feature for when a user scrolls or
18 pans *within* a document, and fails to disclose an edge-responsive functionality like that claimed in
19 the ’381 patent. Because these references are not concerned with what should happen when the
20 edge of the document is reached, they still embody the main problem that the ’381 patent solved.
21 Users either are not allowed to scroll past the edge (*i.e.* they hit a “hard stop”) or are allowed to
22 scroll endlessly into empty areas devoid of any content. In one instance, the supposedly
23 invalidating functionality appears to be the unintended consequence of miscalibrating the device
24 hardware.

25 54. Unlike these references, the ’381 patent concerns edge-responsive functionality, as
26 evidenced by its treatment of document translation when an area beyond the edge is displayed.
27 For example, the inventions of the ’381 patent must be able to detect an edge of an electronic
28 document in order to display different speeds of translation or different associated distances of

1 translation when an area beyond the edge is displayed. This functionality would not be possible
2 unless an edge of an electronic document was detected.

3 55. The Van Dam Report also acknowledges that the functionality of these references
4 must be manipulated in just the right way to produce the allegedly invalidating features. In
5 contrast to the '381 patent's exemplary depiction of its functionality (Figures 8A-8D of the
6 patent, depicting a starting point of the functionality without user interaction), each example in
7 the Van Dam Report requires a user to first move a previously centered portion of content on a
8 display off center, and in a different direction, to display a "first portion" of what was previously
9 displayed at rest on the device's screen. These demonstrations simulate supposed edge-
10 responsive behavior, yet it is clear that these references are in fact merely re-centering items.

11 56. Such movements suggest that the performance of these functionalities is being
12 done with hindsight bias. While this manipulation of the functionalities of the references and
13 mapping to claim language has been done with the '381 patent already in hand, a person of skill
14 in the art at the time of the invention would not have recognized the edge-responsive advantages
15 of the '381 patent in the asserted prior art.

16 57. Moreover, the Van Dam Report attempts to dismiss the key differences between
17 the prior art and the '381 patent by constantly redefining what the "electronic document," and the
18 "edge" of that electronic document, are in any given example. Besides being inconsistent within
19 the confines of the report, the Van Dam Report also departs from the theories detailed in
20 Samsung's Patent Local Rule 3-3 and 3-4 Disclosures ("Invalidity Contentions"). The Van Dam
21 Report arbitrarily treats lines *or the lack of lines* within the boundaries of a document in the same
22 manner as actual "edges." I understand that Samsung contended that a digital image embedded in
23 a webpage could also have edges (Dkt. No. 849 at 20), and that therefore an electronic document
24 may have internal edges (*id.* at 23). The Van Dam Report, however, defines the edge of an
25 electronic document to be whatever is convenient for the example at hand without any
26 explanation of how that determination was made.

27 58. My detailed analysis begins by showing that the alleged prior art was trying to
28 solve different problems than the '381 patent, and that it still suffers from the principal limitations

1 and constraints that the '381 patent was designed to solve. Next, I discuss the faults and
2 shortcomings in Dr. Van Dam's opinions, concluding that the references he cites do not disclose
3 key elements of the asserted claims or render them obvious. I note that the Van Dam Report does
4 not identify a single instance in which anyone actually performed the series of motions depicted
5 in Dr. Van Dam's video exhibits before the priority date for the '381 patent.

6 **E. Validity of the '381 Patent**

7 **1. LaunchTile / XNav¹ Does Not Anticipate or Render Obvious the**
8 **Asserted Claims of the '381 Patent**

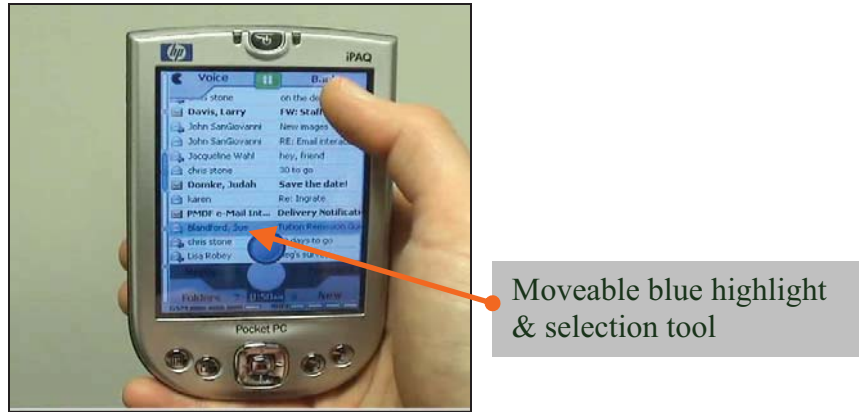
9 59. LaunchTile is a prototype for a user interface developed by Benjamin Bederson
10 and his colleagues at the University of Maryland. Having reviewed the Van Dam Report and
11 exhibits, I understand that Dr. Van Dam has based his invalidity opinions on the LaunchTile
12 system, and not on any source code, publications, public demonstrations, or contemporaneous
13 videos made by or for Dr. Bederson. Accordingly, I address here only the LaunchTile system,
14 but incorporate by reference the full discussion of LaunchTile from my declaration in support of
15 Apple's Motion for a Preliminary Injunction.

16 60. I note that the Van Dam Report does not assert that any of the actions performed in
17 the Van Dam Report exhibits was actually performed before the priority date of the '381 patent,
18 or at any point prior to the creation of Dr. Van Dam's exhibits.

19 61. As with the other references cited by Dr. Van Dam, LaunchTile is not concerned
20 with problems that occur when reaching, crossing, or falling off the "edge" of a document.
21 Rather, it discloses an auto-centering function that was not designed to be responsive to the edge
22 of the document. When a user interacts with a device running LaunchTile, the content of the
23 screen is automatically re-centered to a pre-defined reference point called "Blue."
24 (APLNDC0001202799-808 ("LaunchTile Article") at APLNDC0001202802.) In the e-mail
25 application view (shown below), "Blue" is a translucent blue "highlight" bar, which doubles as an

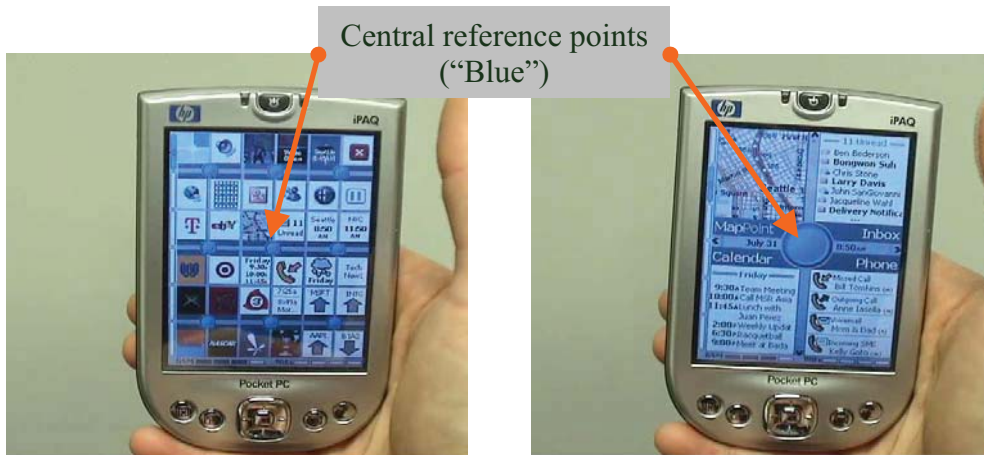
26
27 ¹ According to Dr. Bederson, the allegedly anticipating features of LaunchTile and XNav
28 are identical. (B. Bederson Dep. Tr. at 103:4-20.) Accordingly, for the purposes of discussing
these programs' functionalities, I will also treat LaunchTile and XNav interchangeably.

1 e-mail selection tool. The user can move this bar up and down to select e-mails. (*Id.* at
 2 APLNDC0001202803 (“In cases when limited display real estate necessitates smaller targets, the
 3 central Blue widget serves as a moveable tool glass which can be positioned over the target object
 4 . . .”).) If the highlight bar does not line up with an e-mail, the bar and list are automatically re-
 5 aligned, thus allowing the user to more easily select a desired e-mail.



