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14	AMERICA, INC. and SAMSUNG TELECOMMUNICATIONS AMERICA, LLC				
15					
	UNITED STATES	DISTRICT COURT			
16	NORTHERN DISTRICT OF CA	LIFORNIA, SAN JOSE DIVISION			
17	APPLE INC., a California corporation,	CASE NO. 11-cv-01846-LHK			
18	Plaintiff,	DECLARATION OF ANDRIES VAN			
19	r iumim,	DAM, PH.D. IN SUPPORT OF			
20	VS.	SAMSUNG'S MOTION FOR NEW TRIAL REGARDING '381 PATENT PURSUANT			
21	SAMSUNG ELECTRONICS CO., LTD., a Korean business entity; SAMSUNG	TO FEDERAL RULE OF CIVIL PROCEDURE 59 BASED ON NEWLY			
	ELECTRONICS AMERICA, INC., a New	DISCOVERED EVIDENCE			
22	York corporation; SAMSUNG TELECOMMUNICATIONS AMERICA,				
23	LLC, a Delaware limited liability company,				
24	Defendants.				
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I, Andries van Dam, declare:

- 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 regarding whether the accused devices infringe Claim 19 (the "Asserted Claim") of U.S. Patent No. 7,469,381 (the "'381 patent") in view of recent statements Apple made to the United States Patent and Trademark Office ("PTO") regarding the scope of Claim 19, which were relied upon by the PTO in its decision to issue an Ex Parte Reexamination Certificate for Claim 19.
- 2. I submit this declaration in support of Samsung's Motion for a New Trial regarding '381 patent pursuant to Federal Rule of Civil Procedure 59 based on newly discovered evidence. 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 \$1,000 per hour My compensation is in no way tied to the outcome of this matter. plus expenses.

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

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- 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), 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 one year 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-

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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 (also known as, "e-humanities"). For example, I worked on a humanities project called Large Artwork Displayed on the Surface (LADS) for examining large pieces of artwork on any touch-enabled surface supported by Windows 7. A completely new implementation with greatly enhanced functionality called TAG (Touch Art Gallery) running under Windows 8 on all manner of touch devices has just been released to the Microsoft Windows 8 Apps Store. I also recently helped design a scholarship tool to allow users to easily create selections of hyperlinked multimedia documents, entitled WorkTop. Before we acquired a Microsoft Surface, my students had built our own "touch table," a "home brew" prototype touch device, for which we had created multiple applications. My group's most recent work on touch computing has been sponsored by Microsoft Research, Sharp Labs America, and Adobe. I have shown multiple unpublished projects using touch computing at the annual Microsoft Faculty Summit. My group and I have also produced the Garibaldi Panorama Application, a precursor to LADS and TAG, which was shown to thousands of people as a key exhibit in a special exhibit at the British Library on the future of digital scholarship.

- 10. I have worked in several legal matters as a consulting expert and an expert witness. I have written expert reports and have had my deposition taken. In addition, I acted as a witness for Samsung at the first jury trial in the instant, above captioned matter.
- 11. I attach as Exhibit 1 my curriculum vitae, which includes a more detailed list of my qualifications.

II. <u>SUMMARY OF FACTUAL PREDICATES AND OPINIONS</u>

12. I have reviewed the prosecution history for the '381 patent, including the prosecution history of the *ex parte* reexamination that was initiated with Application No. 90/012,304 on May 23, 2012. After the anonymous requestor's initiation of *ex parte* proceedings, the Patent and Trademark Office (PTO) granted an *ex parte* reexamination with

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respect to the '381 patent on July 30, 2012; and issued a Non-Final Office Action rejecting claims 1 through 20 on October 13, 2012 over Lira and another reference. On March 29, 2013, the Examiner issued a final office action rejecting Claim 19 of the '381 patent over the *Lira* reference. On June 12, 2013, the PTO issued a Notice of Intent to Issue Ex Parte Reexamination Certificate indicating that it was allowing claim 19 of the '381 patent – which was the sole claim at issue at the jury trial – based on specific assertions by Apple during the reexamination narrowing the scope of Claim 19.

