

EXHIBIT 12
FILED UNDER SEAL

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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

**EXPERT REPORT OF RAVIN
BALAKRISHNAN, PH.D.
REGARDING INFRINGEMENT
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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Features of Your Phone

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

- Touch screen with virtual (on-screen) QWERTY keyboard

(APLNDC-Y0000066320.)

181. All of the aforementioned Samsung devices also have touch screen displays. (See Ex. 3.) It is my opinion that these products satisfy this element of claim 19.

182. **Claim 19, Element [b]: “one or more processors.”**

183. It is my opinion that all of the aforementioned Samsung devices satisfy this element of claim 19.

184. For example, as Samsung describes some of its own products, they are devices with the following processors:

- Captivate: “1 GHz, Cortex A8 Hummingbird Processor” that uses “Android 2.3, Gingerbread.” (APLNDC-Y0000066835);
- Vibrant: “1 GHz Cortex A8 Hummingbird Application Processor” that uses “Android 2.2, Froyo.” (APLNDC-Y0000066798);
- Exhibit 4G: “1-GHz Hummingbird” processor that uses “Android 2.3, Gingerbread OS.” (APLNDC-Y0000066850); and
- Galaxy Tab 10.1: “1 Ghz Dual Core Nvidia Tegra2 Processor” that uses “Android 3.2, Honeycomb.” (APLNDC-Y0000066820-821.)

185. **Claim 19, Element [c]: “memory; and”**

186. It is my opinion that each of the aforementioned Samsung devices satisfies this element of claim 19.

187. For example, as Samsung describes some of its own products, they are devices with the following memory:

- Captivate: “Internal Memory” of “2 GB.” (APLNDC-Y0000066836);
- Vibrant: “Internal Memory” of “2 GB.” (APLNDC-Y0000066800);
- Exhibit 4G: “Internal Memory” of “512 MB.” (APLNDC-Y0000066850); and
- Galaxy Tab 10.1: “16 GB Internal Memory.” (APLNDC-

Y0000066850.)

188. **Claim 19, Element [d]: “one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the programs including:”**

189. It is my opinion that each of these devices satisfies this element of claim 19.

190. As described above in the discussion of claim 1, these devices run a number of programs such as the “Gallery,” “Contacts,” “Browser,” and “ThinkFree Office” applications. These programs are stored in the memory of the Samsung devices, and are configured to be executed by the processors in the Samsung devices. In addition, by way of example, Samsung describes in the user manual for the Exhibit 4G phone the process of launching and using the Gallery application:

1. From the Home screen,
tap  (Applications)
→  (Gallery).

(APLNDC-Y0000066418.)

191. Because these devices perform the elements described in claims 1 and 19, they must have instructions for performing those methods and a storage medium for those instructions as recited in those claims. As noted above, all of the aforementioned Samsung devices use the Android software platform. As the publicly available source code and documentation for the Android software platform available on the Android developers website (<http://developer.android.com>) confirm, this software platform includes executable instructions for displaying electronic documents, as described above.

192. Moreover, as discussed above, I have also confirmed that these products contain programs and instructions for performing the methods discussed above. For example, the source code for detecting a user's finger movement, translating an electronic document, detecting a user's lifting of his finger from the touch screen, and translating an electronic document in a second direction can be found in the following source code modules for the Exhibit 4G phone's Gallery application: RenderView.java, GLSurfaceView.java, GridLayer.java, and

1 GridInputProcessor.java, and GridCameraManager.java. (SAMNDCA-C000007890-8007.) As
2 another example, the source code for detecting a user's finger movement, translating an electronic
3 document, detecting a user's lifting of his finger from the touch screen, and translating an
4 electronic document in a second direction can be found in the following source code modules in
5 the Galaxy Tab 10.1's Browser application: WebView.java and View.java. (SAMNDCA-
6 C000003501 – 3549.)

7 193. Based on my inspection of Samsung source code for each major release of
8 Android running on the Samsung products accused of infringing the claims of the '381 patent
9 (Android 2.1, 2.2, 2.3, and 3.1), I have determined that each such product includes similar
10 computer code that detects a user's finger, translates an electronic document, and displays an area
11 beyond the edge of the electronic document.