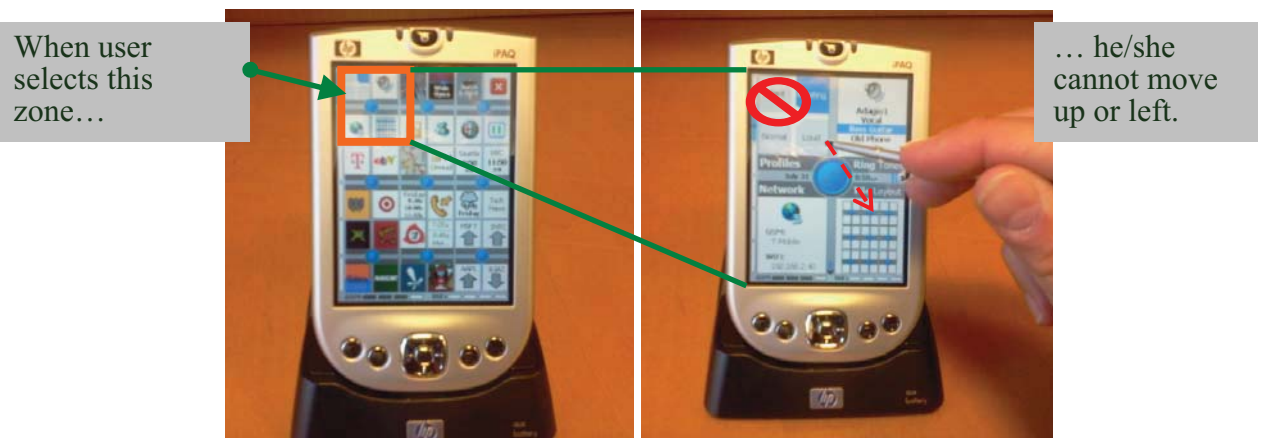
13 **Fig. 1 - Screenshot from Bederson Decl. Ex. L (D.I. 165-12) showing e-mail application view**

14 62. In the 6X6 “World” and 2X2 “Zone” views (Figs. 2 and 3, below), Blue is
 15 depicted as a blue dot or dots on the screen. (*Id.*; B. Bederson Dep. Tr. at 189:13-190:3.) Within
 16 the “Zone” view, if the user scrolls a sufficient distance towards an adjacent zone, the user
 17 interface automatically navigates to that zone, re-centering the page on the Blue dot. This re-
 18 centering feature ensures that the user is never caught in between two zones. (*See, e.g.*,
 19 APLNDC0001202803; B. Bederson Dep. Tr. at 190:21-192:10.)

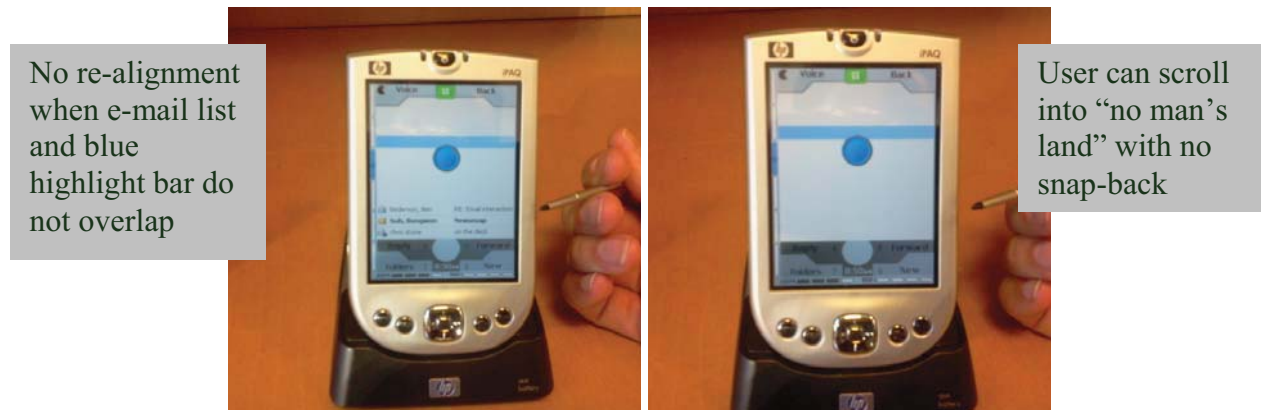


Figs. 2 & 3 - Screenshots from Bederson Decl. Ex. L (D.I. 165-12) showing “World” and “Zone” view

1
2 Significantly, LaunchTile embodies the very same disadvantages that the '381 patent is
3 designed to solve. In LaunchTile's "World" view, individuals are not allowed to scroll at all, and
4 so the "frozen screen" problem arises. In the "Zone" view, individuals are not allowed to scroll
5 past any final "Zone." Attempting to do so will result in a hard stop. (See Ex. R1; B. Bederson
6 Dep. Tr. at 148:25-149:4.) Conversely, the LaunchTile e-mail application is unbounded, allowing
7 users to scroll into the empty white area past all e-mails (into the "Desert Fog" or "no man's
8 land"). If the user lifts his finger while navigating in this space, the e-mail application does not
9 snap back to the e-mail list. (See Ex. R2; B. Bederson Dep. Tr. at 113:2-13.)



18 **Fig. 4 - Screenshots from LaunchTile "World" and "Zone" views**



25 **Fig. 5 - Screenshots from LaunchTile E-mail view**

26 63. The behavior in LaunchTile on which Dr. Van Dam relies, and in the two other
27 references he cites, occurs in response to misalignment, *i.e.* when content needs to be re-centered
28 to a point within the display window. The actions in the '381 patent occur in response to the edge

1 of the document being reached. As a result, LaunchTile does not disclose at least two critical
2 edge-responsive features of the asserted claims: (1) displaying an area beyond the edge of the
3 document in response to an edge of the electronic document being reached, and (2) moving the
4 portion of the document back into view when the user's finger (or other object) is no longer
5 detected on the display. To one of skill in the art, the re-centering solution in LaunchTile is very
6 different from the edge-specific functions described and claimed by the '381 patent. Dr. Van
7 Dam's discussion of physics based metaphors fails to address this distinction.

8 a. [REDACTED]

9 [REDACTED]

10 64. I have reviewed a copy of the XNav source code, which was attached as Exhibit G
11 to Dr. Bederson's Declaration in Support of Samsung's Opposition to Apple's Motion for a
12 Preliminary Injunction. The XNav source code confirms that [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 [REDACTED]

24 [REDACTED]

25 _____
26 ² True and correct copies of the XNav source code were marked as Bederson Deposition
27 Exhibits 211, 212, and 213.

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[REDACTED]

[REDACTED] This helps the user more easily select desired e-mails.

65. As demonstrated above, the LaunchTile e-mail program has no reaction to scrolling past the terminus of the list of email headers. Indeed, it allows the user to continue scrolling well past the terminus of the e-mail list. [REDACTED]

[REDACTED]

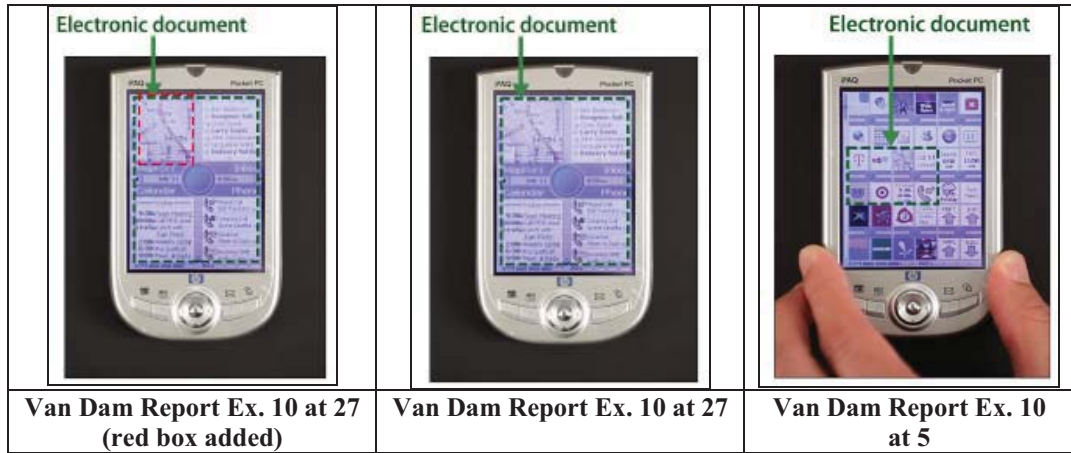
[REDACTED] In short, all of the “snapping” features in the e-mail application are tied to the position of this highlight bar and do not occur in response to the edge of the document being reached.

