

in the vertical is such that it dominates, and the screen moves only in the vertical, which is vertical scrolling. (*Id.*)

Samsung contests Apple's argument that Westerman only applies to how hand motions are recognized and are not relevant to executing commands. (RIB at 131.) According to Samsung, Apple has misread Westerman because, according to Dr. van Dam, Westerman discloses that various gestures are mapped to various commands. (*Id.*) Samsung argues that Westerman teaches hand movement can be constrained to vertical direction, which would constrain scrolling to be vertical. (*Id.*) One way of considering this, according to Samsung is output for "motion filters" for the various kinds of translations – vertical, horizontal, etc., which in turn have heuristics applied to them for output, which Dr. van Dam explains is part of Westerman when read in context (RRB at 53.)

The Staff argues that in contrast to the '949 patent, which distinguishes between one-dimensional vertical screen scrolling and two-dimensional screen translation, the Westerman thesis simply distinguishes between three degrees of freedom- rotation, scaling, and translation. (SIB at 61.) The Staff argues that although Samsung contends that the Westerman thesis discloses vertical screen translation and two-dimensional screen translation, that contention is based on its expert's opinion that Westerman discloses two degrees of translation when in fact instead of the sole degree of translation disclosed in Westerman. (*Id.* at 62.) The Staff asserts that Samsung's expert acknowledged that the translation language in Westerman is ambiguous and thus the Staff argues that Samsung has failed to prove by clear and convincing evidence that Westerman infringes. (*Id.*)

Analysis

Samsung argues that all of the asserted claims of the '949 patent are anticipated by a doctoral dissertation authored by Dr. Wayne Westerman, PhD., titled "Hand Tracking, Finger Identification, and Chordic Manipulation on a Multi-Touch Surface" ("Westerman reference"). In support, Samsung relies primarily on the testimony of its expert, Dr. van Dam, who testified the Westerman reference anticipates the asserted claims of the '949 patent. (*See, e.g.*, RX-3448C (van Dam DWS) at Q&As 32, 114-165.) I disagree with Samsung's arguments for the reasons discussed below.

The Westerman Dissertation (the reference) was published in 1999, more than a year before the September 6, 2006, effective filing date of the '949 patent. (RX-1266C.) This makes the Westerman reference prior art under 35 U.S.C. § 102(b).

The PTO reexamined the '949 patent twice with the Westerman reference being disclosed both times. In both cases the examiner found Westerman did not disclose elements of the '949 patent's claims. (CX-2591C (Balakrishnan RWS) at 36-39 Q67-76; CX-284 at 8-9; CX-285 at 8, 12.) As Apple notes, the examiner stated: "[t]he Westerman [Dissertation] reference, either alone or in combination with the other references cited in the request, fails to raise a SNQ [Substantial New Question of patentability]." (CX-284 at 7.) In fact the examiner also found a rotation transformation is not a "two-dimensional screen translation" and noted this is distinguished in the '949 patent from rotation. (CX-284 at 8.) The examiner found Westerman does not appear to clearly discuss one-dimensional vertical screen scrolling or distinguish such scrolling from any two-dimensional screen translation and specifically found that Westerman failed to teach the claimed vertical screen scrolling heuristic and two-dimensional screen

translation heuristic. (CX-284 at 7-8 and *see* CX-2591 (Balakrishnan, Q&As 36-39.) Given these facts, I find that Samsung's burden to prove anticipation by clear and convincing evidence is enhanced.

The purpose of the Westerman reference has relevance to how it should be construed and what it may anticipate. As Apple correctly argues, the goal of the Westerman reference is different than translating signals by one finger on a touch screen. Specifically, the Westerman goal, as admitted by Dr. van Dam is to "build a touch pad that could replace both the keyboard and the mouse on a computer." (Tr. at 1550:8-12 and *see also* through 1553.) Thus, tracking multiple finger movements is Westerman's focus. (Tr. 1553:6 -1554:12.)