12 194. Accordingly, executable instructions for performing the infringing functionalities
13 are stored in memory on these devices.

14 195. **Claim 19, Element [e]: “instructions for displaying a first portion of an
15 electronic document;”**

16 196. It is my opinion that each of the aforementioned Samsung devices satisfies this
17 element of claim 19.

18 197. As depicted in Exhibit 3, and by way of example, the Exhibit 4G phone can
19 display a first portion of an electronic document such as a photograph through its Gallery
20 application. Because the Exhibit 4G phone performs this element of claim 19, it must have
21 instructions for displaying a first portion of an electronic document such as a photograph. What I
22 observed on the device is further confirmed by my inspection of the source code for the Gallery
23 application in the Exhibit 4G phone, discussed above.

24 198. Each of the other aforementioned devices can also display a first portion of an
25 electronic document, as demonstrated in Exhibit 3, and therefore must also have instructions for
26 doing so.

27 199. **Claim 19, Element [f]: “instructions for detecting a movement of an object on
28 or near the touch screen display; instructions for translating the electronic document**

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

4 200. It is my opinion that each of the aforementioned Samsung devices satisfies this
5 element of claim 19.

6 201. As depicted Exhibit 3, and by way of example, the Exhibit 4G phone can detect
7 when a user places a finger on the touch screen display and moves his finger in a first direction.
8 It then translates the electronic document, in this case a photograph, in the same direction,
9 resulting in the display of another portion of the photograph which is different from the first
10 portion. By way of example, the Exhibit 4G phone is capable of detecting the movement of a
11 finger on its touch screen, and in response, scrolling the photograph in the same direction,
12 displaying a second, different portion of the photograph. Because the Exhibit 4G phone performs
13 this element of claim 19, it must have instructions for detecting the movement of a finger on its
14 touch screen, and in response, scrolling a photograph in the direction of the finger movement and
15 displaying a second, different portion of the photograph. What I observed on the device is further
16 confirmed by my inspection of the source code for the Gallery application for the Exhibit 4G
17 phone, discussed above.

18 202. Each of the other aforementioned Samsung devices can also detect the movement
19 of a finger on their touch screens, and in response, scroll an electronic document in the direction
20 of the finger movement and display a second, different portion of the electronic document, as
21 demonstrated in Exhibits 3 and V1-V9, and therefore must also have instructions for doing so.

22 203. To the extent that this limitation is not met literally, in my opinion it is met under
23 the doctrine of equivalents because the instructions for the Accused Products (Gallery) are
24 insubstantially different from the instructions as recited in claim 19.

25 204. In particular, the Accused Products (Gallery) perform substantially the same
26 function of translating an electronic document in a first direction to display a second portion of
27 the electronic document, substantially the same way by displaying the movement of an electronic
28

1 document to display another portion of the electronic document, to achieve substantially the same
2 result of showing a second portion of the electronic document following movement in a direction.

3 205. Moreover, translating a document in a first direction based on the movement of a
4 human finger with minor irregularity is not substantially different from doing so based on an
5 absolutely precise movement. Translating a document in a first direction based on the movement
6 of a human finger operates to perform substantially the same function (translating the document),
7 in substantially the same way (by detecting the movement of an object), to obtain substantially
8 the same result (translation of a document in a first direction) as translating based on the
9 movement of an object with absolute precision.

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

15 207. It is my opinion that each of the aforementioned Samsung devices satisfies this
16 element of claim 19.

17 208. As depicted in Exhibit 3, and by way of example, the Exhibit 4G phone, in
18 response to reaching an edge of a photograph in the Gallery application while a finger continues
19 to move the photograph in the same direction – that is, to scroll it beyond the edge – will display a
20 black region beyond the edge of the photograph, and thereby display a smaller third portion of the
21 photograph.

22 209. Because the Exhibit 4G performs this element of claim 19, it must have
23 instructions for displaying a black region beyond the edge of the photograph and displaying a
24 smaller third portion of the photograph, all in response to the edge of the photograph being
25 reached while translating the photograph in the first direction while the finger is still detected on
26 the touch screen display. What I observed on the device is further confirmed by my inspection of
27 the source code for the Gallery application in the Exhibit 4G phone, discussed above.
28

1 210. Each of the other aforementioned Samsung devices can also, in response to
2 reaching an edge of an electronic document, while a finger continues to move the electronic
3 document in the same direction, display a distinct region beyond the edge of the electronic
4 document, and thereby display a smaller third portion of the document, as demonstrated in
5 Exhibits 3 and V1-V9, and therefore must also have instructions for doing so.