66. The zoomed-in “Zone” view discloses a similar method [REDACTED]

[REDACTED] Specifically, if the user lifts his finger after moving more than [REDACTED] towards an adjacent zone, the program will continue scrolling to that zone. (*Id.*) This auto-centering feature works only when scrolling within the perimeter, or inside the “edges” of the broader “Zone” mosaic, since as shown in Figure 4 above it is impossible to scroll beyond the “edges” of the broader collection of zones. (*See also* B. Bederson Dep. Tr. at 144:20-145:7; 146:5-14.) As a result, the software cannot display an area beyond the edge of the tiles, and the array of tiles cannot move back in the opposite direction after the user lifts his finger. LaunchTile and XNav thus fail to disclose the main user-friendly features of the ’381 patent.

67. Dr. Van Dam attempts to avoid these flaws by treating the internal gridlines within the “World” and “Zone” views as “edges.” These internal lines cannot be treated as “edges,” however, because there is still content outside of these boundaries that the user can scroll to. (*See* B. Bederson Dep. Tr. at 205:18-206:11 (stating that most document browsers limit navigation to

1 the available content).⁴ Indeed, Dr. Van Dam contends that anything demarcated by a line
 2 qualifies as a separate electronic document surrounded by edges. For example, he asserts in Van
 3 Dam Report Exhibit 10 that “[e]ach tile is itself an electronic document, and a Zone comprised of
 4 four adjacent tiles is also an electronic document” (p. 3) before going on to state that “[a]ny set of
 5 contiguous tiles could be considered an electronic document” (p. 4).



14 68. I disagree with Dr. Van Dam’s opinion that essentially anything visible on the
 15 display of a device running LaunchTile could be considered an electronic document. He does not
 16 explain his basis for contending that a box with 8 tiles comprises an electronic document, and
 17 provides no substantiation that the LaunchTile system recognizes this construct as an electronic
 18 document. Under Dr. Van Dam’s theory, a pattern in the shape of a “U” could also be an
 19 electronic document even if the LaunchTile system would not recognize it as such.

20 69. Moreover, if I drew a line through a piece of paper (the physical counterpart for
 21 the electronic document), the edges of that page would remain the same. Similarly, the internal
 22 grid lines within the “World” or “Zone” of LaunchTile are not the same as the external
 23 boundaries that define the “edge” of the electronic document.

24
 25 ⁴ I was originally asked by counsel for Samsung to evaluate the LaunchTile program in
 26 the context of the ’381 patent for the first time at my deposition. As I made clear at the
 27 deposition, I had not had the opportunity to study the program closely, and did not know what the
 28 purpose of the Blue reference point was. In addition, I did not have access to the source code.
 Now that I have had the opportunity to review LaunchTile and the XNav source code, I
 understand that these programs are performing a re-alignment function and not the edge-
 responsive functions of the ’381 patent.

1 70. Though the Court has construed the term “edge of the electronic document” to
2 include the edges of, for example, a digital photograph that is embedded within and thus
3 “internal” to a web page, a person of ordinary skill in the art would not have considered every last
4 line in the images above to constitute an “edge of the electronic document.” With the ’381 patent
5 as a reference point, a person could, using hindsight bias, claim that the lines within the
6 LaunchTile “Zone” view are “edges.” But in my opinion, a person of skill in the art at the time of
7 the invention would not have understood the edge-specific advantages of the ’381 patent while
8 navigating at the center of the “Zone” view. Rather, the software at best teaches re-aligning
9 screen objects to a central “Blue” UI element.

10 71. In sum, the key relationship in LaunchTile is between the objects on the screen and
11 the “Blue” element. The source code does not teach the main advantage of the ’381 patent which
12 involves performing the edge-responsive functions of the claims. As a result, I do not believe that
13 the LaunchTile/XNav code discloses all the limitations of the asserted claims or render them
14 obvious.

15 72. Moreover, under the Court’s interpretation of the ’381 patent in its Preliminary
16 Injunction ruling that if a user scrolls in a first direction past the edge of an electronic document
17 the screen must snap back to that document when the user lifts her finger, LaunchTile does not
18 anticipate any of the asserted claims. To the contrary, LaunchTile may exhibit a centering
19 behavior, a movement in the same direction to a new “Zone” of tiles, or no movement at all,
20 depending on the portion of the “World” that is being displayed and the amount of movement of a
21 user’s finger.

22 **b. Dr. Van Dam’s Video Exhibits**

23 73. Finally, I have reviewed the video exhibits to the Van Dam Report, which I
24 understand are not prior art. Unlike persons of skill in the art at the time of the invention, Dr. Van
25 Dam had the ’381 patent in hand when creating these videos, and could utilize his knowledge of
26 the patent to simulate certain behaviors described in the asserted claims. However, as confirmed
27 above, the LaunchTile system does not behave in response to the edge of a document being
28 reached. It instead is realigning the view to a central “blue” reference point / selection tool. At

1 best, this behavior teaches one of skill in the art that a user can select an item on a list more easily
2 if the item is aligned with a selection tool. Tellingly, none of the allegedly anticipating features
3 demonstrated in Dr. Van Dam's videos were actually disclosed or discussed in any of the
4 references in the Van Dam Report or in the prior art materials submitted with Samsung's
5 preliminary injunction briefing. For at least these reasons, the LaunchTile and XNav references
6 do not anticipate the claims of the '381 patent or render them obvious.

7 **c. LaunchTile does not disclose the additional limitations of the**
8 **'381 patent's dependent claims**

9 74. LaunchTile does not disclose application of its user interface to a web page (claim
10 6), nor would it have been obvious to use it in conjunction with a web page in light of its purpose
11 to manage various software applications on devices with small displays.

12 75. In addition, LaunchTile does not disclose the limitations regarding the associated
13 speed of translation corresponding to the speed of movement of an object (claim 11), associated
14 translating distances (claim 17), or associated speeds of translation (claim 18). Because
15 LaunchTile does not detect an edge of an electronic document, it does not differentiate between
16 document translation when an area beyond the edge is shown, and when it is not.

17 **d. LaunchTile does not anticipate or render obvious any of the**
18 **asserted claims of the '381 patent**

19 76. For at least the reasons stated above, none of the asserted claims of the '381 patent
20 is anticipated or rendered obvious by LaunchTile or any of the other references relied upon by Dr.
21 Van Dam. In particular, none of these references includes or would obviously suggest or teach a
22 combination that would meet the limitations of the asserted claims of the '381 patent. There is
23 nothing in the Van Dam Report or exhibits that suggests that there was a reason or suggestion at
24 the time of the invention that would have prompted a person of ordinary skill in the art to
25 combine the elements in the way the claimed invention does.

26 77. Moreover, as the Court noted in its Order Denying Motion for a Preliminary
27 Injunction, "even though the LaunchTile and '381 methods respond identically to some subset of
28 inputs, the LaunchTile world view and e-mail application methods cannot read onto the '381
method, and thus cannot anticipate." (Dkt. No. 452 at 60-61.) I note that despite stating that he

