1 QUINN EMANUEL URQUHART & SULLIVAN, LLP
   Charles K. Verhoeven (Cal. Bar No. 170151)
2 charlesverhoeven@quinnemanuel.com
   50 California Street, 22nd Floor
3 San Francisco, California 94111
   Telephone: (415) 875-6600
4 Facsimile: (415) 875-6700

5 Kevin P.B. Johnson (Cal. Bar No. 177129)
   kevinjohnson@quinnemanuel.com
6 Victoria F. Maroulis (Cal. Bar No. 202603)
   victoriamaroulis@quinnemanuel.com
7 555 Twin Dolphin Drive 5th Floor
   Redwood Shores, California 94065
8 Telephone: (650) 801-5000
   Facsimile: (650) 801-5100
9
   Michael T. Zeller (Cal. Bar No. 196417)
10 michaelzeller@quinnemanuel.com
   865 S. Figueroa St., 10th Floor
11 Los Angeles, California 90017
   Telephone: (213) 443-3000
12 Facsimile: (213) 443-3100

13 Attorneys for SAMSUNG ELECTRONICS
   CO., LTD., SAMSUNG ELECTRONICS
14 AMERICA, INC. and SAMSUNG
   TELECOMMUNICATIONS AMERICA, LLC

15

16   UNITED STATES DISTRICT COURT

17   NORTHERN DISTRICT OF CALIFORNIA, SAN JOSE DIVISION

18 APPLE INC., a California corporation,   CASE NO. 11-cv-01846-LHK

19   Plaintiff,   **DECLARATION OF ANDRIES VAN
                                                  DAM, PH.D. IN SUPPORT OF
20   vs.   SAMSUNG'S MOTION FOR SUMMARY
                                                  JUDGMENT REGARDING THE
21 SAMSUNG ELECTRONICS CO., LTD., a   INVALIDITY OF U.S. PATENT NO.
   Korean business entity; SAMSUNG   7,469,381**
22 ELECTRONICS AMERICA, INC., a New
   York corporation; SAMSUNG
23 TELECOMMUNICATIONS AMERICA,
   LLC, a Delaware limited liability company,
24
                Defendants.
25

26

27

28

02198.51855/4749987 2
                                                          Case No. 11-cv-01846-LHK
   **DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR
   SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7,469,381**

I, Andries van Dam, declare:

1.   I am a tenured professor in the Computer Science department of Brown University, where I hold the position of Thomas J. Watson, Jr. University Professor of Technology and Education Chair and am also a Professor of Computer Science.   I have been retained by counsel for Samsung Electronics Co., Ltd., Samsung Electronics America, Inc. and Samsung Telecommunications America, LLC (collectively, "Samsung") as an expert in the above-captioned case.   As part of that engagement I have been asked to provide analysis and expert opinions on the invalidity of claim 19 (the "Asserted Claim") of U.S. Patent No. 7,469,381 (the "'381 patent").

2.   I submit this declaration in support of Samsung's Motion for Summary Judgment regarding the invalidity of the '381 patent.   If asked at hearings or trial, I am prepared to testify regarding the matters I discuss in this declaration.

3.   I reserve the right to supplement or amend this declaration based on any new information that is relevant to my opinions.

4.   I am being compensated for my work in this matter at the rate of $1000 per hour plus expenses. My compensation is in no way tied to the outcome of this matter.

I.   PROFESSIONAL BACKGROUND

5.   I received a B.S. in Engineering Sciences from Swarthmore College in 1960, and an M.S. and Ph.D. in Electrical Engineering from the University of Pennsylvania in 1963 and 1966 respectively.

6.   I have taught at Brown University since 1965, where I started as an Assistant Professor teaching Computer Science in the Division of Applied Mathematics.   In 1968, I became a tenured Associate Professor of Applied Mathematics, and in 1972, I was promoted to Full Professor.   In 1976, I became a Professor of Computer Science, and have taught Computer Science continuously since 1965.   I have held various positions at Brown University, including Chairman of the Computer Science Program (1976-1979), Founding Chairman of the Department of Computer Science (1979-1985), L. Herbert Ballou University Professor Chair (1992-1995),

DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381

Thomas J. Watson, Jr. University Professor of Technology and Education Chair (1995-present), and Vice President for Research (2002-2006). I have also served as a visiting professor on Sabbatical leave to teach and start research groups in Computer Graphics at University of Nijmegen in the Netherlands and University of Geneva in Switzerland.

7.   I have also served as the Director of the National Science Foundation Science & Technology Center for Computer Graphics and Scientific Visualization (the STC). The STC was physically located across 5 universities, including Brown and ran for its allotted 11 years, with its financial home at the University of Utah. In my role as director, which I filled for three years, I was logistically responsible for the operation and the research programs of the Center.

8.   While on my year's Sabbatical at the University of Geneva in 1978-79 I was also Visiting Scientific Associate at CERN, the European Nuclear Research Institute in Geneva and was invited back for many visits to consult and lecture. While at CERN as a Visiting Scientific Associate, I co-designed a special-purpose microcomputer specializing in fast event processing for handling data from physics experiments, and its microprogramming, and gave various lectures. My subsequent visits generally involved consultation on a variety of subjects relating to workstations, scientific visualization, and hypermedia.

9.   I have over forty years of experience in the fields of computer graphics, hypermedia systems, and user interfaces. In my research, I have recently worked on projects relating to pen- and touch-centric computing, educational software, and electronic book authoring and delivery systems. I have authored or co-authored 120 articles, 9 books, and 3 National Research Council Reports. I have presented over 44 invited lectures since 2000. My lectures in the past two decades have been primarily focused on the area of interaction in immersive virtual environments and scientific visualization, with a recent focus on pen- and touch-computing. I have publicly shown work on pen computing on tablet PCs and touch computing on Microsoft Surface devices, using both research-based and commercial devices. I have most recently focused on applications in digital humanities (or, as it has become known, "ehumanities"). For example, I worked on a humanities project called Large Artwork Displayed

1 on the Surface (LADS) for examining large pieces of artwork on any touch-enabled surface

2 supported by Windows 7. I also recently helped design a scholarship tool to allow users to easily

3 create selections of hyperlinked multimedia documents, entitled WorkTop.   Before we acquired

4 a Microsoft Surface, my students had built our own "touch table," a "home brew" prototype

5 touch device, for which we had created multiple applications. My group's most recent work on

6 touch computing has been sponsored by both Microsoft Research and Sharp. I have shown

7 multiple unpublished projects using touch computing at the annual Microsoft Faculty Summit.

8 My group and I have also produced the Garibaldi Panorama Application, a precursor to LADS,

9 which was shown to thousands of people as a key exhibit in a special exhibit at British Library on

10 the future of digital scholarship.

11   10.   I have worked as an expert in several legal matters as a consulting expert and an

12 expert witness.   I have written expert reports and have had my deposition taken.

13   11.   I attach as Exhibit 1 my curriculum vitae¸ which includes a more detailed list of

14 my qualifications.

15 **II.   APPLICABLE LEGAL PRINCIPLES**

16   12.   In this section I describe my understanding of certain legal standards.   I have

17 been informed of these legal standards by Samsung's attorneys.   I am not an attorney and I am

18 relying only on instructions from Samsung's attorneys for these legal standards.

19   A.   **Summary Judgment**

20   13.   I am informed that summary judgment is appropriate when there is no genuine

21 issue as to any material fact and the party moving for summary judgment is entitled to judgment

22 as a matter of law.   I am informed that the movant bears the initial burden of demonstrating that

23 no genuine issue of material fact exists.   Once the moving party demonstrates that there is no

24 genuine issue of material fact, the nonmoving party must designate specific facts showing that

25 there is a genuine issue for trial.   I am informed that there is no genuine issue of material fact if

26 the evidence is of insufficient caliber or quantity to allow a rational finder of fact to find for the

27 nonmoving party.

28

**DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR
SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381**

1   14.   I submit this declaration with the understanding that the facts I rely upon are not

2   disputed.

3   B.   **Legal Standard for Prior Art**

4   15.   I am informed that "prior art" includes public information, public knowledge, and

5   public acts that occur before an application for a patent was filed.   Prior art includes patents,

6   journals, Internet publications, systems, products and prior inventions.

7   16.   I am further informed that Section 102 of the Patent Act provides that "[a] person

8   shall be entitled to a patent unless . . . (a) the invention was known or used by others in this

9   country, or patented or described in a printed publication in this or a foreign country, before the

10   invention thereof by the applicant for patent, or . . . (b) the invention was patented or described in

11   a printed publication in this or a foreign country or in public use or on sale in this country, more

12   than one year prior to the date of the application for patent in the United States, or . . . (e) the

13   invention was described in . . . (2) a patent granted on an application for patent by another filed in

14   the United States before the invention by the applicant for patent, . . . or, (f) he did not himself

15   invent the subject matter sought to be patented, or (g) . . . (2) before such person's invention

16   thereof, the invention was made in this country by another inventor who had not abandoned,

17   suppressed, or concealed it."

18   17.   Under Section 102 of the Patent Act, claims may be invalidated for lack of

19   novelty. I have been informed by counsel that a claimed invention is invalid for anticipation or

20   lack of novelty when all of the limitations of the claim as construed by the Court are present in a

21   single prior art reference. I am informed by counsel, however, that all limitations of the claim

22   need not be shown directly so long as all limitations are necessarily present in the single prior art

23   reference and thus are inherent.

24   18.   I am informed that the evidence must be "clear and convincing" for a patent to be

25   found invalid.