13. Based on my review of both the initial and reexamination prosecution histories, I offer an opinion that the scope of Claim 19 has been substantially narrowed since trial and provide an interpretation of this claim in light of Apple's narrowing statements during reexamination. I also provide an analysis of whether the accused Samsung products infringe under this claim interpretation.

III. <u>APPLICABLE LEGAL PRINCIPLES</u>

14. In this section I describe my understanding of certain legal standards. I have been informed of these legal standards by Samsung's attorneys.

A. Literal Infringement

- 15. I understand that Apple has the burden to prove infringement. I also understand that the determ ination of whether an accused product infringes a patent claim is a two-step process. First, the language of the claim is construed as it would be understood by one of ordinary skill in the art at the time of the filing of the patent application. Second, the construed claim must be compared to the to the accused product. A patent claim is "literally" infringed only if each and every claim limitation is found in the accused product.
- 16. I unders tand that, because Apple has made arguments to the PTO limiting the meaning of Claim 19 during the reexamaination proceedings and the PTO has accepted the searguments, these new narrowing limitations change the scope of Claim 19 and must now be taken into account when determining whether Claim 19 is infringed.

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17. I am informed that as a legal consequence of making limiting statements concerning the subject matter of a patent claim during reexamination, a patentee can subject itself to a disclaimer of claim scope as well as prosecution history estoppel. My examination of whether Samsung infringes Claim 19 is thus based on a construction of this claim that takes into account the narrowing arguments Apple made during reexamination. I have been asked to offer an opinion in which I compare Claim 19 to each accused Samsung product to determine whether all of the features of the claim are literally present. In rendering such an opinion on literal infringement, I am informed that I must determine – for every element of the claim – whether that element reads literally on the relevant accused product(s). If even one element is not present, literal infringement cannot be found.

B. <u>Doctrine of Equivalents</u>

- 18. I understand that a device that does not literally infringe a claim may nonetheless be found to infringe under the doctrine of equivalents if each and every limitation in the claim is "equivalently present" in the accused device. The doctrine of equivalents, when applicable, must be applied to individual elements of the claim and not to the invention as a whole; thus it must not be applied broadly as to effectively eliminate an element of the claim in its entirety. Each and every element in the claim is "equivalently present" in the accused device if only "insubstantial differences" distinguish the missing claim element from the corresponding aspects of the accused device. One test used to determine whether differences between a claim element and the feature of the accused device asserted to practice that element are insubstantial is known as the "function-way-result test." A claim element is insubstantially different from an accused feature if they both perform substantially the same function in substantially the same way to obtain substantially the same result.
- 19. I understand that the doctrine of equivalents is rendered either inapplicable or (at most) extremely limited when the patentee makes limiting statements to the PTO. First, the doctrine of equivalents is subject to what is known as the doctrine of prosecution history estoppel, which acts to limit infringement by otherwise equivalent products or processes. Prosecution

history estoppel bars the patentee from recapturing subject matter that he surrendered during prosecution to promote allowance of the claims. As I address more fully below, during reexamination, Apple surrendered all subject matter in which the purpose of the computer instructions that cause the snap back effect is for any reason other than strict edge alignment. Thus, Apple cannot argue that computer instructions whose purpose or cause is other than edge alignment – but that is in some way equivalent to such code – infringes Claim 19. Prosecution history estoppel bars Apple from doing so.

20. I also understand that the doctrine of equivalents is limited by the prior art to prohibit the patent owner from extending patent protection beyond the fair scope of a claim. This is because equivalency is examined in the context of the prior art, as well as the patent specification, and the prosecution history – including the prosecution history on reexamination.