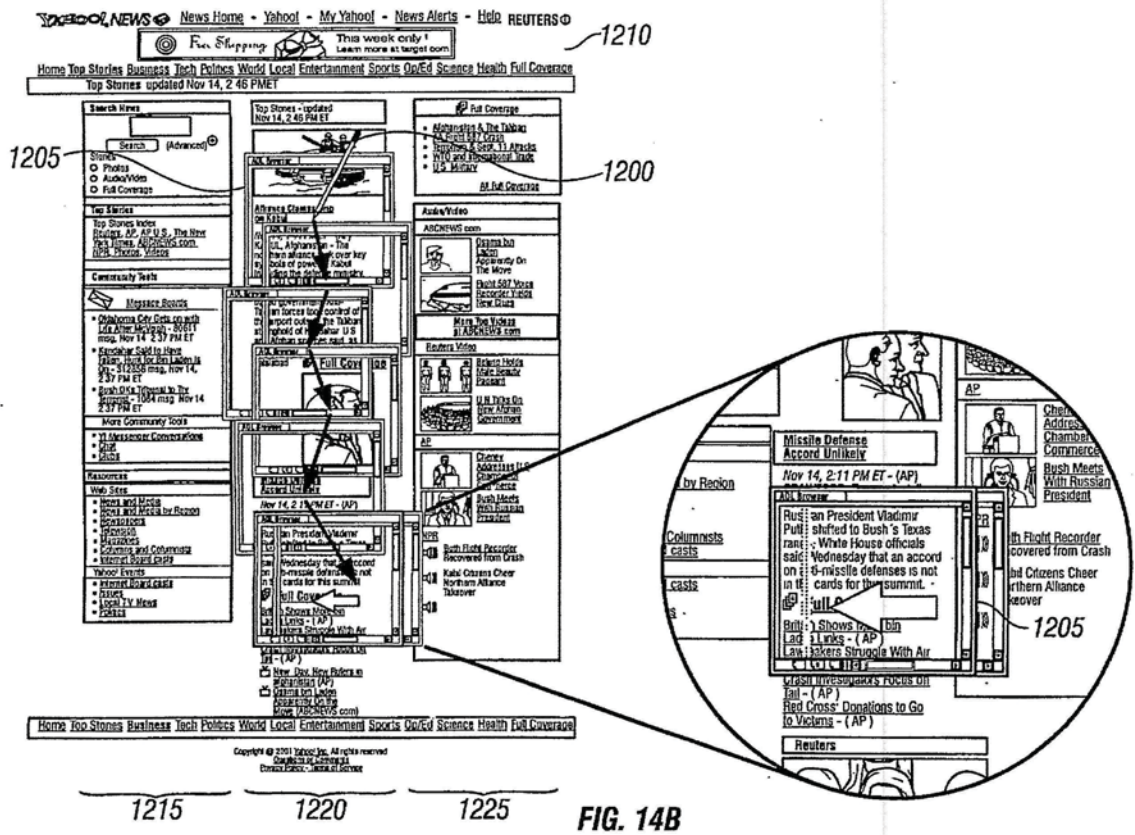
1 “performed [his] analysis both under the Court’s interpretation as well as under the alternative
2 interpretation that Claim 1 of the ’381 patent does not prohibit behavior in addition to the bounce
3 back described by the claim,” Dr. Van Dam offers no explanation of how LaunchTile anticipates
4 the asserted claims of the ’381 patent under the Court’s interpretation.

5 **2. The Lira Reference Does Not Anticipate or Render Obvious the**
6 **Asserted Claims of the ’381 Patent**

7 78. The publication Dr. Van Dam refers to as Lira is an international patent
8 application publication numbered WO 03/081458. (SAMNDCA00001641-704.) Its international
9 publication date is October 2, 2003. Lira secondarily refers to U.S. Patent No. 7,872,640 to Luigi
10 Lira, which issued on January 18, 2011. (SAMNDCA00020541-575.) Lira is discussed in Van
11 Dam Report Exhibit 5, and Dr. Van Dam prepared two flash animations of how he imagines Lira
12 would function in an actual embodiment (Van Dam Report Exhibits 6 and 7).

13 79. The inventor of Lira recognized that as a user navigates around a large webpage on
14 a device with a small-screen, “such ‘touch-and-drag’ scrolling can result in information 610 that
15 is positioned in the display window 605 but is difficult to view or read since the user may
16 inadvertently navigate to a position where only a portion of a column or an image is visible in the
17 PDA display window 605.” (Lira at 11:27-12:2; *see also*, 12:30-13:2) The inventor therefore
18 devised methods for reconfiguring the webpage into columns so that the page could be more
19 easily viewed on a small screen. (*See, e.g., id.* at 13:14-17; 14:29-15:-5; 15:18-21.) For
20 convenience, the PDA display would be re-centered to a column, so that the column was aligned
21 with the display. This re-centering method is illustrated in Figure 14B, shown below.

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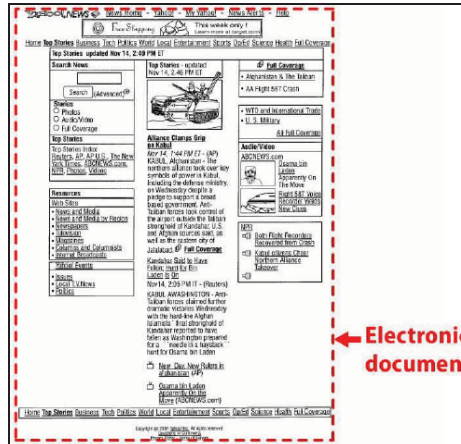
Lira Figure 14B

80. Like LaunchTile, Lira discloses a recentering functionality and a method for realigning or reformatting webpage content so that it can fit more easily into a small screen. (Lira at 1:15-2:3; 15:18-25; Claim 1.) Lira Figure 5, for instance, shows a method for reformatting the web page into columns that are viewable on a PDA screen. In Figure 14B (shown above), the display window 1205 is realigned with content of column 1220 so that the window can show the entire column. (Lira at Fig. 14B; 15:18-31.) As was the case with LaunchTile, Lira is concerned with what happens while navigating within a webpage. It does not disclose what will or should happen if and when the user tries to scroll past the edge of the page.

81. I have reviewed Dr. Van Dam's discussion of Lira and disagree with his conclusions regarding that publication.

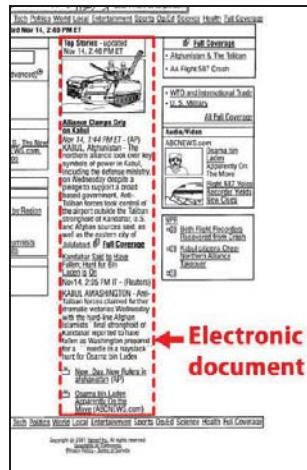
a. **The Van Dam Report’s Definition of an “Electronic Document” is Flawed**

82. In the figures depicted in Lira, the electronic document is clearly the web page that a user seeks to navigate. For example, the Abstract of Lira states: “[v]iewing an electronic document in a display window of a display may include detecting a layout of the electronic document (505) and comparing the layout of the electronic document to a width of the display window (510).” Acknowledging this fact, the Van Dam Report simulated an image based on a figure in Lira which identifies the entire web page as an electronic document.



Van Dam Report Ex. 5 at 11

83. Another example in the Van Dam Report defines the electronic document as a single column in the center of the web page.



Van Dam Report Ex. 5 at 8

84. As support for his selection of this portion of the electronic document as an electronic document itself, Dr. Van Dam asserts that there is a “boundary of the logical column 1220” (Lira at 15:26-27) which identifies a “sub-document[] in a larger electronic document: the

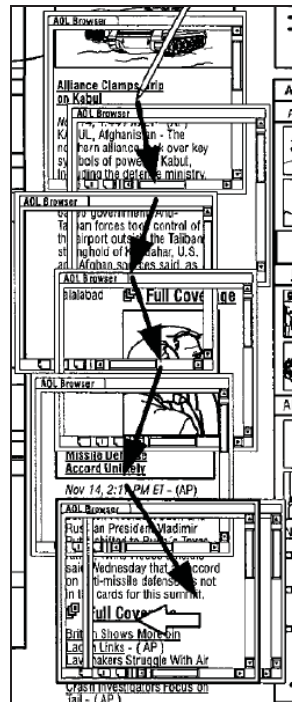
1 web page.” (Van Dam Report Ex. 5 at 7.) This, however, contradicts the disclosure in the
2 publication itself.

3 85. Lira makes clear that the only thing that it considers an electronic document is the
4 web page as a whole, and that while there may be formatting within that web page, that
5 formatting does not denote a different electronic document. Lira discusses how “detecting the
6 layout of the electronic document may include detecting logical columns of the electronic
7 document, and reformatting the electronic document may include reformatting each logical
8 column to have a width that does not exceed the width of the display window.” (Lira at 2:5-8
9 (emphases added).) Just as reformatting a word processing document to have three paragraphs
10 does not create three separate electronic documents, so too does reformatting a web page into
11 three columns fail to generate three separate electronic documents.

12 86. Accordingly, the reformatted columns in Lira are not electronic documents. Even
13 if they could be considered as such, it is unclear where their “edges” would be.

14 87. Because it is clear that Lira will execute its centering functionality to the center of
15 the logical column whether or not an edge of the electronic document is reached (*see* figure below
16 depicting centering with varying degrees of movement), Lira does not disclose the limitation of
17 “in response to an edge of the electronic document being reached while translating the electronic
18 document in the first direction while the object is still detected on or near the touch screen
19 display: displaying an area beyond the edge of the document, and displaying a third portion of the
20 electronic document, wherein the third portion is smaller than the first portion; and in response to
21 detecting that the object is no longer on or near the touch screen display, translating the electronic
22 document in a second direction until the area beyond the edge of the electronic document is no
23 longer displayed to display a fourth portion of the electronic document, wherein the fourth portion
24 is different from the first portion.” In sum, the centering functionality depicted below does not
25 satisfy this limitation of the asserted claims of the ’381 patent.