Samsung is wrong to argue Westerman discloses use of a touch screen by a mere mention of the word "touchscreen"¹⁴ (in the relevant paragraphs on page 225 and 231- 232 of Exhibit RX-1266C). There is **no** suggestion of touch screen use in these references within Westerman. Rather, with regard to page 225, Dr. Westerman merely comments that no one has derived a certain degree of control (2-DOF) from hand or finger motion on proximity sensing surfaces such as a "touchpad" or a "touch screen." With regard to the mention of "Touch Pads and Screens" starting on page 231 through page 232 of RX-1266C, there is only an explanation of how these surfaces work as the result of tapping, etc., no explanation of how a "touch screen" is to be used in the Westerman reference. Regardless, as Dr. Balakrishnan correctly points out:

... As Dr. Van Dam acknowledges in response to Question 124, the Westerman thesis does not disclose using the gestures it discusses on a touch screen, which is a combination of a display and an input device, and which is a required element

¹⁴ Westerman spells touchscreen as with no break between the two words.

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of every claim of the '949 patent. Instead, it discloses a system using a touch *pad*, which is a peripheral input device not integrated into the display it is controlling. A touch screen is fundamentally different than a touch pad; a touch pad is a peripheral controller for an electronic device which has a separate display, while a touch screen integrates that controller into the display itself.

(CX-2591 at Q&A 52.) Accordingly, since use of a touch screen is a requirement of every claim of the '949 patent, Westerman cannot anticipate.

I am persuaded the Staff's argument that Westerman only teaches three degrees of freedom, *i.e.*, rotation, scaling, and translation, is correct and supported by the language of Westerman and credible testimony. Further, as the Staff argued, the evidence firmly establishes Dr. van Dam's interpretation regarding Westerman's disclosure of two degrees of "translation" freedom is untenable because Dr. van Dam acknowledged the Westerman language is ambiguous and may not support his interpretation. (Tr. 1566:25-1567:3.) Therefore, I find the Westerman reference simply distinguishes between three degrees of freedom- rotation, scaling, and translation and does not address vertical scrolling or differentiating between one-dimensional screen scrolling and two-dimensional screen translation based on the angle of initial movement as required by the patent. (JX-0003, claim 1.) This means Samsung falls far short of establishing, by clear and convincing evidence that Westerman anticipates the '949 claims.

In making its vertical scrolling argument, Samsung attempts to extrude too much meaning from the following Westerman language:

Like the recent dual-pointing-stick bulldozer-interface of Zhai *et al.*, the hand motion extractor presented in this chapter will try to strike a compromise between integrity and separability. The motion filters will pass simultaneous motions in multiple components or degrees of freedom which are truly in diagonal directions, thus allowing fast manipulation across shortest path diagonals. But when one of the rotation, scaling, or translation degrees of freedom dominates, indicating the

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direction of motion *is nearly along an axis*, the non-dominant components will be suppressed so that control occurs exactly along the axis.

(RX-1266C at 264.) (Emphasis added) Dr. Balakrishnan addressed Dr. van Dam's interpretation of the language emphasized in the preceding paragraph as follows:

43. Q: Do you agree with Dr. Van Dam about the meaning of "nearly along an axis" in the Westerman Thesis?

A: No. The "axis" described in this passage from the Westerman Thesis cannot mean the "horizontal or vertical axis" as Dr. Van Dam asserts. The paragraph clearly refers to three different types of motion: rotation, scaling and translation. As I explained, for translation, all of the fingers move in the same direction. For scaling, all of the fingers either converge on a single point or diverge from a single point. For rotation, all of the fingers rotate around a point. In the paragraph cited by Dr. Van Dam, the Westerman Thesis states that when one of these three types of motion dominates, "the direction of motion is nearly along an axis." We know the "axis" being referred to cannot mean the horizontal and vertical axes, because for rotation and scaling, the movement of the fingers is never "along" the vertical or horizontal axis. Rather, in the case of rotation, the fingers move around a central point or along a rotational axis, not along any X or Y axis. In the case of scaling, the fingers either converge or diverge from a central point, not along any X or Y axis. So the Westerman Thesis does not disclose movement "nearly along" an X or Y axis, as Dr. Van Dam contends.

(CX-2591C at Q&A-42-45). I find Dr. Balakrishnan's testimony on the meaning of "nearly along an axis" to be more credible, logical, and convincing than Dr. van Dam's testimony on the same point (*See* RX-3448C (Q&A 152). Moreover, the language "nearly along an axis" even when taken in the light most favorable to Samsung, is, at best, ambiguous.