IV. <u>CLAIM 19 OF THE '381 PATENT WAS SUBSTANTIALLY NARROWED BY APPLE DURING THE REEXAMINATION PROCEEDINGS</u>

- 21. As explained above, an *ex parte* reexamination proceeding was commenced in the Patent and Trademark Office (PTO) on May 23, 2012 with respect to the '381 patent and that the reexamination proceeding was conducted concurrently with the instant district court action. I also understand that, although they proceeded concurrently, the PTO had not yet rendered any substantive decisions on the validity of the '381 patent or its claims prior to the jury trial in this case.
- 22. Following the jury trial and the August 2012 verdict, on October 13, 2012, the PTO rendered an initial office action rejecting all claims of the '381 patent as, *inter alia*, anticipated or obvious over the *Lira* reference (and another reference) and then issued a final office action rejecting Claim 19 of the '381 patent over the *Lira* reference on March 29, 2013.
- 23. In response to arguments made by Apple following the final office action, the PTO issued a Notice of Intent to Issue Ex Parte Reexamination Certificate rejecting or cancelling the majority of the claims of the '381 patent as anticipated or obvious over the *Lira* prior art, but allowing several claims, including Claim 19. Based on my review of the reexamination file history, the PTO allowed Claim 19 over *Lira* solely because of Apple's argument to the PTO that Case No. 11-cv-01846-LHK

Lira did not anticipate Claim 19 because it did not disclose computer instructions that were specifically designed to cause an electronic document to snap back to a particular edge of the electronic document. In other words, Apple argued to the PTO that the cause and effect (as described to the PTO) – or, the root <u>purpose</u> or <u>cause</u> of the snap back computer instructions in claim 19 must be edge alignment.

24. In particular, in its supplemental response to the PTO, Apple conceded that *Lira* "achieves the visual result" called for by Claim 19, but argued that it still did not invalidate Claim 19 because the computer instructions that caused the snap back function to occur had the purpose of causing the web page to "center" on the screen rather than explicitly seeking to perform edge alignment. Apple stated:

"While *Lira*'s snap-to-column function <u>incidentally achieves</u> the visual result of translating in the second direction 'until the area beyond the edge of the electronic document is no longer displayed' (only when the width of the column corresponds to the width of the display), *Lira*'s function clearly does so through the use of executable program instructions having a different stop condition <u>based on centering of the column.</u>"

(Apple Response to PTO, May 13, 2013) (emphasis added).

- 25. It is my opinion that, through its arguments to the PTO, Apple disclaimed all subject matter with respect to Claim 19 in which the specific **purpose** or **cause** of the computer code that generates the snap back effect is anything other than edge alignment. Edge alignment occurs when the area beyond the edge of a document is shown visually, but then the edge alignment code causes that area beyond the edge to disappear so that the edge of the electronic document aligns to the edge of the screen or window.
- 26. In order to infringe under the construction argued by Apple and accepted by the PTO, both the visual effect of edge alignment must be present **and** the specific purpose or cause of the computer instructions performing the snap back must be to perform edge alignment. By way of example, Claim 19 does not cover subject matter where the visual effect incidentally or otherwise is edge alignment if the cause or purpose of the code was something other than edge

alignment. For example, if edge alignment occurs due to computer instructions that cause centering of an electronic document, as in *Lira*, Claim 19 is not infringed.

27. I also conclude that Apple will not be able to recapture through the doctrine of equivalents any subject matter in which the cause or purpose of the computer instructions that cause the snap back effect is not edge alignment, as it is precluded from doing so by the doctrine of prosecution history estoppel.

V. <u>CLAIM 19 WAS NOT LIMITED TO A SPECIFIC STOP CONDITION OR</u> PURPOSE/CAUSATION REQUIREMENT AT TRIAL

- 28. During the August 2012 trial, Apple had not yet made any of the narrowing statements relating to Claim 19 of the '381 patent that it recently made during the reexamination proceedings. Consequently, the scope of Claim 19 as presented to the jury at trial was significantly broader than it is now.
- 29. At trial, Apple's expert Dr. Ravin Balakrishnan, testified that several Samsung devices infringed claim 19 because the Gallery, Web Browser, and/or Contacts applications running on those devices incorporated snap back behavior. However, Dr. Balakrishan did not testify the purpose or cause of the computer instructions in the Gallery, Web Browser, and/or Contacts applications was specifically to perform edge alignment. Moreover, the computer instructions Dr. Balakrishnan and Apple presented and relied on at trial fail to meet the new post-reexamination limitations of Claim 19 as I explain in detail below.
- 30. In short, from a review of the computer instructions at issue and the operation of accused Samsung devices, it is my opinion that Apple failed to make a showing at trial that the new post-reexamination limitations discussed above are present in the Captivate, Continuum, Droid Charge, Epic 4G, Exhibit 4G, Fascinate, Galaxy Prevail, Galaxy S 4G, Galaxy S II (AT&T), Galaxy Tab, Galaxy Tab 10.1 (WiFi), Gem, Indulge, Infuse 4G, Mesmerize, Nexus S 4G, Replenish and Vibrant, under the Browser, Gallery, or Contacts applications.