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Lira Fig. 14B (partial view)

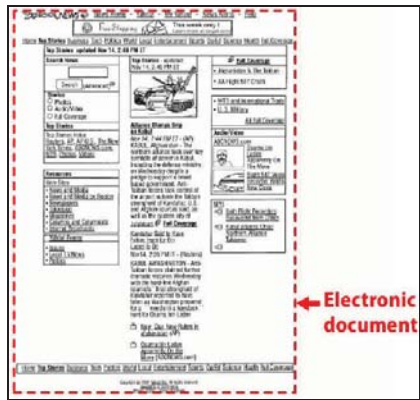
88. Because this limitation appears in all of the asserted claims, Lira does not anticipate or render obvious those claims.

b. Lira does not disclose how it would operate at the external edges of an electronic document

89. Lira does not discuss what will or should happen if the user attempts to move the display window beyond the external edge of the webpage. Nor does it disclose the specific solution in the '381 patent: displaying an area beyond the edge of the webpage in response to reaching the edge. On the contrary, the display windows in each figure never move beyond the edges of the webpage; they are always shown within the outer boundaries of the page. (*See, e.g. id.* at Fig. 14B.) In my opinion, the reference teaches away from the solution of the '381 patent.

90. As noted above, the Van Dam Report asserts that an entire web page can be an “electronic document.”

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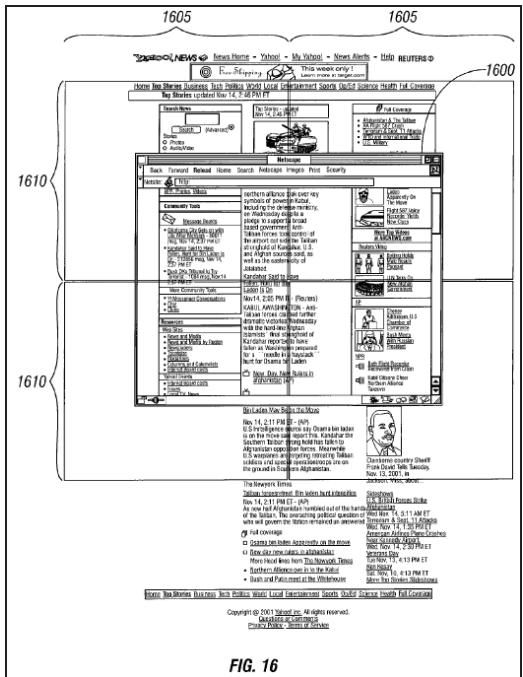


Van Dam Report Ex. 5 at 11

91. In Van Dam Report Exhibit 7 and the description thereof in Van Dam Exhibit 5, Dr. Van Dam contends that the snapping into alignment described in the context of Lira Figure 14B also would apply to a full screen document. Yet this runs directly counter to the disclosure of Lira. In its Abstract, Lira notes that the “electronic document may be reformatted into at least two columns . . .” There would be no reformatting of the document if the entire web page were the electronic document.

92. Next, the actual figure from which Dr. Van Dam mocked up his Exhibit 7 does not discuss any snapping into alignment. Rather, the accompanying text specifically notes that “as the user scrolls from left to right across the entire width 1605 of the display 1600, the document slides across the screen a distance that is equal to the width 1605 of the display 1600. Thus, movement up, down, left, or right is limited to a distance that is equal to the length 1610 or width 1605 of the display 1600. The user must then lift 25 the pen or stylus from the screen and repeat the scrolling operation.” (Lira at 16:20-25.)

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93. In other words, in the figure above, the user could scroll all the way across the web page to the end of the display, which is labeled 1605. The movement there “is limited to [that] distance,” however, and simply ceases. Even if there were an area beyond the edge being displayed, there is no recentering, and there is no movement in a second direction. Lira explicitly states that the “user must then lift the pen or stylus from the screen and repeat the scrolling operation” in order to translate the document further. (Lira at 16:24-25.) Accordingly, I believe that Van Dam Exhibit 7 is incorrect in its depiction of how Lira would behave based on its disclosure. Moreover, Dr. Van Dam’s position that “in the example from Figure 16, the translation in the second direction always occurs as there is no alternative” is incorrect.

94. As is clear from the disclosure in Lira, the interface was designed to help users get to where they wanted to navigate. When a user did not exceed the threshold of a logical column, Lira kept them on that column. Similarly, when a user indicated an intention to move beyond the boundary of the logical column to another column, the display would move to the adjacent column. Accordingly, Lira would not have contemplated displaying an area beyond the external edge of a web page. Van Dam Exhibit 7 has no basis in the disclosure of Lira, and reflects nothing more than hindsight bias in the form of a hypothetical demonstrative.

1 corresponding to the speed of movement of an object (claim 11), damped motion (claim 15),
 2 elasticity (claim 16), associated translating distances (claim 17), and associated speeds of
 3 translation (claim 18) are not disclosed. Because Lira does not detect an edge of an electronic
 4 document, it does not differentiate between document translation when an area beyond the edge is
 5 shown, and when it is not.

6 **d. Lira does not anticipate or render obvious any of the asserted**
 7 **claims of the '381 patent**

8 99. For at least the reasons stated above, none of the asserted claims of the '381 patent
 9 is anticipated or rendered obvious by Lira or any of the other references relied upon by Dr. Van
 10 Dam. In particular, none of these references includes or would obviously suggest or teach a
 11 combination that would meet the limitations of the asserted claims of the '381 patent. There is
 12 nothing in the Van Dam Report or exhibits that suggests that there was a reason or suggestion at
 13 the time of the invention that would have prompted a person of ordinary skill in the art to
 14 combine the elements in the way the claimed invention does.

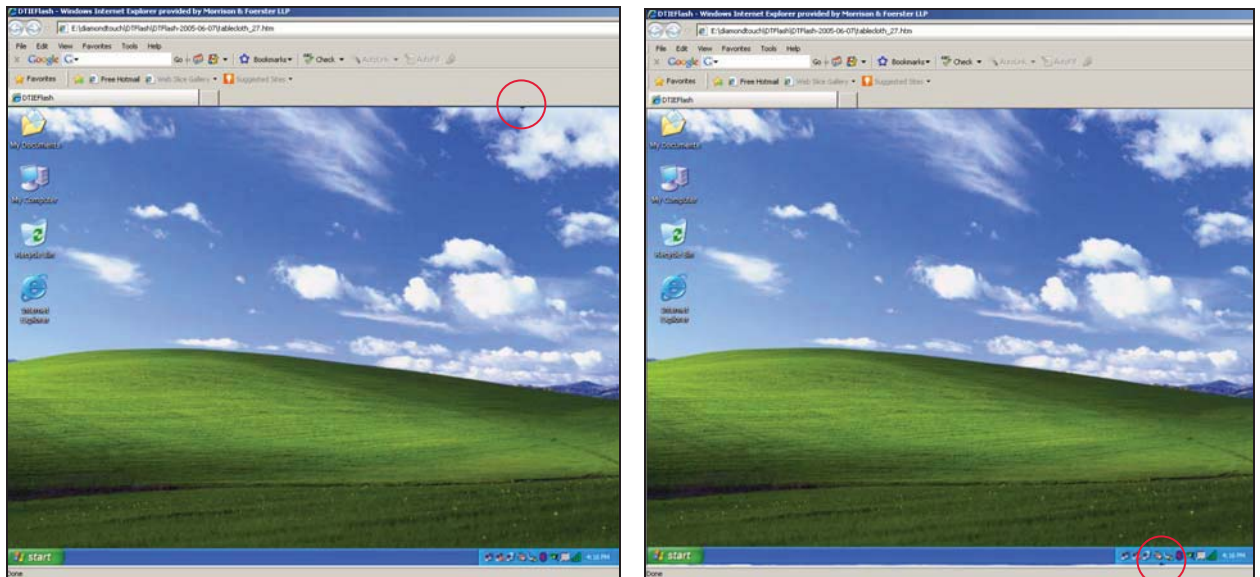
15 **3. Tablecloth**

16 100. The Tablecloth program refers to a software program that uses the DTFlash library
 17 and runs on a Mitsubishi Electric Research Laboratories ("MERL") DiamondTouch system. The
 18 DiamondTouch system included a number of components including a touch sensing table, an
 19 overhead projector, and pads on which users sat. A typical configuration for the system is
 20 depicted below.