26

27

28

02198.51855/4749987.2

-4-   Case No. 11-cv-01846-LHK

DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381

C. **Legal Standard for Anticipation**

19.   I am informed by counsel that, once the claims of a patent have been properly

construed, the second step in determining anticipation of a patent claim requires a comparison of

the properly construed claim language to the prior art on a limitation-by-limitation basis.

20.   I am informed by counsel that a prior art reference "anticipates" an asserted claim,

and thus renders the claim invalid, if all elements of the claim are disclosed in that prior art

reference, either explicitly or inherently (i.e., necessarily present or implied).   I am further

informed by counsel that the reference does not need to disclose the same purpose or problem to

be solved as in the patent in order to anticipate the patent, unless the purpose is one of the claim

limitations.

21.   I submit this declaration with the understanding that anticipation must be shown

by clear and convincing evidence.

22.   I am informed by counsel that a patent is anticipated if before such person'

invention thereof, the invention was made in this country by another inventor who had not

abandoned, suppressed, or concealed it.

D. **Legal Standard for Obviousness**

23.   I am informed by counsel that even if a patent is not anticipated, it is still invalid if

the differences between the claimed subject matter and the prior art are such that the subject

matter as a whole would have been obvious at the time the invention was made to a person of

ordinary skill in the pertinent art.   I further understand that a person of ordinary skill is a

hypothetical person who is presumed to be aware of all the pertinent art.   I am informed by

counsel that a person of ordinary skill in the art provides a reference point from which the prior

art and claimed invention should be viewed.   This reference point prevents one from using her

own insight or hindsight in deciding whether a claim is obvious.

24.   I have been informed that claims directed to a combination of familiar elements

according to known methods are invalid as obvious when the combination does no more than

yield predictable results.

02198.51855/4749987.2

-5-   Case No. 11-cv-01846-LHK

DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381

1   25.   I am informed by counsel that practical and common sense considerations should

2   guide a proper obviousness analysis, because familiar items may have obvious uses beyond their

3   primary purposes.   For example, I am informed by counsel that if a technique has been used to

4   improve one device, and a person of ordinary skill in the art would recognize that it would

5   improve similar devices in the same way, using the technique is obvious unless its actual

6   application is beyond her skill.

7   26.   I am informed by counsel that an obviousness evaluation can be based on a

8   combination of multiple prior art references.   I understand that prior art references themselves

9   may provide a suggestion, motivation, or reason to combine elements of multiple prior art

10   references in the way the claimed new invention does.   I further understand that the nexus

11   linking two or more prior art references or practices may be simple common sense.

12   27.   I am informed by counsel that a claim can be obvious in light of a single reference,

13   without the need to combine references, if the elements of the claim that are not found explicitly

14   or inherently in the reference can be supplied by the common sense and knowledge of one of

15   skilled in the art.

16   28.   I am informed by counsel that obviousness analysis takes into account the

17   inferences and creative steps that a person of ordinary skill in the art would employ under the

18   circumstances, because a person of ordinary skill in the art looking to overcome a problem will

19   often be able to fit the teachings of multiple publications together like pieces of a puzzle.

20   **III.   CLAIM CONSTRUCTION**

21   29.   In conducting my analysis of the '381 patent claims, I have applied the legal

22   understandings set out in this declaration.

23   30.   I understand that the Court has issued claim construction regarding the term "edge

24   of the electronic document" for the '381 patent to have its plain and ordinary meaning.   In

25   particular, the Court emphasized that the "edge of the electronic document" is not limited to an

26   external edge, but may include an internal edge.   (Order Construing Disputed Claim Terms of

27

28

02198.51855/4749987.2

-6-   Case No. 11-cv-01846-LHK

**DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR
SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381**

U.S. Patent Nos. 7,698,711; 6,493,002; 7,469,381; 7,663,607; 7,812,828; 7,844,915; and 7,853,891 (Dkt No. 849) at 23.) I adopt this construction for my analysis in this declaration.

31. I understand that the Court interpreted the claims of the '381 patent to be "fatalistic" such that 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. (Order Denying Motion for Preliminary Injunction (Dkt No. 449) at 60.) I adopt this construction for my analysis in this declaration.

32. I understand the Court has not provided a construction for "electronic document." In addition, the '381 patent does not provide an explicit definition of "electronic document," and only provides a few examples. I interpret "electronic document" according to the construction Samsung proposed in its Patent Local Rule 4-2 disclosures, namely "information that is visually represented on a screen that has a defined set of boundaries." I understand that Dr. Balakrishnan

██

██

██

██████████████████████████ (8/26/2011 Deposition of Ravin Balakrishnan at 27:19-25, attached hereto as Exhibit 2.)

33. I understand that the Court has not issued claim construction regarding other disputed terms of the '381 patent. In this declaration, I have attempted to apply the claim constructions that would be used by one of ordinary skill in the art.

IV. OVERVIEW OF THE '381 PATENT AND THE ASSERTED CLAIMS

A. The '381 Patent Generally

34. The '381 patent, titled "List Scrolling and Document Translation, Scaling, and Rotation on a Touch-Screen Display," was filed on December 14, 2007 and issued on December 23, 2008. It claims priority to a number of provisional applications, the earliest of which was filed on January 7, 2007. The patent has one named inventor, Bas Ording.

DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381

1   35.   I understand that Apple is currently asserting that Samsung's devices infringe

2   claim 19 of the '381 patent in the above-captioned case.   Claim 19 is an independent claim.

3   36.   The '381 patent generally relates to correcting the display of an electronic

4   document when a user has translated or scrolled past the edge of the document, i.e. "overscroll

5   correction."

6   37.   Independent claim 19 of the '381 patent discloses translating an electronic

7   document displayed on a touch screen display in response to detecting movement of an object on

8   or near the touch screen.   The '381 patent claims a snap-back functionality where, if the user

9   translates an electronic document beyond the edge of that document, an area beyond that edge

10   will be displayed.   When the user lifts her finger from the touch screen, the document will snap

11   back, such that no area beyond the edge of the document remains in view.   As an analysis of the

12   Tablecloth/DTFlash application below will demonstrate, prior to 2007, others had developed the

13   functionality claimed by the '381 patent.

14   38.   Figure 7 of the '381 patent, reproduced below, describes an abstract, high-level

15   flow chart of the purported invention of the '381 patent ('381 patent at Fig. 7 and accompanying

16   text at col. 26:63-27:55).   The steps which are enclosed by dotted outlines (with the exception of

17   the decision diamond 710) correspond to dependent limitations that are not currently asserted by

18   Apple.   (Box 722, which is missing the top edge, is also a dependent limitation not currently

19   asserted by Apple.)   The remaining steps provide a high-level flow chart of asserted claim 19.

20

21

22

23

24

25

26

27

DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381

700

702
Detect a movement of an object (e.g., a finger) on or near a touch screen display.

704
Translate an electronic document displayed on the touch screen display in a first direction (e.g., vertical, horizontal, or diagonal).

706
Translate the electronic document at a speed of translation corresponding to a speed of movement of the object.

708
Translate the electronic document in accordance with a simulation of an equation of motion having friction.

710
Is an edge of the electronic document reached while translating the electronic document in the first direction while the object is still detected on or near the touch screen display?

No → 712
Process Complete

Yes

714
Display an area beyond the edge of the document.

716
Display the area in black, gray, a solid color, or white.

718
Display the area as visually distinct from the document.

720
After the object is no longer detected on or near the touch screen display, translate the document in a second direction (e.g., opposite the first direction) until the area beyond the edge of the document is no longer displayed.

722
Translate the document using a damped motion.

724
Make the edge of the electronic document appear to be elastically attached to an edge of the touch screen display or to an edge displayed on the touch screen display.