A. The Accused Gallery Code Does Not Infringe Narrowed Claim 19

31. With respect to the Gallery application, Dr. Balakrishnan testified at the jury trial about code from three Samsung devices: Exhibit 4G, Captivate and Vibrant. Dr. Balakrishnan

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opined that the code for the Gallery application was not meaningfully different between these devices and the other accused devices. For the purposes of this declaration only, I will accept Apple's assertion and examine the code from a Galaxy Tab 10.1.

32. Apple and Dr. Balakrishnan cited to the following Gallery code (left side of demonstrative) at trial as performing edge alignment:

	nce Back"	tions for "Bou	Instruction
	Browser		Gallery
02545	CALMIDOL COOK	OCA C000007783	DV 21 CAMANDCA COO
03546 PDX 27.31		8003; 8176	
	SAMNDCA-C0000		PX 31- SAMNDCA-C000 80

(See PDX 27.31.)

33. However, Apple and Dr. Balakrishnan are incorrect. The purpose of these computers instructions is not to perform edge alignment. Rather, these computer instructions perform centering, which is precisely what Apple argued was not covered by Claim 19 when it distinguished *Lira* during reexamination.

34.	These computer instructions,	
		In landscape mode, the image is
	9	Case No. 11-cv-01846-LHI

bordered on its left and right edges by background rectangles and is clearly not edge aligned when it comes to rest after snapping back. In portrait mode, the image appears to be both edge aligned and centered, but the same centering logic as used in landscape mode is providing this visual effect.

- 35. An illustration of this behavior is shown in the video annexed hereto as Exhibit 2. This video shows how the computer instructions in the Gallery application center a picture when a user's finger is lifted from the screen.
- 36. In addition to the code addressed by Apple at trial, I have reviewed all of the Gallery code that I considered relevant with respect to whether Samsung infringes Claim 19, including

All of the code examined has the purpose of centering the picture on the screen rather than strict edge alignment. For instance, upon any zooming operation,

37. Because the purpose or cause of the Gallery instructions is not to perform edge alignment, it does not literally infringe Claim 19. Furtherm ore, as explained above, prosecution history estoppel precludes Apple from arguing infringement under the doctrine of equivalents. However, even if Apple could argue infringement under the doctrine of equivalents there would

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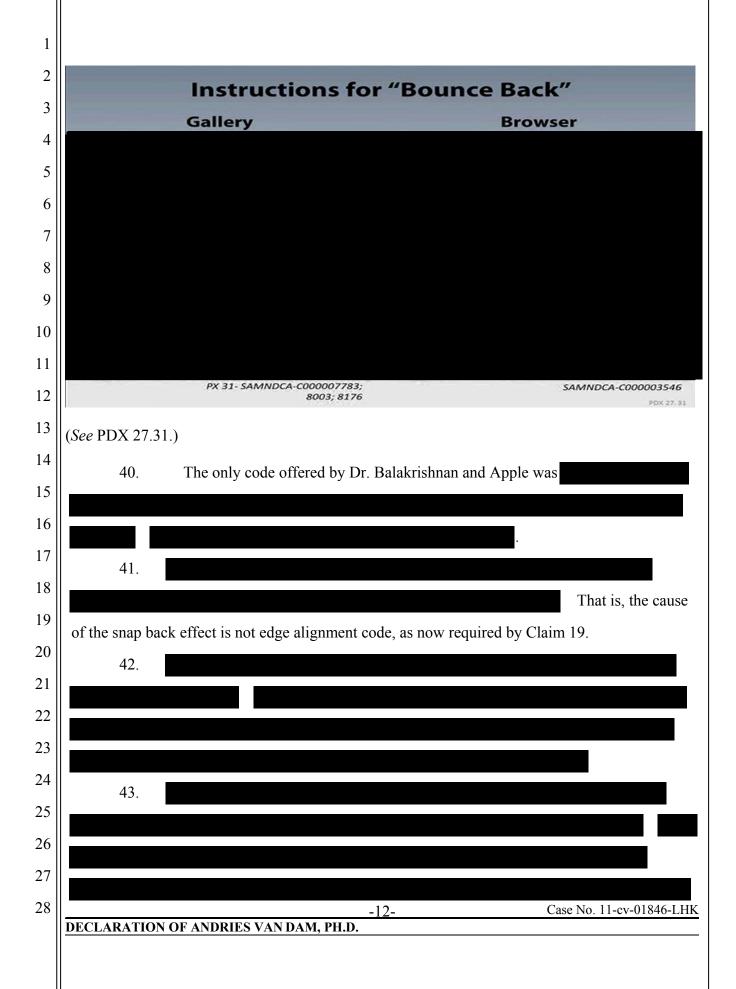
be no infringement of Claim 19 because there are substantial differences between the Gallery code and Claim 19.