1 (SAMNDCA00035802.)

2 101. The designers of Tablecloth created a program that auto-centers on an image
 3 regardless of the distance it is scrolled, and regardless of whether an edge of the document has
 4 been reached. When operated under normal circumstances, the Tablecloth program never
 5 displays an area beyond the edge of a document. Below are two screen captures from the
 6 Tablecloth program in which no additional scrolling is possible after pulling the image down as
 7 far as it will go (the mouse crosshairs towards the top right in the first image (circled in red)
 8 indicates the starting point for the drag downwards, and the crosshairs towards the bottom right
 9 (circled in red) indicate the ending point):



20 Figs. 6 and 7

21 102. In the Tablecloth program, individuals are not allowed to scroll past the borders of
 22 the repeated images of the desktop. Attempting to do so will result in a hard stop. Nevertheless,
 23 as discussed below, there appears to be a software defect that permits aberrant behavior if the
 24 DiamondTouch device is configured in a particular manner.

25 103. I have reviewed Dr. Van Dam's discussion of the Tablecloth reference and
 26 disagree with his conclusions regarding that program.
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 28

1 **a. The Tablecloth program is not equivalent to DTFlash**

2 104. There is considerable ambiguity in the way that the Tablecloth program is
3 described in the Van Dam Report. References to the program conflate the single Tablecloth
4 program with DTFlash, and alternate between “DT Flash/Tablecloth” and “DTFlash system.”
5 Van Dam Report at 52. This conflation is misleading to the extent that the Van Dam Report sets
6 forth arguments relating to the “DTFlash System” separate from the Tablecloth program, which I
7 understand is the only program written for DTFlash that has been asserted as prior art.

8 105. DTFlash is not, as suggested in the Van Dam Report, a specific software
9 application. Rather, it is a software library. I understand from the deposition transcript of Clifton
10 Forlines, who was employed by MERL, the developers of the DiamondTouch device on which
11 DTFlash could be run, [REDACTED]

12 [REDACTED]
13 [REDACTED] Therefore, it is inaccurate to say that the DTFlash
14 libraries are a prior art reference.

15 **b. The Van Dam Report does not demonstrate that the Tablecloth**
16 **program was used in public, publicly known, or commercially**
17 **sold**

18 106. There is also ambiguity as to when, or even if, the Tablecloth program may have
19 been accessible to the public. According to Exhibit 8 to the Van Dam Report, which cites to the
20 Forlines deposition transcript, *a* Tablecloth application was installed on a DiamondTouch device
21 in the lobby of MERL “[i]n the 2000 timeframe.” (Van Dam Report Ex. 8 at 1.) Dr. Forlines did
22 not testify that this program was ever used in public, publicly known, or sold, but rather only that
23 *a* Tablecloth application was installed on a DiamondTouch device in the lobby of MERL.

24 107. Documents produced by Samsung contradict Dr. Forlines’ testimony. For
25 example, Samsung produced an article by Alan Esenther and Kent Wittenburg of Mitsubishi
26 Electric Research Laboratories titled “Multi-user multi-touch games on DiamondTouch with the
27 DTFlash toolkit,” dated December 2005. (SAMNDCA00035993-998.) In that article, the
28 authors stated that they were “introduc[ing] our new authoring environment called DTFlash.”

1 (SAMNDCA00035995.) Based on this article, it seems unlikely that either the Tablecloth
2 program or DTFlash were installed on any device in the year 2000.

3 108. In addition, the actual program file produced by MERL on a hard drive bearing the
4 Bates number MERL00000001 is named [REDACTED] and bears a creation date⁵ of
5 October 7, 2011, and a modified date of January 12, 2005. It is unclear if Dr. Forlines was
6 testifying about the Tablecloth program produced by MERL, or perhaps an earlier version. I also
7 note that on the same production hard drive, there is a file titled [REDACTED] with a creation
8 date of October 7, 2011, and a modified date of January 18, 2005.

9 **c. The DiamondTouch system required precise calibration in**
10 **order to function as intended**

11 109. The DiamondTouch system on which the Tablecloth application was operated in
12 Dr. Van Dam's video exhibits required a very specific configuration, any deviation from which
13 could have led to different results.

14 110. While the Van Dam Report describes a laptop and "slave monitor" components to
15 the DiamondTouch system depicted in Van Dam Exhibit 8, it fails to mention that the system is
16 comprised of a number of other pieces, including a touch sensing table onto which an image
17 could be projected from a perched projector. If the projector were suspended too far above the
18 table, the projected image would exceed the dimensions of the table. If it were suspended too
19 close to the table, the projected image would be smaller than the dimensions of the table, leaving
20 an empty border region around the projected image. To my understanding, the DiamondTouch
21 was designed to have the projector set at a height where the projected image would fill the
22 available table space.

23 111. The DiamondTouch system needed to be calibrated to function properly, and the
24 projected image was "mapped" to the table by pressing on certain highlighted points. In the
25 image below, the green square indicates one of these mapping points.

26
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28 ⁵ The inconsistency in the creation and modification dates may be the result of the creation
date reflecting the date on which these files were created for the Mitsubishi production.

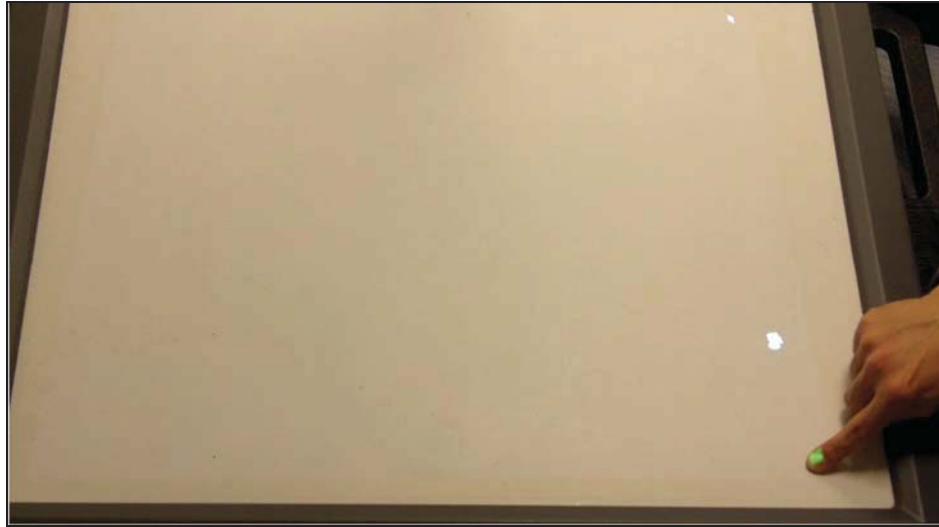


Fig. 8

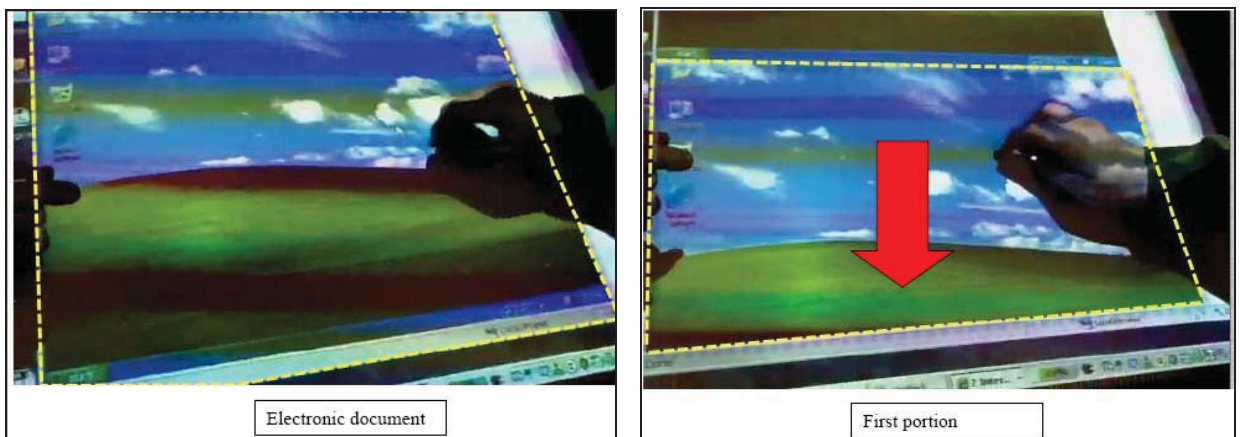
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10 112. If the projected image and the table were not properly aligned, the DiamondTouch
11 system would not function as intended. Adam Bogue, another MERL employee, testified that
12 during demonstrations of the DiamondTouch system, one of the “[t]hings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

16 113. Though it is impossible to see the exact layout of the DiamondTouch system used
17 by Dr. Van Dam, it would appear that the image being projected onto the table was not only at a
18 diagonal orientation, but also smaller than the dimensions of the table. (Van Dam Report Ex. 8 at
19 2.) Because the remaining images in this exhibit and in Dr. Van Dam’s videos are limited only to
20 a second “slave monitor” rather than the image projected onto the table, I was unable to confirm
21 if the DiamondTouch system was being used as intended, or if it was configured in a different
22 manner.