Figure 7

DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
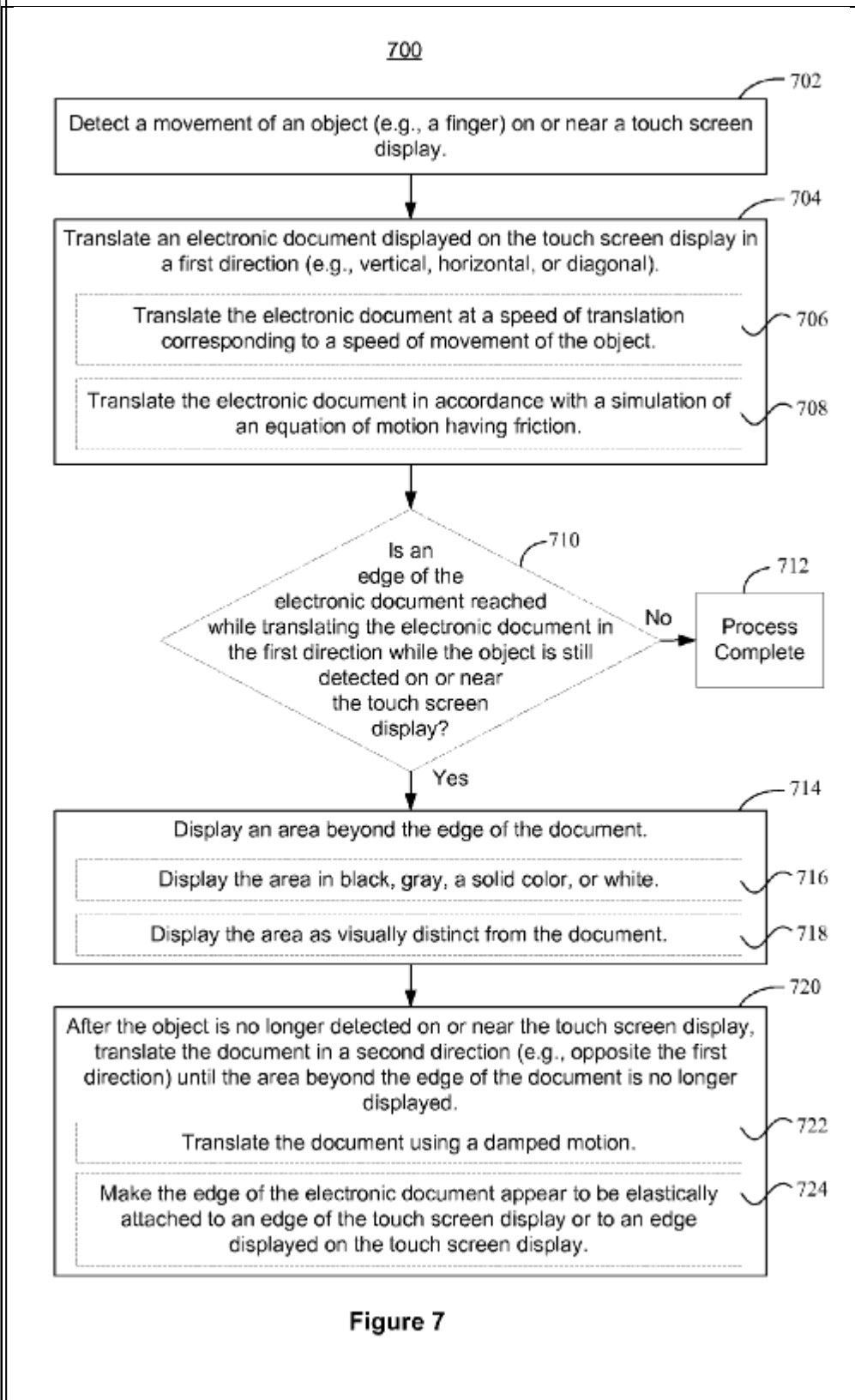
1   39.   Figures 8A through 8D, reproduced below, are pictorial representations of the

2 results of translating an electronic document that is a web page to the edge of the document.

3 ('381 patent at col. 28:34-57.)   Once the edge of the electronic document has been reached, an

4 area beyond the edge is displayed, as shown in Figure 8C.   Once the object is no longer detected

5 near the touchscreen, the electronic document is translated in a second direction until the area

6 beyond the terminus of the list is no longer displayed, as shown in Figure 8D. ('381 patent at col.

7 25:19-22.)

8   40.   Figures 8A through 8D from the '381 patent are reproduced below:

Figure 8A

Figure 8B

02198.51855/4749987.2   Case No. 11-cv-01846-LHK

DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381
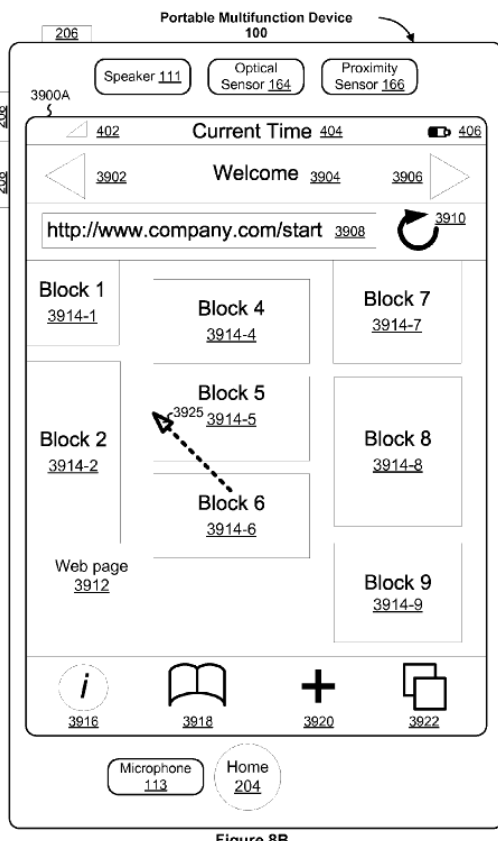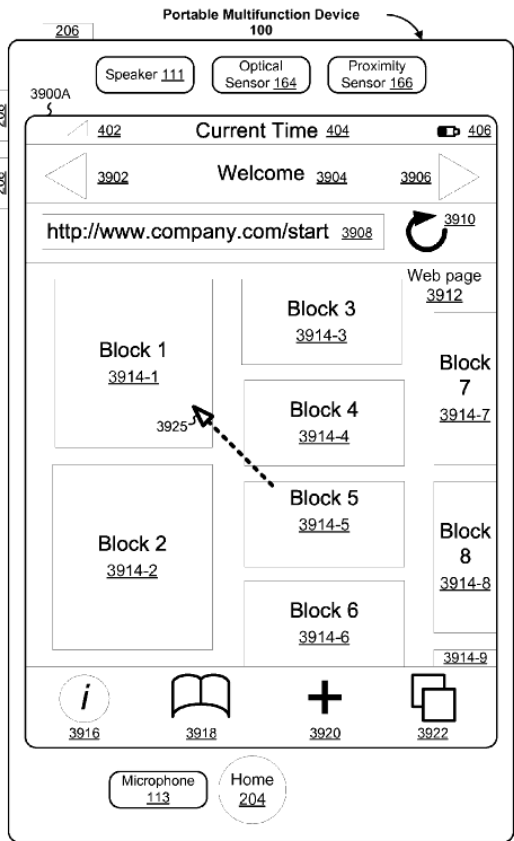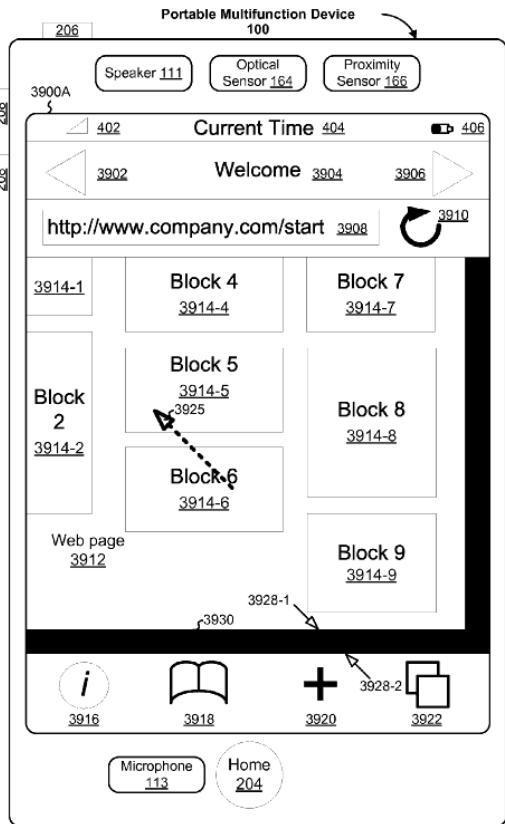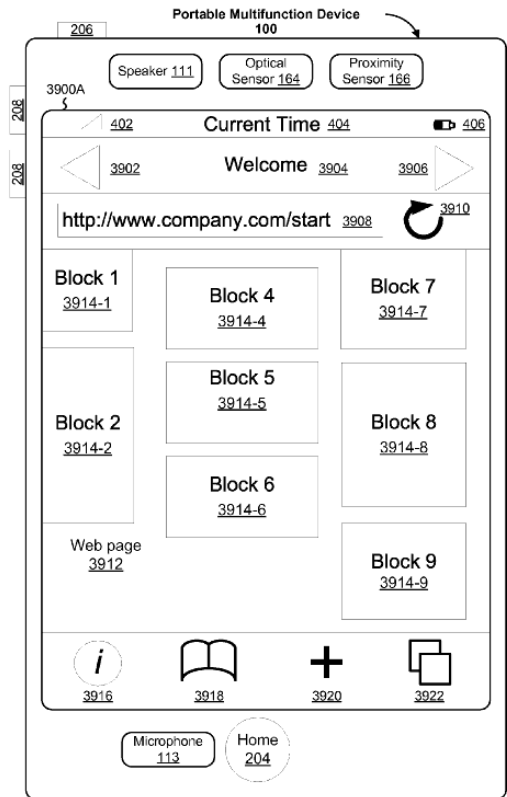
Figure 8C

Figure 8D

('381 patent at Figs. 8A to 8D.)

41. For ease of explanation, I note that the elements of the asserted claims are (1) an electronic document, (2) an area beyond the edge of the electronic document, and (3) the snap-back translation from displaying an area beyond the edge until the area beyond the edge is no longer displayed.

B. **Priority Date**

42. I am informed by counsel that the "critical date" for a patent is one year prior to its filing date. I am informed that the critical date is significant because patents, systems, or documents that are public prior to the critical date, if they disclose each and every limitation of the claims, will invalidate a patent regardless of whether the inventors invented the claim prior to the filing date of the patent.

43.   The '381 patent was filed in the United States on December 14, 2007.   It is my understanding that the "critical date" for the '381 patent based on this filing date is December 14, 2006, one year before the filing date of the patent.

44.   I am informed by counsel that the parties dispute whether the '381 patent can claim an earlier priority date based upon provisional applications Nos. 60/883,801 and 60/879,253, filed on January 7, 2007.   It is my understanding that the "critical date" for the '381 patent based on these provisional applications is January 7, 2006, one year before the filing date of these provisional applications.

V.   TABLECLOTH/DTFLASH APPLICATION OVERVIEW

A.   The MERL DiamondTouch System with Tablecloth/DTFlash

45.   In 2001, Mitsubishi Electronics Research Laboratories (MERL) developed a capacitive multi-touch touchscreen, called the "DiamondTouch table."