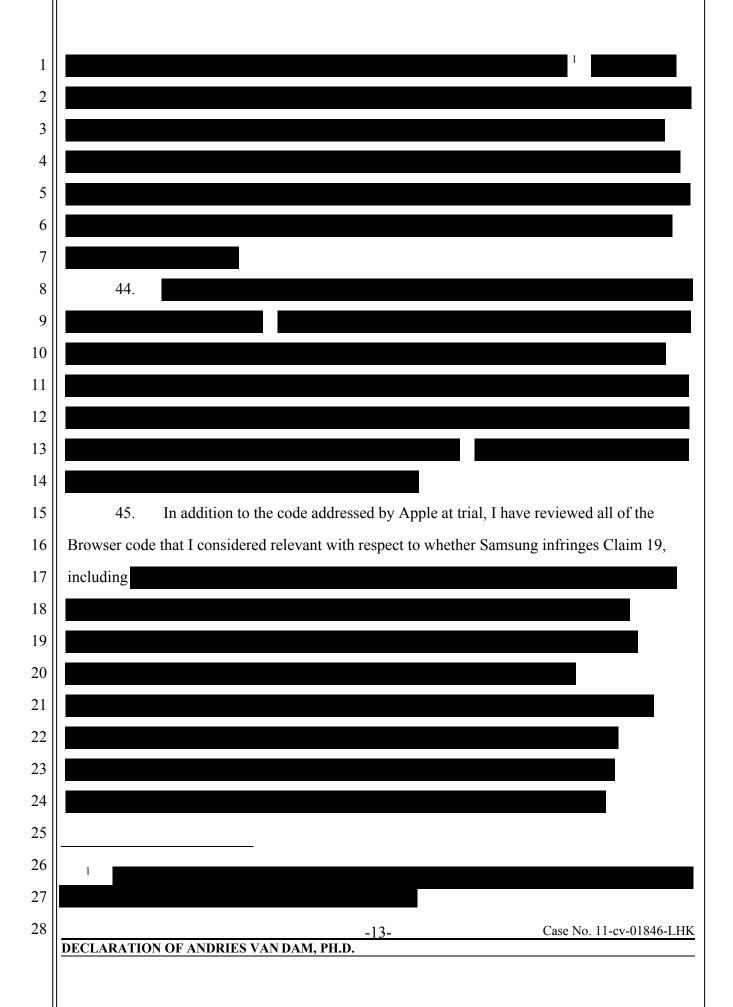
38. For example, the Gallery code relied on by Apple and Dr. Balakrishnan operates by centering the picture on the screen rather than aligning the picture with the edge of the picture. This is a substantial difference. Indeed, Apple itself argued that the *Lira* reference was distinguishable from Claim 19 because *Lira* performed centering, not edge alignment. The function/way/result test confirms my opinion. The function of the limitation at issue in Claim 19 is to align the edge of an electronic document so that the area beyond the edge is no longer displayed. This is substantially different than the function of the Gallery code, which is to center the picture and has nothing to do with ensuring the area beyond the edge is no longer displayed. The way Claim 19 achieves the function of limitation at issue in Claim 19 is also substantially different than the Gallery code. Claim 19 requires computer instructions that are specifically written to align the edge of an electronic document such that the area beyond the edge is no longer displayed. The Gallery computer instructions, on the other hand, center the picture and have nothing to do with edge alignment. Consequently, the Gallery code performs a substantially different function in a substantially different way than the limitation at issue in Claim 19.