Regardless, Samsung based its anticipation argument upon its erroneous interpretation of "nearly along an axis" to support its vertical scrolling contention, which it intertwined with its contention concerning the three degrees of freedom being equivalent to vertical scrolling I rejected above. Hence, it is really only one argument. Based upon the foregoing, as well as the

prior actions by the PTO, which are consistent with these findings, I must find Samsung has not met its burden to prove anticipation by clear and convincing evidence.

It is certain that every asserted claim of the '949 patent requires heuristics that determine whether to perform a vertical screen scroll command or two-dimensional screen translation command based on the initial angle of movement of a finger contact. (*See e.g.*, JX-003 at 122:37-123:2; 123:3-7; 123:12-17; 124:1-7; and 124:7-33.) Since Westerman does not teach vertical scrolling or differentiating between one-dimensional screen scrolling and two-dimensional screen translation based on the angle of initial movement as required by the patent, I can find no credible evidence the Westerman teaches that heuristics determine whether to perform these requirements, only credible evidence that it does not. (CX-2591C at Q&A 34.) Accordingly, Westerman cannot anticipate the claims of the '949 patent.

2. Obviousness

a. Wakai in view of Hashimoto

The Parties' Positions

Samsung argues that even if the screen content rotation command of Wakai were found not to be "two-dimensional screen translation" claims 1, 4-6, 11, 14-17, and 20 of the '949 patent would still be invalid as obvious in light of Wakai in view of Hashimoto. (RIB at 132.)

Samsung argues that Hashimoto discloses two-dimensional screen translation and that the combination of the two-dimensional screen translation disclosed in Hashimoto with the vertical scrolling disclosed in Wakai would have been a predictable extension of the teachings of Wakai. (*Id.* at 134.)

Apple attacks Samsung's combination of Wakai with other references by contending Wakai is not a proper primary reference because it does not disclose a two-dimensional screen translation based on the angle of initial movement. (CIB at 128.) Apple contends Samsung's obviousness arguments "suffers from classic hindsight bias." (*Id.*) Apple notes that Dr. Balakrishnan testified an inherency of the '949 patent is the use of a heuristic to determine whether the user's finger movement indicates the user wants to perform a one-dimensional vertical scroll or a two-dimensional screen translation based on the angle of the movement of that finger. (*Id.*) Despite that inherency and finding a reference suggesting such an inherency (the heuristic), Samsung relies upon Wakai as a references disclosing gestures to cause vertical scrolling and still other references that disclose gestures to cause two-dimensional scrolling (Cheston and Chiu), and then "says "combine them" by using the angle of initial movement to select one or the other." (*Id.*)

Apple claims Samsung's combinations ignores that:

. . . combining these two particular gestures so that a user can select one- or two-dimensional scrolling based on the angle of initial movement is at the heart of the '949 patent invention. See *Ortho-McNeil*, 520. F.3d at 1364 (rejecting the reasoning of an expert who "simply retraced the path of the inventor with hindsight, discounted the number and complexity of the alternatives, and concluded that [the invention] was obvious".)

(*Id.*)

Apple argues Wakai takes a different approach to user interface design than the '949 patent. (RIB at 129.) Wakai discloses substantially different functions that can be attributed to any single gesture. (*Id.*) Apple gives several examples of how vertical gestures in Wakai may map commands that have nothing to do with one another, *e.g.*, "A gesture that is 34 degrees from the vertical axis may be mapped to a next item command, while a gesture that is 36 degrees from

vertical may be mapped to a lateral expansion. (*Id.*, citing RX-606 at col. 14:22-15:11.) Apple thus argues there would be no motivation to take this disclosure and add the core of the vertical screen scrolling heuristic of the '949 where mapping two similar commands to two similar gestures to create an intuitive, usable device. (*Id.*)

Apple notes that both Chiu and Cheston disclosed a one-dimensional vertical screen scrolling command, and that Hashimoto and Cheston disclosed a two-dimensional screen scrolling command. (CIB at 130.) Apple contends many of these references pre-dated the '949 patent invention by several years. (*Id.*) Wakai, for example, was first filed in 2000. (*Id.*, citing RX-606.) Hence, the commands identified in these references were pervasive in the art for a period of time before the '949 patent, (*Id.*) Nevertheless, Apple asserts Samsung cannot identify even one reference that “even hints at combining them using the claimed heuristics,” which it contends is strong evidence that the '949 patent claims were not obvious to one of ordinary skill at the time. (*Id.*)