46.   The setup for producing the screenshots and videos found in my declaration is shown below and further discussed in paragraphs 110 and 111 of this report.

1

2
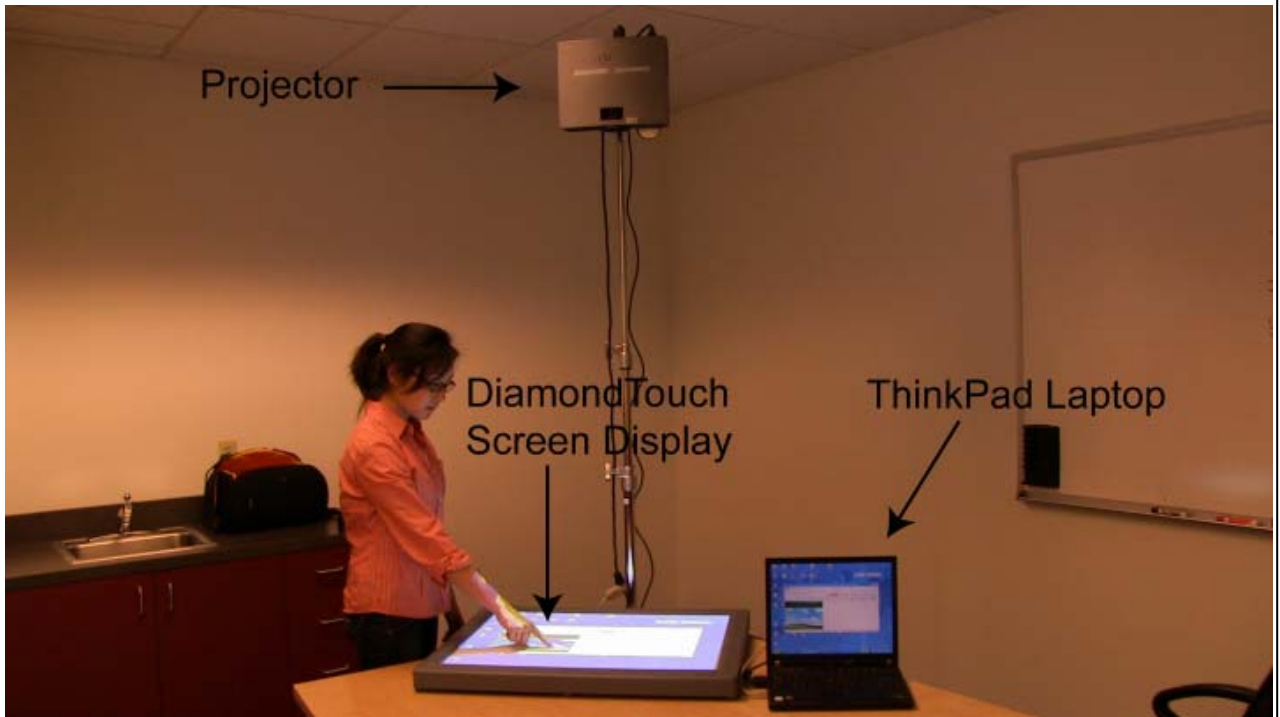
3

4

5

6

7

8

9

10

11

12

13   47.   MERL employees developed many applications for the DiamondTouch system

14 which were publicly demonstrated in trade shows and shown to customers and executives.

15 (Bogue Decl. ¶5.)

16   48.   Tablecloth was a simple demo application ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ (Forlines

17 Decl. ¶6) meant to showcase DTFlash, a software toolkit that allowed programmers to write

18 DiamondTouch-aware Macromedia/Adobe Flash applications.   Tablecloth implemented a

19 feature that allows the user to use a finger to scroll an image inside a window.   When scrolling,

20 the user may overscroll the image, lift his finger, and cause the image to snap back so that the

21 edges of the image align with the edges of the window's content area.

22   49.   Two published papers disclose DTFlash: Alan Esenther and Kent Wittenburg,

23 "Multi-User Multi-Touch Games on DiamondTouch with the DTFlash Toolkit," Mitsubishi

24 Electric Research Laboratories, TR 2005-105, Dec. 2005, and Alan Esenther, Cliff Forlines,

25 Kathy Ryall, Sam Shipman, "DiamondTouch SDK: Support for Multi-User, Multi-Touch

26 Applications," Mitsubishi Electric Research Laboratories, TR 2002-48, Nov. 2002 ("MERL TR

27 2002-48").   These papers are attached as Exhibits 1 and 2 to the Declaration of Adam Bogue.

28

**DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR
SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381**

1   50.   I understand that the DiamondTouch system was publicly available running

2   Tablecloth by at least by January 6, 2006, before the earliest possible critical date of the '381

3   patent, and is therefore prior art to the '381 patent.   I base this understanding in part on the

4   declaration of and phone conversations with Adam Bogue, the Vice President of Business

5   Development at MERL who demonstrated Tablecloth/DTFlash to potential customers.   Bogue

6   Decl. at ¶¶5, 9, and 12.

7   **VI.   INVALIDITY OF THE '381 PATENT DUE TO ANTICIPATION BY TABLECLOTH/DTFLASH**

8   A.   **Summary of Opinions**

9   51.   I have compared the Tablecloth/DTFlash application with claim 19 of the '381

10   patent.   I have reviewed the DiamondTouch system and the declarations and depositions of

11   Adam Bogue and Clifton Forlines in forming my opinion.

12   52.   In my opinion, Tablecloth/DTFlash discloses each and every limitation of claim

13   19.   In addition, in the event that Tablecloth/DTFlash does not disclose each and every

14   limitation of claim 19, in my opinion the claims would be obvious in light of the

15   Tablecloth/DTFlash system.

16   53.   In my opinion, the Tablecloth/DTFlash system discloses to one of ordinary skill in

17   the art how to practice or carry out the claims in sufficient detail, without requiring undue

18   experimentation.   One of ordinary skill viewing the Tablecloth/DTFlash system in operation

19   would understand how to practice or carry out the claims of the '381 patent.

20   54.   In any event I am informed that a public use need not enable the claims.

21   55.   Exhibits 3 and 4 are claim charts that provide an element-by-element analysis of

22   the Tablecloth/DTFlash system.   As explained in greater detail in these exhibits, I offer two

23   examples of "electronic documents" that are found in Tablecloth/DTFlash.   I have also guided

24   and approved the preparation of videos attached as Exhibits 4 and 5 to the Declaration of Adam

25   Bogue.   These videos show the operation of Tablecloth/DTFlash and illustrate the invalidity

26   analysis under these two examples.   These exhibits are incorporated by reference into this

27   declaration.

28

1   56.   Below I also compare the limitations found in the '381 patent to the

2   Tablecloth/DTFlash system.

3   B.   **<u>Representative Example #1</u>** (electronic document consists of primary image plus
                 secondary image)

4

5   57.   As I understand from Clifton Forlines, one of the MERL software engineers who

6   wrote code for the DiamondTouch, ███

███. (Forlines

7   Decl. at ¶8.)   The purpose of the secondary image is to fill the window's content area vacated by

8   the primary image as it is scrolled from the "home position" where it fills the entirety of the

9   application window's content area.   Thus, when the user scrolls (i.e. "translates") the primary

10 image upward, a strip of the secondary image is visible below the first instance to fill in the

11 vacated space.   Similarly, when the user scrolls the primary image downward, a strip of the

12 same secondary image is visible above the primary image to fill in the vacated space.   The

13 *appearance* is thus of three identical images connected horizontal edge-to-edge, although there

14 are only two images in memory.

15   58.   Exhibit 3 to my report identifies in detail how each limitation of the '381 patent is

16 met by Tablecloth/DTFlash.   To place this chart in perspective, below are images showing the

17 key elements of the snap-back behavior in the case where the electronic document is the

18 combination of the primary and secondary image.   The first screenshot shows the application

19 window with its light gray border ("chrome") on the larger DiamondTouch table (blue

20 background on the bottom of each screenshot).   The First Portion shows the primary image

21 (marked P) that has been scrolled down to show a strip (the green grass) of the secondary image,

22 (marked S) above the top edge of the primary image.   The second screen shot shows the finger

23 scrolling the primary image (P) upwards (the first direction) so it scrolls off the top and the

24 secondary image (S) fills in the bottom.   In the third screenshot the user continues to scroll the

25 electronic document upward in the first direction, past an area beyond the bottom edge of the

26

27

28
02198.51855/4749987.2   -15-   Case No. 11-cv-01846-LHK
**DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR
SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7,469,381**

electronic document, and the white area[1] is the area beyond the edge.   In the fourth screenshot, the user then lifts her finger, causing the document to snap back.   This action meets the key limitations of the '381 patent which broadly require: (1) a first portion of the electronic document; (2) a second portion in response to moving an object on the screen, (e.g. finger scrolling upward); (3) a third portion and an area beyond the edge of the electronic document in response to the edge being reached; and (4) a fourth portion with the area beyond the edge of the document no longer displayed:
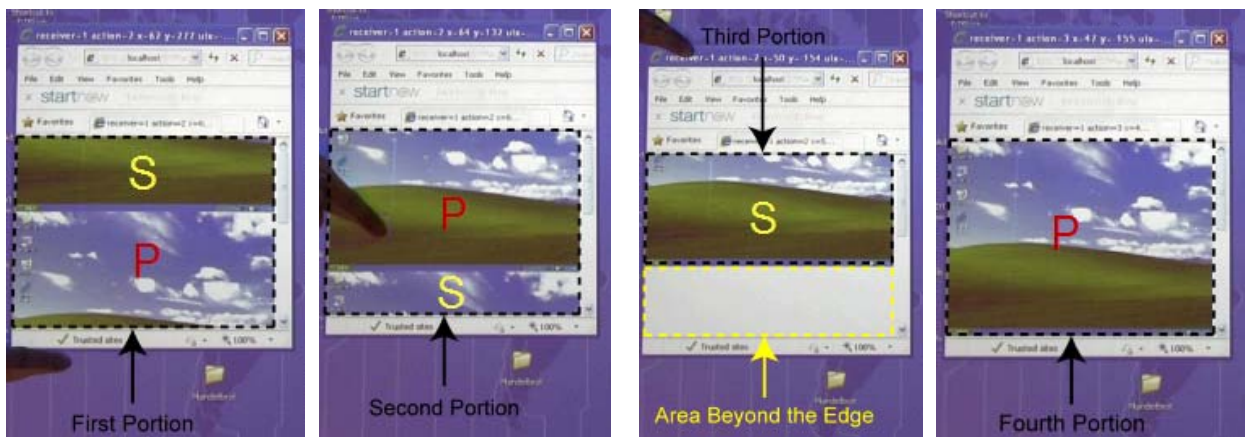
59.   In this section, I analyze the electronic document as the combination of the primary image and the secondary image.