В. The Accused Browser Code Does Not Infringe Narrowed Claim 19

39. With respect to the Browser application, Dr. Balakrishnan testified about code from a Galaxy Tab 10.1 running the Honeycomb version of the Android operating system. This code was shown to the jury in demonstrative PDX 27.31 (right side of demonstrative):

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2	None of this code has the specific cause or purpose of		
3	performing edge alignment. In particular,		
4	None of these files individually or		
5	taken together have the purpose or cause of edge alignment.		
6	46. Because the purpose or cause of the Browser instructions is not to perform edge		
7	alignment, it does not literally infringe Claim 19. Furtherm ore, as explained above, prosecution		
8	history estoppel precludes Apple from arguing infringement under the doctrine of equivalents.		
9	However, even if Apple could argue infringement under the doctrine of equivalents there would		
0	be no infringement of Claim 19 because there are substantial differences between the Browser		
1	code and Claim 19.		
2	47. For example, the Browser code relied on by Apple and Dr. Balakrishnan		
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4	ather than		
5	aligning the picture with the edge of the picture. This is a substantial difference. The		
6	function/way/result test confirms my opinion. The function of the limitation at issue in Claim		
7	19 is to align the edge of an electronic document so that the area beyond the edge is no longer		
8	displayed. This is substantially different than the function of the Broswer code,		
9	The way Claim 19 achieves the function of		
20	limitation at issue in Claim 19 is also substantially different than the Browser code. Claim 19		
21	requires computer instructions that are specifically written to align the edge of an electronic		
22	document such that the area beyond the edge is no longer displayed. In sharp contrast, the		
23	Browser computer instructions		
24	. The Browser computer instructions have nothing		
25	to do with edge alignment. Alignment of an edge may occur through use of the Broswer		
26	instructions, but		
27			
28	-14- Case No. 11-cv-01846-LHK DECLARATION OF ANDRIES VAN DAM, PH.D.		
	DECLARATION OF ANDRIES VAN DAM, FILD.		

1	. It is not in any way purposeful. Indeed, in many cases, the Browser instructions		
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3	Consequently, the Broswer code performs a substantially different function in a		
4	substantially different way than the limitation at issue in Claim 19 and produces substantially		
5	different results.		
6	C. The Accused Contacts Code Does Not Infringe Narrowed Claim 19		
7	48. The evidence Apple presented at trial does not show infringement by the Contacts		
8	application under the new construction of claim 19 either. Dr. Balakrishnan did not discuss any		
9	computer instructions/source code for the Contacts application in his expert report or at		
10	trial. Instead, he relied solely on images of Samsung products running the Contacts application		
11	to support his conclusion that the application infringed. But, with respect to Contacts, it is		
12	impossible to tell what the purpose of the snap back code is from simply looking at images of the		
13	application in action. Thus, there is no evidence in the record that supports a finding of		
14	infringement of the Contacts application under the new meaning of Claim 19.		
15	I declare under penalty of perjury that the foregoing is true and correct. Executed in		
16			
17	Providence, Rhode Island on July 8, 2013.		
18			
19	By		
20	Andries van Dam		
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	DECLARATION OF ANDRIES VAN DAM, PH.D.		

ATTESTATION I, Victoria Maroulis, am the ECF user whose ID and password are being used to file the foregoing document. I hereby attest pursuant to Civil L.R. 5-1 that concurrence in the electronic filing of this document has been obtained from Andries van Dam. /s/ Victoria F. Maroulis Victoria F. Maroulis Case No. 11-cv-01846-LHK DECLARATION OF ANDRIES VAN DAM, PH.D.