The Staff contends Samsung’s explanation for a motivation to combine Wakai with the Hashimoto, Cheston, and Chiu references is insufficient as a matter of law. The Staff explains that Samsung only argues that “the two-dimensional screen translation commands of either Cheston or Chiu *can* be implemented into Wakai.” (SIB at 65, citing RX-3448C (van Dam DWS) at Q&A 282.) But, establishing references *can* be combined, cannot provide sufficient reasons for a motivation to combine. (SIB at 65.)

Analysis

Hashimoto is a patent application published on May 11, 2006, which is before the September 6, 2006, effective filing date of the '949 patent. (RX-561.) Thus, Hashimoto is prior art under 35 U.S.C. § 102 (e).

Although I agree with Samsung that Hashimoto discloses two-dimensional screen translation (a point Apple concedes), I disagree that combining the two-dimensional screen translation disclosed in Hashimoto with the vertical scrolling disclosed in Wakai would have been a predictable extension of the teachings of Wakai. Moreover, even if the two references were combined it would not result in the claimed invention of the '949 patent, because there is no disclosure of a heuristic that distinguishes between vertical screen scrolling and a two-dimensional screen translation based on the angle of initial movement of a finger contact.

Specifically, the evidence shows that Wakai discloses one single gesture can be mapped to several commands, *e.g.*, an upward travel gesture could be interpreted by an algorithm to be a “next-item operation” or a “a next-screen operation, a last-line operation, an upward shifting operation, an expansion operation in a vertical direction only, [or] a contraction operation in a vertical direction only.” (RX-606 at col. 14:22-52.) Therefore, I find it would not have been obvious to take the vertical screen scrolling command of Wakai, and the two-dimensional screen translation heuristic of any other reference (like Hashimoto, Cheston, or Chiu), and create a heuristic which distinguished between them based on an angle of initial movement as '949 requires as its central innovation. Hence, I agree with Dr. Balakrishnan's credible testimony when he opined there would be no motivation to take Hashimoto, Chui, or Cheston and add to these to the core of the vertical screen scrolling heuristic of '949 patent; where mapping two

very similar commands to two very similar gestures to create an innovative, intuitive, usable device. (CX-2591C (Balakrishnan RWS) at Q&A 88-91.)

The Staff's argument is compelling. Saying two references "can be implemented" as Dr. van Dam did (RX-3448C at Q&A 282), is insufficient proof as matter of law to establish obviousness by clear and convincing evidence. Plainly, the mere probability of an event is well short of sufficient rational for a motivation to combine.

b. Wakai in view of Cheston and Chiu

Cheston is a patent application published on July 27, 2006, which is before the September 6, 2006, effective filing date of the '949 patent. (RX-581.) Thus, Cheston is prior art under 35 U.S.C. § 102 (e).

Chiu is a patent application published on January 5, 2006, which is before the September 6, 2006, effective filing date of the '949 patent. (RX-522.) Thus, Chiu is prior art under 35 U.S.C. § 102 (e).

There is no need to discuss resolution of these two patents after discussing Hashimoto immediately above. Samsung combined its argument of all of these references, as did the Staff and Apple. Moreover, the expert testimony of the experts also combined their discussion. Accordingly I hold, consistent with my findings under Hashimoto, that Samsung's explanation for a motivation to combine Wakai with the Cheston and Chiu references is insufficient as a matter of law. Hence, for that and all the other reasons discussed in Hashimoto, immediately above, I find that Samsung has failed to establish by clear and convincing evidence that Chiu and Cheston references, in combination with the Wakai reference, makes obvious the claims of the '949 patent.

c. Wakai (or Wakai combinations) in view of Pallakoff

The Parties' Positions

Samsung argues that asserted dependent claims 10, 12-13, and 18-19 are obvious in light of Wakai in view of Pallakoff. (RIB at 136-137.) Samsung argues that Wakai teaches recognizing commands from gestures on an information processing apparatus and that Pallakoff teaches recognizing user input on a touch screen device that runs programs such as web browsers and photo album viewers. (*Id.*) Samsung argues it would have been obvious to one of ordinary skill in the art to combine the teachings of Wakai with the web browser and photo album applications of Pallakoff because such a combination would have been predictable. (*Id.* at 137.)