(a)   *Preamble*

60.   The preamble states "A device, comprising."

61.   To the extent the preamble is a limitation, the Tablecloth/DTFlash application runs on a device, the DiamondTouch system.

(b)   *Element 1*

62.   Element 1 of claim 19 recites "a touch screen display."

63.   The DiamondTouch table is a touch-screen display.   The DiamondTouch system is designed so that a display is generated on the DiamondTouch table using a projector.   The

---

[1] Although the screen images captured in this document make the area beyond the edge appear gray, it is actually white when viewed on the DiamondTouch table.

DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381

1 DiamondTouch table is touch-sensitive, such that touches and gestures on the table have a

2 corresponding effect on the display.

3   64.   In his Rebuttal Report, Dr. Balakrishnan argued that a touch-sensitive table with

4 an image displayed using a projector could not be a touch screen display.   (Balakrishnan

5 Rebuttal Report at ¶¶115-122.)   However, he offered no explanation for this assertion.   Dr.

6 Balakrishnan offered no basis for construing the term "touch screen display" more narrowly to

7 exclude a projector-based display, let alone providing a criterion for what is and what isn't a

8 touch screen display in his opinion.

9   65.   To the extent that this element is not anticipated by the Tablecloth/DTFlash

10 system, it would have been obvious to combine the Tablecloth/DTFlash system with an

11 integrated digitizer/display device such as an LCD or LED touchscreen.   A person of ordinary

12 skill in the art would have understood that the display on the table could be generated by a variety

13 of different methods other than a projector, such as by using an LCD display.

14   (c)   *Element 2*

15   66.   Element 2 of claim 19 recites "one or more processors."

16   67.   The DiamondTouch table includes a processor in order to execute the source code

17 for Tablecloth/DTFlash.   The source code for Tablecloth/DTFlash could not be executed

18 otherwise.

19   (d)   *Element 3*

20   68.   Element 3 of claim 19 recites "memory."

21   69.   The DiamondTouch system includes the computer's memory.   The source code

22 for Tablecloth/DTFlash could not be stored otherwise.

23   (e)   *Element 4*

24   70.   Element 4 of claim 19 recites "one or more programs, wherein the one or more

25 programs are stored in the memory and configured to be executed by the one or more processors,

26 the programs including."

27

28

71.   The DiamondTouch system includes programs for Tablecloth/DTFlash stored in the memory and configured to be executed by one or more processors.   Tablecloth/DTFlash could not function otherwise.   I have confirmed with Clifton Forlines that there are programs for Tablecloth/DTFlash stored in the memory and configured to be executed by one or more processors.

(f)   *Element 5*

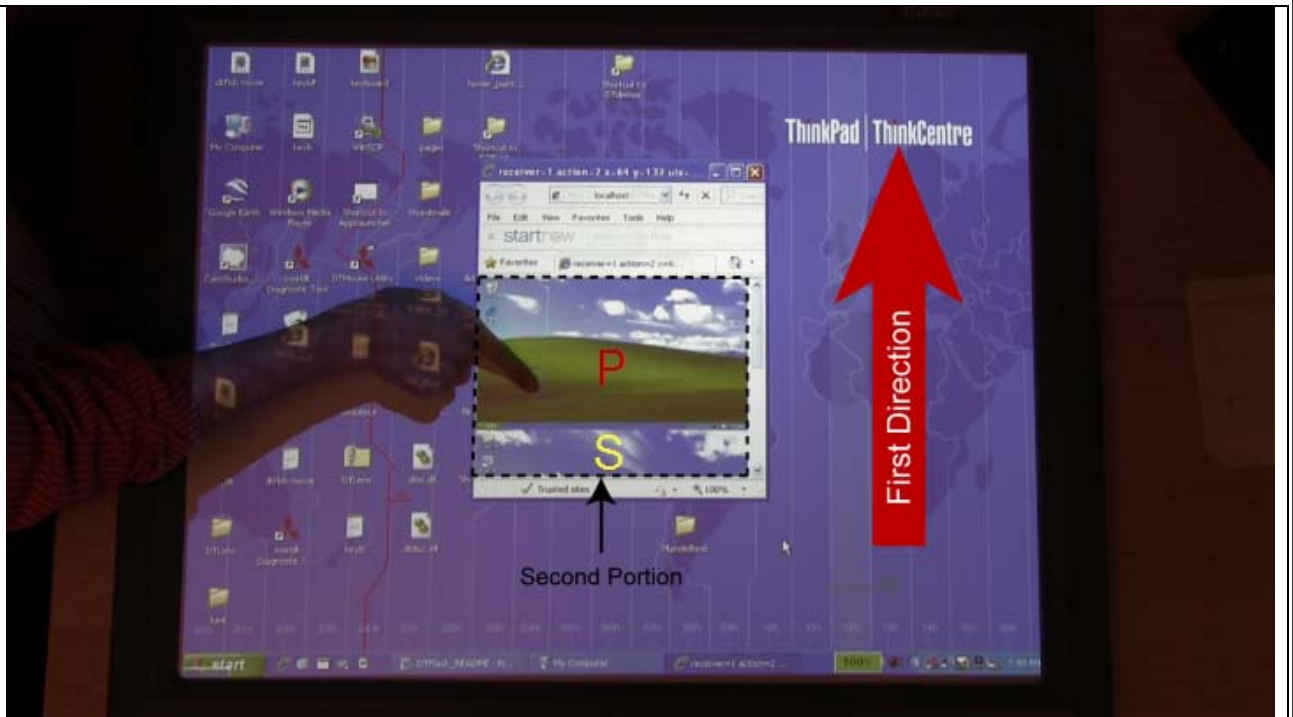72.   Element 5 of claim 19 recites "instructions for displaying a first portion of an electronic document."

73.   In this example, the electronic document consists of a primary image and a secondary image which can appear above or below the primary image.   Under this example, a portion of the electronic document, in this case the primary image, is shown in the screenshot above, outlined in black.

02198.51855/4749987.2

Case No. 11-cv-01846-LHK

First Portion

74.   Translating the electronic document downward causes a first portion of the electronic document to be displayed.   The first portion is depicted in the picture above, outlined in black.   It shows the top portion of the primary image (P) and the bottom portion of the secondary image (S) on top of that.

(g)   *Element 6*

75.   Element 6 of claim 19 recites "instructions for detecting a movement of an object on or near the touch screen display; instructions for translating the electronic document displayed on the touch screen display in a first direction to display a second portion of the electronic document, wherein the second portion is different from the first portion, in response to detecting the movement."

02198.51855/4749987.2

Case No. 11-cv-01846-LHK

DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381

76.   DiamondTouch will detect movement of a finger on the touch screen and translate the electronic document in the direction of the movement of the finger.   Starting at the first portion referenced above, obtained by having previously scrolled the electronic document downward, continuing from this position, if the user moves his finger upward, the electronic document will move upward.   A second portion of the electronic document is then displayed. This second portion of the document is different from the first portion of the document.   This is depicted in the figure above, which shows that the primary image (P) was translated significantly in the first, upward direction, and the secondary image (S) now occupies the bottom portion of the display.

(h)   *Element 7*

77.   Element 7 of claim 19 recites "instructions for displaying an area beyond an edge of the electronic document and displaying a third portion of the electronic document, wherein the third portion is smaller than the first portion, in response to the edge of the electronic document

1 being reached while translating the electronic document in the first direction while the object is

2 still detected on or near the touch screen display."

3   78.   The DiamondTouch table running Tablecloth/DTFlash discloses that in response

4 to an edge of the electronic document being reached while translating the electronic document in

5 the first direction while the object (e.g., finger) is still detected on or near the touch screen,

6 displaying an area beyond the edge of the document (white space), and displaying a third portion

7 of the electronic document, wherein the third portion is smaller than the first portion.

8

19   79.   As the user reaches the bottom edge of the electronic document (the bottom edge

20 of the secondary image) while scrolling upward in the example discussed above, an area beyond

21 the bottom edge of the electronic document is displayed.   The area beyond the edge is below the

22 electronic document and appears white.   A third portion of the electronic document is displayed

23 that is smaller than the first portion of the electronic document because the electronic document

24 occupies only a portion of the display.   The third portion (outlined in black) and the area beyond

25 the edge (outlined in yellow) of the electronic document are displayed in the picture above.