23 114. I personally have had extensive exposure to the DiamondTouch system, both in
24 my time at MERL and in academia. In all that time, I have never seen anyone deliberately
25 calibrate the projected image to be smaller than the touch sensitive area of the DiamondTouch
26 table.

d. **The “electronic document” in the Tablecloth program differs in the Van Dam Report and Samsung’s Invalidation Contentions**

115. It is unclear what the “electronic document” in the Tablecloth program is. I note that Samsung previously represented in its Invalidation Contentions that the electronic document in the Tablecloth program was a picture of a Windows desktop showing a green meadow and blue sky with clouds. (Invalidation Contentions Ex. G-7 at 2.) As seen below on the left, the electronic document included the green “Start” button of the desktop, as well as the grey bar underneath with the word “Done” in it. In the next figure, Samsung omitted the grey bar from the electronic document.



Figs. 9 and 10

116. Samsung then went on to represent that the portion of the desktop with the green “Start” button was the edge of the electronic document, and that what appeared to be the top of the original image wrapping around the screen was the “area beyond the edge.” (Invalidation Contentions Ex. G-7 at 6.)

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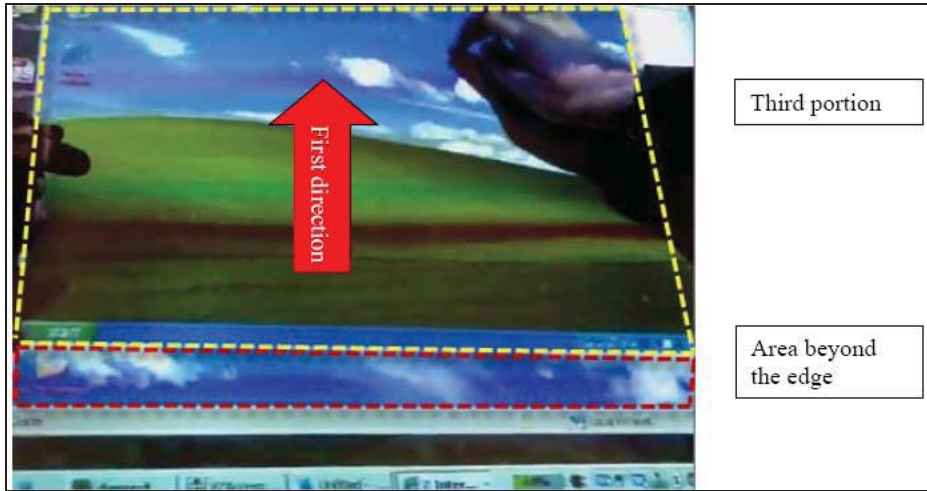
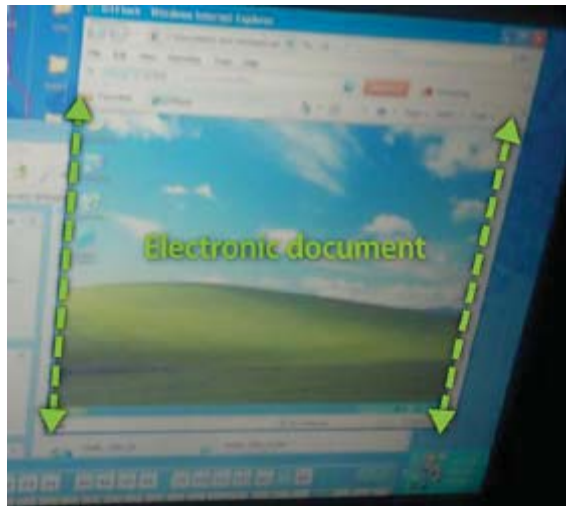


Fig. 11

117. The Van Dam Report departs from these positions and contends that the electronic document extends beyond what is visible on the table when the desktop image is at rest, as depicted in Van Dam Report Exhibit 8 at 4. It also states that the electronic document “include[s] another instance of the image that can be above or below the one shown. *Id.*



Van Dam Report Ex. 8 at 4

118. Yet, this directly contradicts the testimony of Clifton Forlines on which Dr. Van Dam relies. Dr. Forlines testified as follows:

Q. Now, in the TableCloth application, when the user scrolls up, is there a new copy of the image that was previously not on the screen?

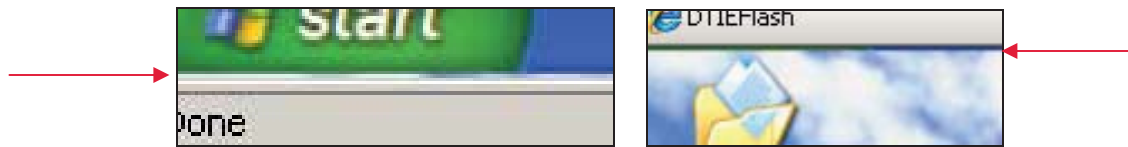
...

1 A. When the user scrolls up, a second copy of the image is
2 displayed below the original image.

3 (C. Forlines Dep. Tr. at 109:2-8.)

4 119. In other words, according to Dr. Forlines, the image of the Windows desktop
5 depicted in the figure above appears to be the electronic document in this example, with what
6 appears when a user scrolls this image up or down qualifying as a “second copy of the image,” or
7 another electronic document. The Van Dam Report even acknowledges that a “second instance
8 of the electronic [document] is visible above the first instance.” (Van Dam Report Ex. 8 at 4.) It
9 does not explain, however, how these separate documents can be considered part of the same,
10 longer document.

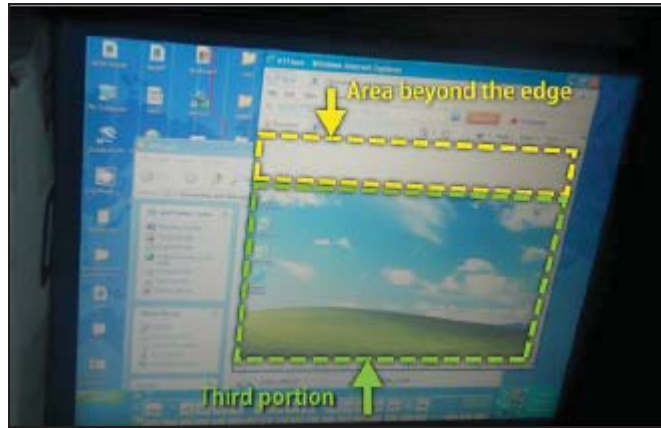
11 120. Moreover, even if one were to accept Samsung’s initial representation of what
12 qualified as the “electronic document” in this example, even this document would contain
13 portions of the electronic documents above and below the central image of the Windows desktop.
14 In the figure on the left, one can already see part of the cloud layer from the copy of the document
15 below the central image, and in the figure on the right, one can see part of the green “Start” button
16 from the copy of the document above the central image and under the grey bar with “DTIEFlash”
17 in it.



19 **Figs. 12 and 13**

20 21. Finally, I note that because of the “wrap around” nature of the desktop image, by
21 which I mean that as a portion of the image disappears from one side as the image is scrolled, an
22 equivalent amount of the identical image appears on the other side, it could be understood that
23 one full image is constantly being displayed, albeit in a rearranged fashion.

24 22. Accordingly, neither of the inconsistent theories set forth in either Samsung’s
25 Invalidity Contentions or in the Van Dam Report properly identifies an electronic document for
26 purposes of conducting an invalidity analysis.