6 211. To the extent that this limitation is not met literally, in my opinion it is met under
7 the doctrine of equivalents because the instructions for the Accused Products (Gallery) are
8 insubstantially different from the instructions as recited in claim 19.

9 212. In particular, the Accused Products (Gallery) perform substantially the same
10 function of displaying an area beyond the edge of the electronic document in response to an edge
11 of the electronic document being reached while translating the electronic document in the first
12 direction, substantially the same way by displaying an area beyond the edge of the electronic
13 document when a user attempts to move the electronic document beyond its edge, to achieve
14 substantially the same result of showing an area beyond the edge of the electronic document.

15 213. In addition, displaying black in an area beyond the edge of a document on a screen
16 by not illuminating the area is not substantially different from doing so by filtering or blocking
17 light in the area. An AMOLED screen displaying black operates to perform substantially the
18 same function (displaying a black area), in substantially the same way (avoiding emission of
19 light), to obtain substantially the same result (showing a black area) as a screen that displays
20 black by filtering or blocking light.

21 214. **Claim 19, Element [h]: “instructions for translating the electronic document**
22 **in a second direction until the area beyond the edge of the electronic document is no longer**
23 **displayed to display a fourth portion of the electronic document, wherein the fourth portion**
24 **is different from the first portion, in response to detecting that the object is no longer on or**
25 **near the touch screen display.”**

26 215. It is my opinion that each of the aforementioned Samsung devices satisfies this
27 element of claim 19.
28

1 216. As depicted in Exhibit 3, the Exhibit 4G phone, in response to detecting that the
2 finger is no longer on the touch screen, will scroll the photograph in the other direction until the
3 area beyond the edge of the photograph is no longer displayed. What is then displayed is a fourth
4 portion of the photograph that is different from the first portion.

5 217. Because the Exhibit 4G phone performs this element of claim 19, it must have
6 instructions for scrolling the photograph in the other direction until the area beyond the edge of
7 the photograph is no longer displayed. It must also have instructions to display a fourth portion
8 of the photograph that is different from the first portion, all in response to detecting that the finger
9 is no longer on the touch screen. What I observed on the device is further confirmed by my
10 inspection of the source code for the Gallery application in the Exhibit 4G, discussed above.

11 218. Each of the other aforementioned Samsung devices can also, in response to
12 detecting that the finger is no longer on the touch screen, scroll the electronic document in the
13 other direction until the area beyond the edge of the electronic document is no longer displayed,
14 thereby displaying a fourth portion of the electronic document that is different from the first
15 portion, as demonstrated in Exhibit 3, and therefore must also have instructions for doing so.

16 219. To the extent that this limitation is not met literally, in my opinion it is met under
17 the doctrine of equivalents because the instructions for the Accused Products (Gallery) are
18 insubstantially different from the instructions as recited in claim 19.

19 220. In particular, the Accused Products (Gallery) perform substantially the same
20 function of translating the electronic document in a second direction until the area beyond the
21 edge of the electronic document is no longer displayed to display a fourth portion of the
22 electronic document, substantially the same way by translating the electronic document so that it
23 returns to fill the screen, to achieve substantially the same result of not showing an area beyond
24 the edge of the electronic document.

25 221. Based on the foregoing analysis of documents and the operation of these devices
26 as indicated in more detail in the accompanying exemplary claim chart and videos, I conclude
27 that each and every element of Claim 19 is met by these devices, which therefore infringe that
28 claim. Because each of these products runs the Android software platform and contains

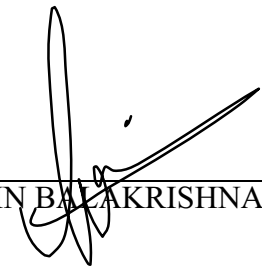
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AA. Supplementation

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

268. 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: March 22, 2012



RAVIN BALAKRISHNAN