26   (i)   *Element 8*

1   80.   Element 8 of claim 19 recites "instructions for translating the electronic document

2   in a second direction until the area beyond the edge of the electronic document is no longer

3   displayed to display a fourth portion of the electronic document, wherein the fourth portion is

4   different from the first portion, in response to detecting that the object is no longer on or near the
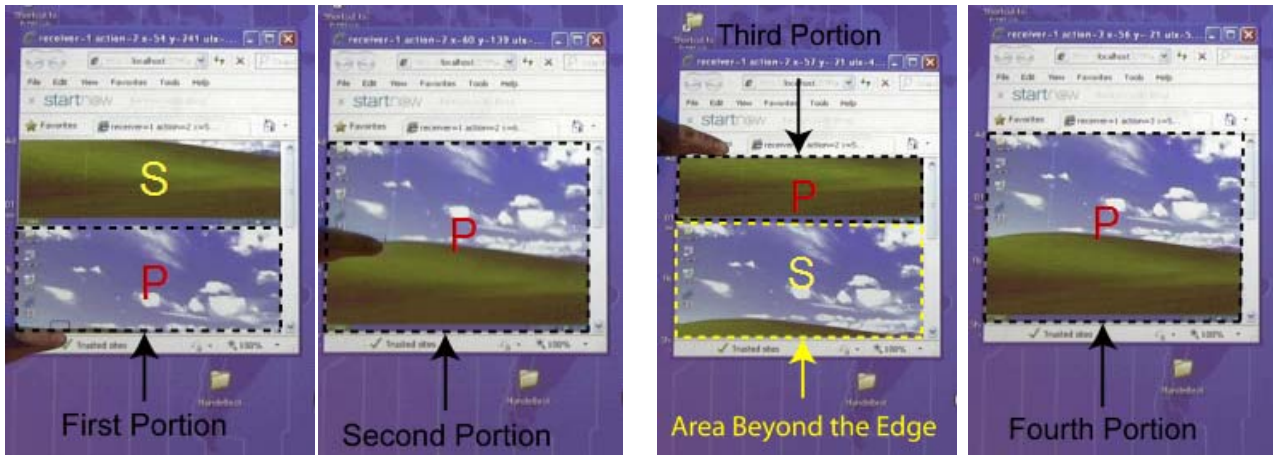
5   touch screen display."

6   81.   The DiamondTouch system running Tablecloth/DTFlash discloses that if the user

7   lifts his finger after having translated the electronic document beyond the edge, the interface will

8   automatically snap back "elastically" to realign the electronic document with the window's

9   content area.   As a result, the area beyond the edge of the electronic document is no longer

10 displayed.   This snap-back feature is fatalistic such that if a user scrolls past the edge of the

11 electronic document, the screen will always snap back when the user lifts her finger.   This snap-

12 back feature will cause the electronic document to be translated in a second direction, which will

13 be opposite to the first direction, until the original primary image is displayed.   The area beyond

14 the edge of the electronic document can no longer be seen.   As a result, a fourth portion of the

15 document is displayed.   The fourth portion is different from the first portion.

16
17
18
19
20
21
22
23
24
25
26
27
28

02198.51855/4749987.2

Case No. 11-cv-01846-LHK

DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381

1   82.   As shown in this example above and described in further detail in the claim chart

2 attached as Exhibit 3, each element of claim 19 is found in the Tablecloth/DTFlash reference.

3 Tablecloth/DTFlash discloses an electronic document – the combination of primary image and

4 secondary image.   It also discloses an area beyond the electronic document – the white space.

5 Finally, Tablecloth/DTFlash discloses the snap-back translation such that the area beyond the

6 edge is no longer displayed.

7   C.   **Representative Example #2** (electronic document consists of primary image)

8   83.   Exhibit 4 to my report identifies in detail how each limitation of the '381 patent is

9 met by Tablecloth/DTFlash.   To place this chart in perspective, below are images showing the

10 key elements of the snap-back behavior in the case where the electronic document is the primary

11 image.   The first screenshot shows the application window with its light gray border (chrome)

12 on the larger table (blue background on the bottom of each screenshot).   The first screenshot

13 shows the primary image (marked P) that has been scrolled down to show a strip (the green grass)

14 of the secondary image (marked S) above the top edge of the primary image.   The second

15 screenshot shows the finger scrolling the primary image (P) upwards (the first direction) so it

16 scrolls off the top.   In the third screenshot the user continues to scroll the electronic document

17 upward in the first direction, past an area beyond the bottom edge of the electronic document and

18 a strip from secondary image (S) forms the area beyond the edge.   In the fourth screenshot, the

19 user then lifts her finger, causing the document to snap back.   This action meets the key

20 limitations of the '381 patent which broadly require: (1) a first portion of the electronic document;

21 (2) a second portion in response to moving an object near the screen, (e.g. finger scrolling

22 upward); (3) a third portion and an area beyond the edge of the electronic document in response

23 to the edge being reached; and (4) a fourth portion with the area beyond the edge of the document

24 no longer displayed.

25

26

27

28

**DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR
SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381**

First Portion   Second Portion   Area Beyond the Edge   Fourth Portion

Third Portion

84. In this section, I analyze the electronic document as the primary image.

(j) *Preamble*

85. The preamble states "A device, comprising."

86. To the extent the preamble is a limitation, the Tablecloth/DTFlash application runs on a device, the DiamondTouch system.

(k) *Element 1*

87. Element 1 of claim 19 recites "a touch screen display."

88. The DiamondTouch table is a touch-screen display. The DiamondTouch system is designed so that a display is generated on the DiamondTouch table using a projector. The DiamondTouch table is touch-sensitive, such that touches and gestures on the table have a corresponding effect on the display.

89. In his Rebuttal Report, Dr. Balakrishnan argued that a touch-sensitive table with an image displayed using a projector could not be a touch screen display. (Balakrishnan Rebuttal Report at ¶¶115-122.) However, he offered no explanation for this assertion. Dr. Balakrishnan offered no basis for construing the term "touch screen display" more narrowly to exclude a projector-based display, let alone providing a criterion for what is and what isn't a touch screen display in his opinion.

90. To the extent that this element is not anticipated by the Tablecloth/DTFlash system, it would have been obvious to combine the Tablecloth/DTFlash system with a display

DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381

1   device.   A person of ordinary skill in the art would have understood that the display on the table

2   could be generated by a variety of different methods other than a projector, such as by using an

3   LCD display.

4   (l)   *Element 2*

5   91.   Element 2 of claim 19 recites "one or more processors."

6   92.   The DiamondTouch system includes a processor in order to execute the source

7   code for Tablecloth/DTFlash.   The source code for Tablecloth/DTFlash could not be executed

8   otherwise.

9   (m)   *Element 3*

10   93.   Element 3 of claim 19 recites "memory."

11   94.   The DiamondTouch table includes the computer's memory.   The source code for

12   Tablecloth/DTFlash could not be stored otherwise.

13   (n)   *Element 4*

14   95.   Element 4 of claim 19 recites "one or more programs, wherein the one or more

15   programs are stored in the memory and configured to be executed by the one or more processors,

16   the programs including."

17   96.   The DiamondTouch system includes programs for Tablecloth/DTFlash stored in

18   the memory and configured to be executed by one or more processors.   Tablecloth/DTFlash

19   could not function otherwise.   I have confirmed with Clifton Forlines that there are programs for

20   Tablecloth/DTFlash stored in the memory and configured to be executed by one or more

21   processors.

22   (o)   *Element 5*

23   97.   Element 5 of claim 19 recites "instructions for displaying a first portion of an

24   electronic document."

25

26

27

28

**DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR
SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381**
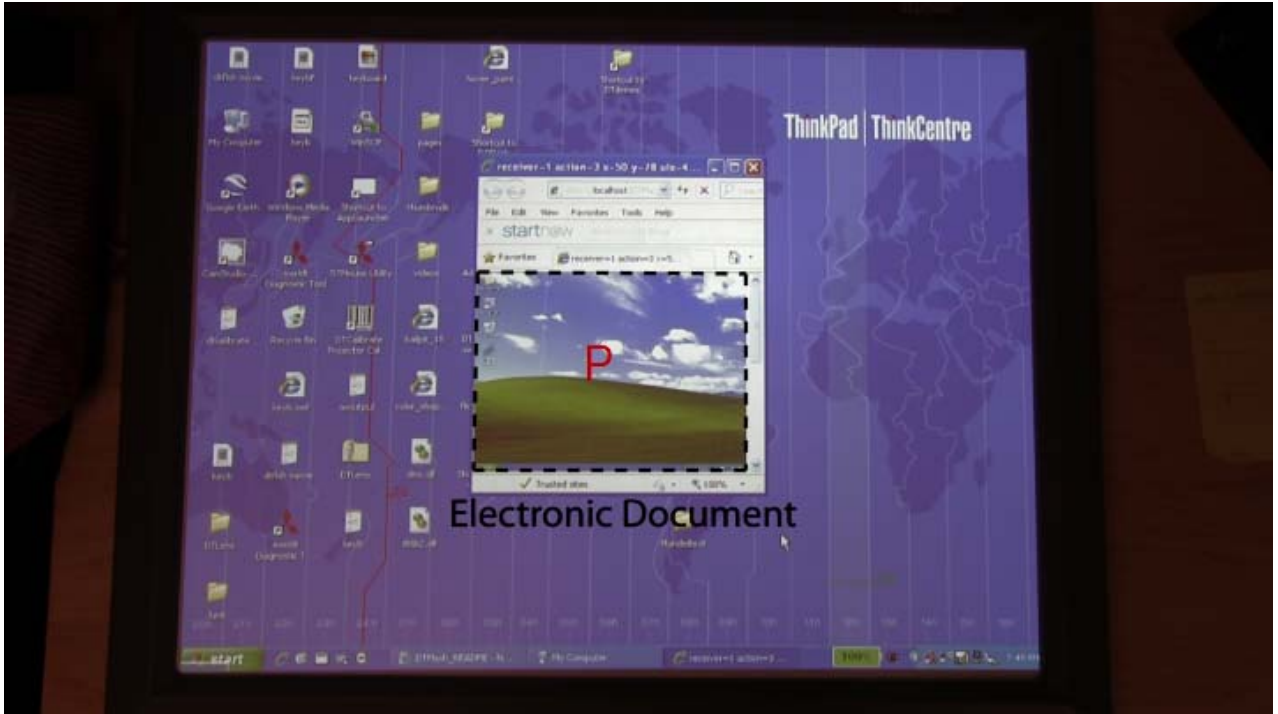
98.   In this example, the electronic document consists of a primary image.   Under this example, the electronic document is shown in the screen capture above, outlined in black.   Thus, the secondary image is a separate electronic document.