Van Dam Report Ex. 8 at 8

127. Moreover, the image recenters after any movement by a user, making clear that any display of an “area beyond the edge” is not in response to an edge being reached, but merely because the image has been moved off center.

128. Accordingly, the Tablecloth program fails to disclose “displaying an area beyond the edge of the document” and doing so in response to an edge being reached, as required by every asserted claim of the ’381 patent, and so can not anticipate those claims or render them obvious.

h. The Tablecloth application does not disclose the additional limitations of the ’381 patent’s dependent claims

129. Because the Van Dam Report relies solely on the depiction on a “slave monitor” of what is allegedly taking place on a touch sensitive table, there is nothing I have seen that demonstrates that “the movement of the object is on the touch screen display” (claim 3), or that the “object is a finger” (claim 4).

130. In addition, the Van Dam Report does not establish that the Tablecloth program is a web page (claim 6), a word processing/spreadsheet/email/presentation document (claim 8), or a list of items (claim 9). Because the ostensible purpose of the Tablecloth program is to provide a static image that cannot be scrolled without instantly recentering, there would have been no reason to use this program in conjunction with a web page, productivity document, or a list of items, as all of those documents are designed with scrolling to additional content in mind.

1 or suggestion at the time of the invention that would have prompted a person of ordinary skill in
2 the art to combine the elements in the way the claimed invention does.

3 **F. Secondary Considerations of Non-Obviousness**

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

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

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

18 139. I also believe that there has been undisputed praise or industry acclamation for
19 Apple's user interface technology as implemented on its iPhone, iPod touch, and iPad products.⁶

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21
22 ⁶ Steve Jobs, iPhone Introduction, <http://www.youtube.com/watch?v=6uW-E496FXg>, at
23 16:16 – 16:33 (audience reaction and statement “isn't that cool, do a little rubber-banding up
when I went off the edge?”)

24 Lev Grossman, “Invention of the Year: The iPhone,” *Time*, Nov. 1, 2007,
25 http://www.time.com/time/specials/2007/article/0,28804,1677329_1678542_1677891,00.html
(APLNDC0001244544-45);

26 Engadget, “Ten Gadgets that Defined the Decade,” Dec. 30, 2009,
27 <http://www.engadget.com/2009/12/30/ten-gadgets-that-defined-the-decade/> (APLNDC-
Y0000142002-12);

28 Tom Krazit, “Apple's iPhone Wins Second J.D. Power Award,” April 30, 2009,
http://news.cnet.com/8301-13579_3-10231135-37.html (APLNDC-Y0000238314-17).

(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.

3 140. 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.⁷ This comes as little surprise given the poor track record of individuals who had
6 previously attempted to solve this problem.

7 141. For example, the Van Dam Report mentions a number of user interfaces that did
8 not resolve the "Frozen Screen" or "Desert Fog" issues described above. Indeed, Dr. Bederson,
9 one of the developers of the LaunchTile reference, even admitted in a 2011 paper that the
10 problems solved by the '381 patent still plagued user interfaces. (See B. Bederson Dep. Ex. 222
11 at 5 ("It is also clear that the essential problem of getting lost in Desert Fog has not been
12 consistently avoided. Furthermore, it is clear that there is no consistency in the mechanisms that
13 are used to navigate through space").) He went on to note that LaunchTile, in addition to a
14 number of other user interfaces, did not succeed. (See B. Bederson Dep. Ex. 222 at 3 ("it is fair to

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17 (Footnote continued from previous page.)

18 David Pogue, "The iPhone Matches Most of Its Hype," NY Times, June 27, 2007,
19 http://www.nytimes.com/2007/06/27/technology/circuits/27pogue.html?pagewanted=1&_r=1&ref=iphone (APLNDC-Y0000147846-49);

20 Korea JoongAng Daily, "Apple's iPhone Tops List of Innovative Inventions," Feb. 18,
21 2008, <http://joongangdaily.joins.com/article/view.asp?aid=2886322> (APLNDC-Y0000233346-45); and

22 Walter Mossberg & Katherine Boehret, "Testing Out the iPhone, The Wall Street Journal,
23 June 27, 2007, <http://online.wsj.com/articles/SB118289311361649057.html> (APLNDC-Y0000147593-597).

24 ⁷ Olga Kharif, "Another Music Phone? Yawn . . .", Bloomberg Businessweek, Oct. 18,
25 2006, http://www.businessweek.com/technology/content/oct2006/tc20061018_099162.htm
26 (APLNDC-Y0000238313) (noting that "Many analysts are skeptical on the appeal of an
27 iPhone"); and

28 Christopher Meinck, "Palm CEO Remains Skeptical of Apple iPhone", everythingiCafe,
Feb. 20, 2007, <http://www.everythingicafe.com/palm-ceo-remains-skeptical-of-apple-iphone/2007/02/20/> (APLNDC-Y0000238318-19) ("for businesspeople the touch-sensitive screen without a physical button 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 say that none of them have been great commercial successes (defined either monetarily or by
2 large numbers of users”).)

3 142. It is also evident, as outlined in detail in my opening expert report, the discussion
4 of which I incorporate by reference, that following Apple’s introduction of the technology of the
5 ’381 patent, Samsung quickly saw the merit and commercial value in that technology and planned
6 to and did copy it for use in its products. That evidence speaks powerfully to the non-
7 obviousness of the inventions of the ’381 patent. In short, if the inventions of this patent were as
8 obvious and trivial as Dr. Van Dam claims, it is unclear why no one had previously resolved the
9 user interface issues described above, and why a multinational company like Samsung would
10 abandon its previous user interface solutions (such as a hard stop at the edge of an electronic
11 document) and copy Apple’s functionality. Based on this information, I conclude that the
12 inventions of the ’381 patent were not trivial or obvious.

13 143. Dr. Van Dam’s opinions on obviousness are limited to general assertions that
14 “[p]ersons of ordinary skill were motivated to, and in fact did, combine the prior art elements
15 recited in the ’381 patent claims to achieve the same results described in the ’381 patent
16 specification.” (Van Dam Report at 53.) Though I disagree with Dr. Van Dam’s position, I note
17 that there is nothing specific I can respond to based on the fact that the Van Dam Report contains
18 no explanation of the aforementioned motivations to combine. As discussed above, none of the
19 prior art publications or systems identified by Dr. Van Dam anticipate the claims of the ’381
20 patent, and Dr. Van Dam’s contention that persons of ordinary skill in the art would have been
21 motivated to combine various prior art elements suffers from hindsight bias. Each of the three
22 references addressed above teaches away from the invention of the ’381 patent by implementing
23 the same traditional user interface features from which the ’381 patent departed.

24 **G. Indefiniteness**

25 144. The Van Dam Report states that “claim 19 is invalid as indefinite under 35 U.S.C.
26 § 112 ¶ 2 because the ’381 patent specification fails to identify or describe the necessary
27 corresponding structure to perform claimed functions subject to 35 U.S.C. §112 ¶ 6 such as
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1 ‘instructions for displaying a first portion of an electronic document . . .’” (Van Dam Report at
2 53.)

3 145. Claim 19 does not recite the term “means,” and I understand therefore that there is
4 a presumption that it does not invoke 35 U.S.C. §112 ¶ 6.

5 146. Though the Van Dam Report contends that there is no corresponding structure to
6 perform the claimed functions, I believe that there is sufficient disclosure of structure in the ’381
7 patent for performing the rubber banding functionality claimed in the ’381 patent and to enable a
8 person of ordinary skill in the art to implement the invention.

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

16 148. In addition, it is my opinion that a person of ordinary skill in the art would be
17 enabled to implement the inventions of the ’381 patent. The flow charts of exemplary algorithms
18 for performing the rubber banding functionality detail the process and logic necessary to
19 implement that functionality. For example, a person of ordinary skill in the art would know how
20 to “translate an electronic document displayed on the touch screen display in a first direction,”
21 and by following the logic of the algorithm in Figure 7 of the patent, would then know to check if
22 “an edge of the electronic document [was] reached,” and then to “[d]isplay an area beyond the
23 edge of the document” if this condition was satisfied. Accordingly, I disagree with Dr. Van Dam
24 that claim 19 is indefinite.

25 **V. SUPPLEMENTATION**

26 149. I reserve the right to supplement this report with new information and/or
27 documents that may be discovered or produced in this case, or to address any new claim
28 constructions offered by Samsung or ordered by the Court.

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

Dated: April 16, 2012

/s/ 
RAVIN BALAKRISHNAN