02198.51855/4749987.2

Case No. 11-cv-01846-LHK

DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7,469,381

1   99.   Translating the electronic document downward causes a first portion of the

2 electronic document to be displayed.   The first portion is depicted in the picture above, outlined

3 in black.   A portion of the secondary image (a separate electronic document) is depicted above

4 the first portion.

5   (p)   *Element 6*

6   100.   Element 6 of claim 19 recites "instructions for detecting a movement of an object

7 on or near the touch screen display; instructions for translating the electronic document displayed

8 on the touch screen display in a first direction to display a second portion of the electronic

9 document, wherein the second portion is different from the first portion, in response to detecting

10 the movement."
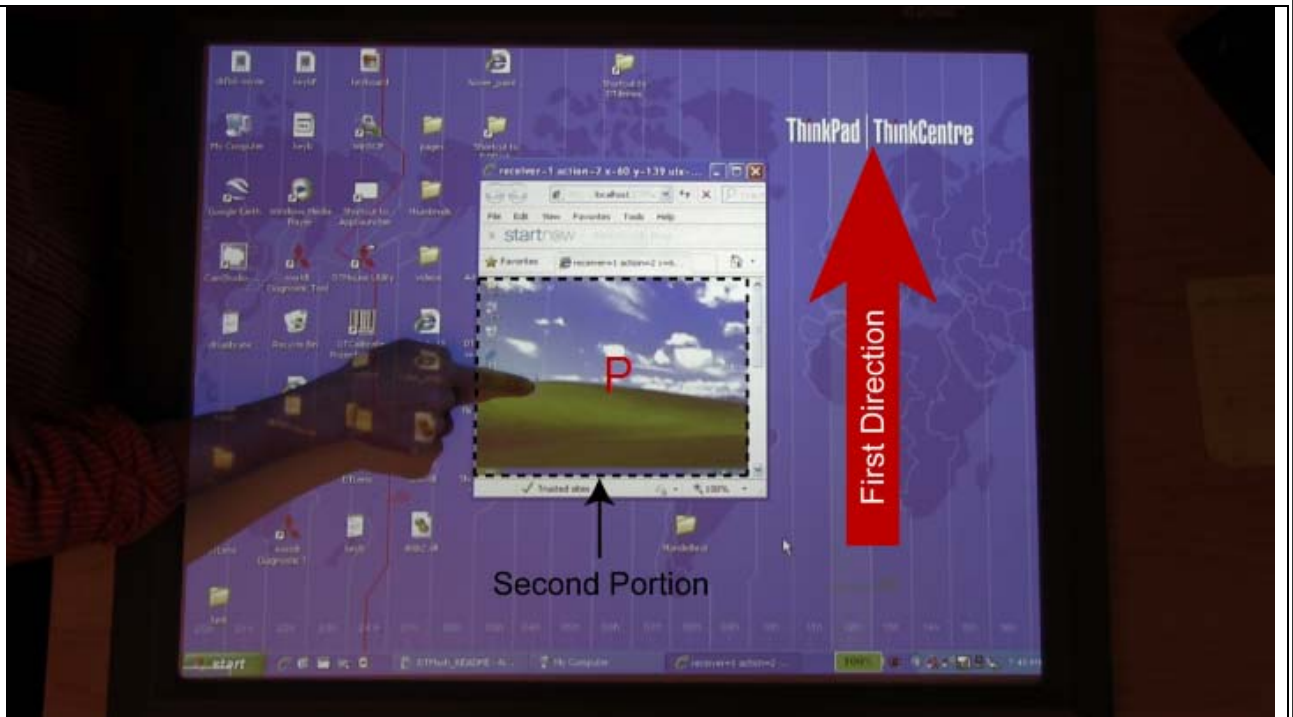
23   101.   DiamondTouch will detect movement of a finger on the touch screen and translate

24 the electronic document in the direction of the movement of the finger.   Starting at the first

25 portion referenced above, obtained by having previously scrolled the electronic document

26 downward, continuing from this position, if the user moves his finger upward, the electronic

27 document will move upward.   A second portion of the electronic document is then displayed.

**DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR
SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7,469,381**

1 This second portion of the document is different from the first portion of the document.   This is

2 depicted in the figure above, which shows that the primary image (P) was translated significantly

3 in the first, upward direction, and the secondary image is no longer visible.

4   (q)   *Element 7*

5   102.   Element 7 of claim 19 recites "instructions for displaying an area beyond an edge

6 of the electronic document and displaying a third portion of the electronic document, wherein the

7 third portion is smaller than the first portion, in response to the edge of the electronic document

8 being reached while translating the electronic document in the first direction while the object is

9 still detected on or near the touch screen display."

10   103.   The DiamondTouch table running Tablecloth/DTFlash discloses that in response

11 to an edge of the electronic document being reached while translating the electronic document in

12 the first direction while the object (e.g. finger) is still detected on or near the touch screen,

13 displaying an area beyond the edge of the document (white space), and displaying a third portion

14 of the electronic document, wherein the third portion is smaller than the first portion.
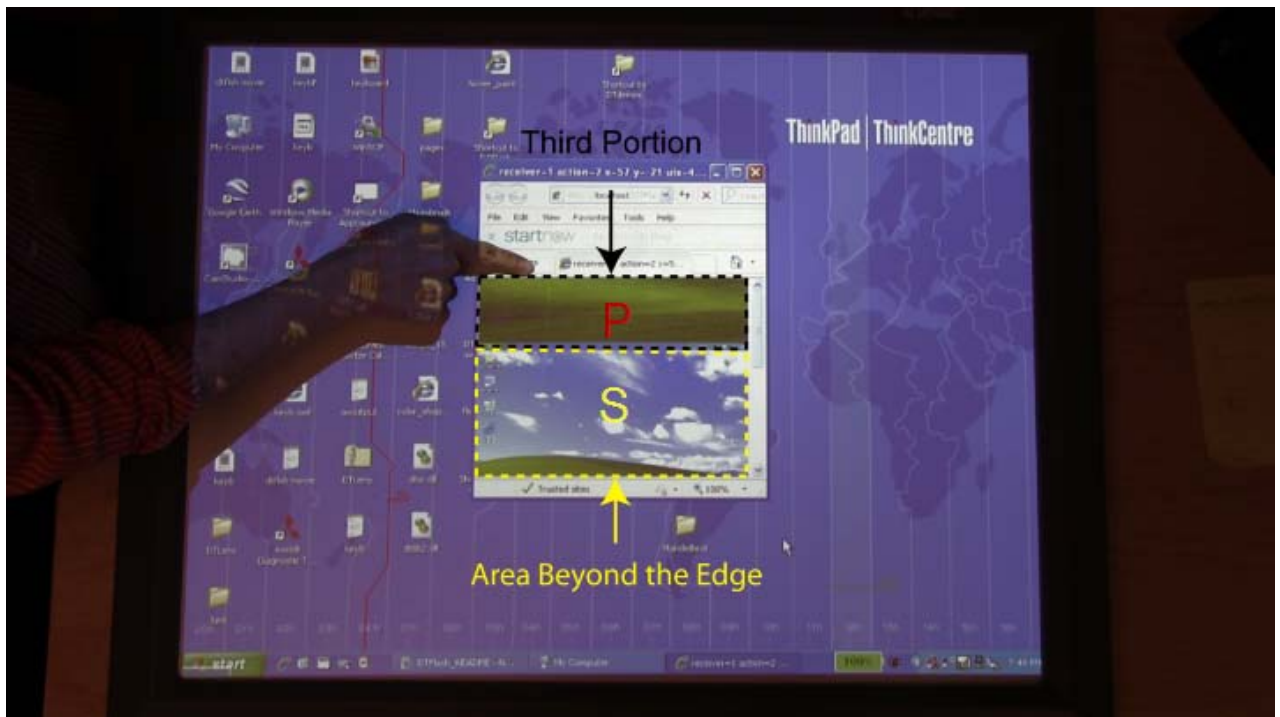

104.   As the user reaches the bottom edge of the electronic document (the bottom edge

of the primary image) while scrolling upward in the example discussed above, an area beyond the

bottom edge of the electronic document is displayed. That area consists of a top portion of the

secondary image, which is not part of the electronic document.   A third portion of the electronic

document is displayed that is smaller than the first portion of the electronic document because the

electronic document occupies only a portion of the display.   The third portion (outlined in black)

and the area beyond the edge (outlined in yellow) of the electronic document are displayed in the

picture above.

(r)   *Element 8*

105.   Element 8 of claim 19 recites "instructions for translating the electronic document

in a second direction until the area beyond the edge of the electronic document is no longer

displayed to display a fourth portion of the electronic document, wherein the fourth portion is

different from the first portion, in response to detecting that the object is no longer on or near the

touch screen display."
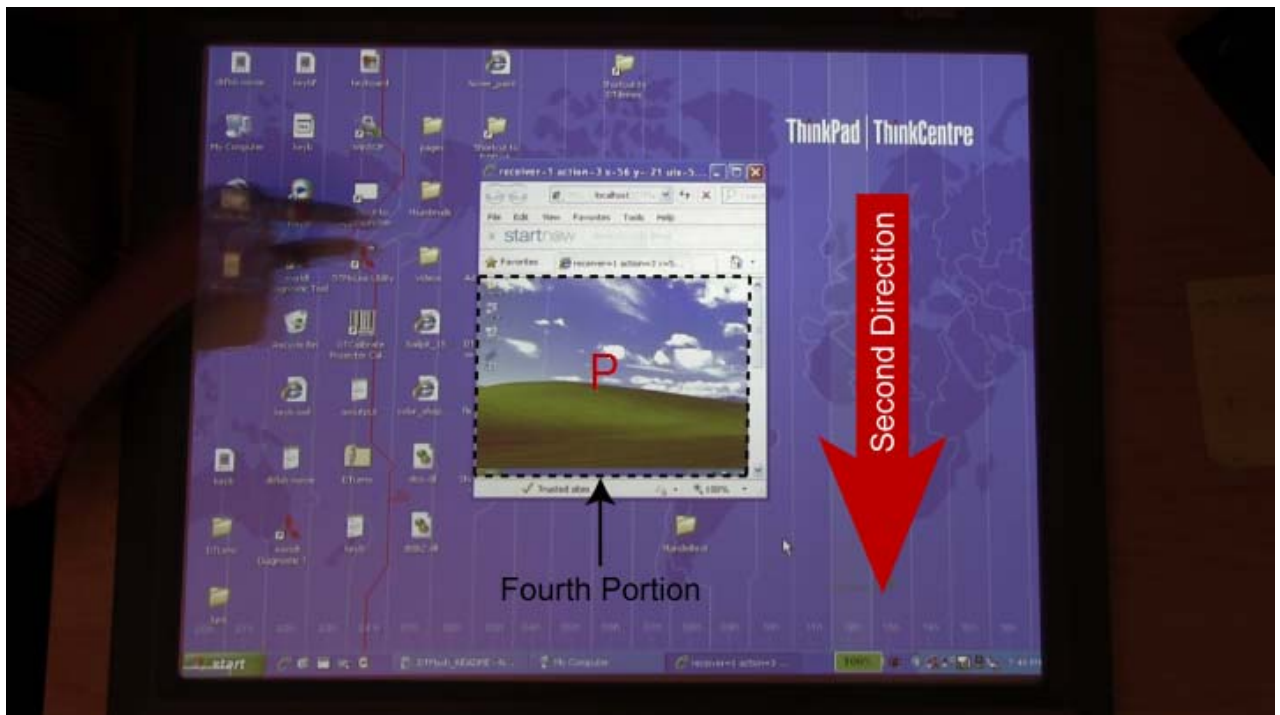
106.   The DiamondTouch table running Tablecloth/DTFlash discloses that if the user

lifts his finger after having translated the electronic document beyond the edge, the interface will

02198.51855/4749987.2

1   automatically snap back to realign the electronic document with the display.   As a result, the

2   area beyond the edge of the electronic document is no longer displayed.   This snap-back feature

3   is fatalistic such that if a user scrolls past the edge of the electronic document, the screen will

4   always snap back when the user lifts her finger.   This snap-back feature will cause the electronic

5   document to be translated in a second direction, which will be opposite to the first direction, until

6   the original starting image is displayed.   The area beyond the edge of the electronic document

7   can no longer be seen.   As a result, a fourth portion of the document is displayed.   The fourth

8   portion is different from the first portion.

9   107.   As shown in the example above and described in further detail in the claim chart

10 attached as Exhibit 4, each element of claim 19 is found in the Tablecloth/DTFlash reference.

11 Tablecloth/DTFlash discloses an electronic document, the primary image.   It also discloses an

12 area beyond the electronic document, a second electronic document.   Finally,

13 Tablecloth/DTFlash discloses the snap-back translation such that the area beyond the edge is no

14 longer displayed.

15   108.   Because each limitation is found in the Tablecloth/DTFlash reference, in my

16 opinion claim 19 of the '381 is invalid due to anticipation.   To the extent any limitation is not

17 found in Tablecloth/DTFlash, in my opinion claim 19 of the '381 patent would be found invalid

18 for obviousness.

19 **VII.   OTHER COMMENTS**

20   A.   **DiamondTouch Calibration**

21   109.   Dr. Balakrishnan states that the DiamondTouch system requires "precise

22 calibration."   For example, Dr. Balakrishnan notes, "If the projector were suspended too far

23 above the table, the projected image would exceed the dimensions of the table.   If it were

24 suspended too close to the table, the projected image would be smaller than the dimensions of the

25 table, leaving an empty border region around the projected image." (Balakrishnan Rebuttal

26 Report at ¶ 110).   However, Dr. Balakrishnan did not explain why any difficulty in setting up

27 the projector would affect the invalidity analysis.   In fact, the DiamondTouch system is easy to

28

**DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR
SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381**

1   set up and trivial to calibrate.   Once calibrated, which requires four finger touches on the corners

2   of the projected image, the DiamondTouch system running Tablecloth/DTFlash operates

3   precisely as described in this declaration.

4   110.   Dr. Balakrishnan also appears to be concerned that the DiamondTouch system was

5   not being used as intended in order to take the videos and photographs attached to the Expert

6   Report of Andries van Dam, Ph.D. Regarding Invalidity of U.S. Patent No. 7,469,381.   Below is

7   a picture of the DiamondTouch table, projector, and a computer, here the ThinkPad laptop,

8   driving the display.   As the photograph indicates, the DiamondTouch system was calibrated

9   properly and is behaving in its intended manner.
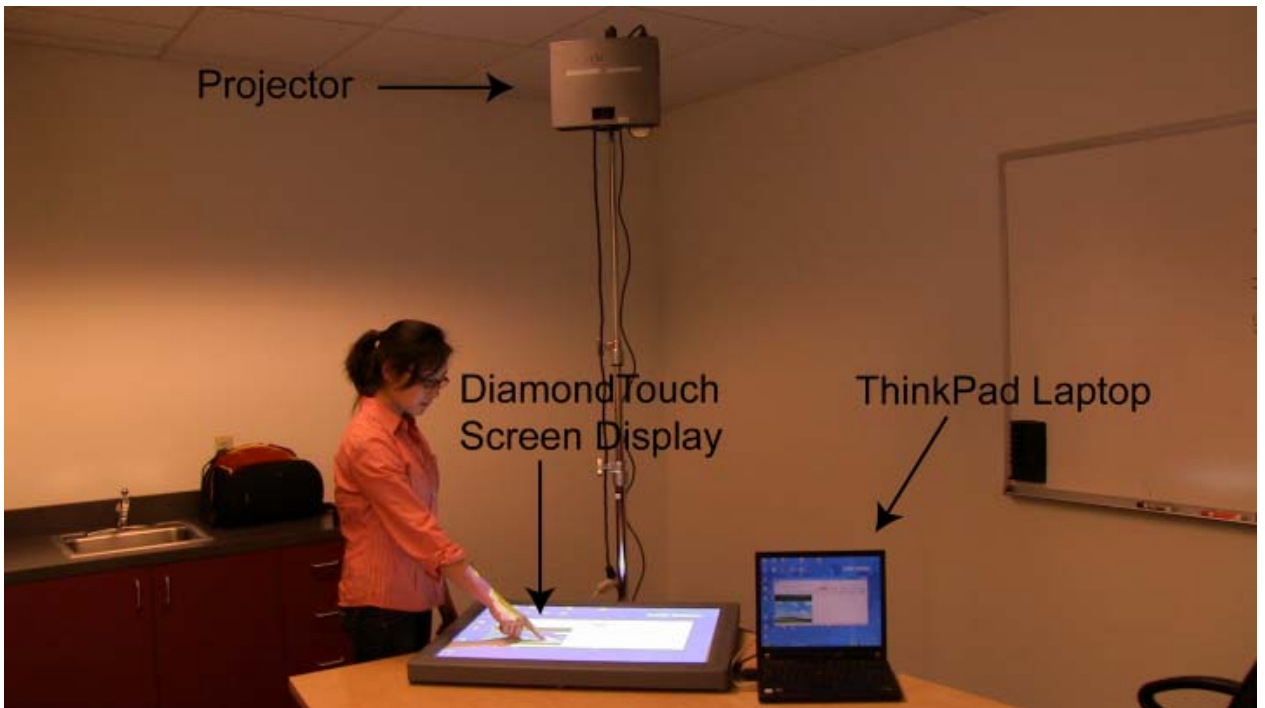
22   I declare under penalty of perjury that the foregoing is true and correct.   Executed in

23 Providence, Rhode Island on May 17, 2012.

By _____

Andries van Dam

DECLARATION OF ANDRIES VAN DAM, PH.D. IN SUPPORT OF SAMSUNG'S MOTION FOR
SUMMARY JUDGMENT REGARDING THE INVALIDITY OF U.S. PATENT NO. 7.469.381