Apple argues Samsung has failed to show that the dependent claims specifying a web browser and a photo gallery (claims 9, 10, 12, 13, and 18) are rendered obvious by Wakai in light of Pallakoff and cites Dr. Balakrishnan in support. (CIB at 130, citing CX-2591C at Q&A 91.) Nor did Samsung identify any motive why one of ordinary skill in the art would have combined Pallakoff with Wakai, other than say both used touch screens. (*Id.*) Apple also argues the combination of Wakai and Pallakoff does not disclose either two-dimensional screen translation or the heuristics claimed in the '949 patent. (*Id.*)

The Staff argues that because Samsung's description of the "need" addressed by Wakai and Pallakoff "to distinguish between imprecise gestures based on finger contacts for various applications," is overly broad, Samsung failed to provide adequate or convincing reasons to establish that one of ordinary skill in the art would be motivated to combine Wakai with Pallakoff. (SIB at 66.) Accordingly, Samsung has not met its burden of establishing that the combination of references makes the '949 claims obvious. (*Id.*)

Analysis

U.S. Patent Application Publication No. 2005/0012723 (“Pallakoff”) was filed on January 20, 2005, which is more than a year before the September 6, 2006, effective filing date of the ‘949 patent. Thus, Pallakoff is prior art under 35 U.S.C. § 102(b).

I find the arguments of the Staff and Apple to be rather convincing. I note that I find Dr. Balikrishnan’s opinion that Samsung (Dr. van Dam) had not identified why one of ordinary skill in the art would have been motivated to combine Wakai and Pallakoff disclosures, other than they use touch screens (CX-2591 at Q&A 91) to be persuasive. Thus, I find Samsung has not established sufficient motivation to combine the relevant references.

I have also found, *supra*, that Wakai fails to disclose a “two-dimensional screen translation” as required by claims 1, 4-6, 11, 14-17, and 20. Samsung does not argue that Pallakoff satisfies this limitation. Rather, Samsung asserts only that Pallakoff discloses the additional limitations found in dependent claims 10, 12-13, and 18-19. Thus, for the same reasons discussed with regard to Wakai, I find the combination of Wakai and Pallakoff does not disclose the claimed “two-dimensional screen translation.” Accordingly, I find that Samsung failed to prove by clear and convincing evidence that claims 10, 12-13, and 18-19 are obvious in light of Wakai in view of Pallakoff.

d. Westerman Thesis in view of one of ordinary skill in the art

The Parties’ Arguments

Samsung argues the Westerman reference discloses its teachings are applicable to touch screens. (RIB at 137.) It alleges one of the prosecuting attorneys believed that the Westerman Thesis applied to touch screens. (*Id.*) In addition, Samsung alleges Apple presented figures

from Westerman to the PTO in a presentation touting touch screen technology developed for the iPhone. (*Id.*) Therefore, one of ordinary skill in the art would have found it obvious to apply the teachings of the Westerman Thesis to touch screen devices. (*Id.*)

There is not a great deal of difference between Apple's anticipation arguments concerning the Westerman reference and its obviousness arguments. (*Compare* CIB at 119-122 to 125-128.) Regardless, Apple emphasizes the failure of Westerman to disclose vertical scrolling or differentiate between one-dimensional screen scrolling and two-dimensional screen translation based on the angle of initial movement. (CIB at 126.) Apple argues this important innovation was not taught by anything in the art, including Westerman and thus Samsung failed to meet its burden of proving that anything in Westerman disclosed or suggested the vertical screen scrolling heuristic claimed by the '949 patent. (*Id.*)

Apple argues that Westerman employs a very different approach to controlling devices through gestures than the '949 patent. (*Id.*) Apple alleges that operating the system disclosed by Westerman would require a user learn an extensive vocabulary of gestures, all mapped to different command (the very opposite of the '949 patent's intuitive approach. (*Id.*, citing CX-2591C (Balakrishnan) at Q&A 57-59.) Moreover, Apple argues this is an integral part of the user interface philosophy of the iPhone, which is to emphasize simple functionality over the number of features. (*Id.*)

Apple argues Westerman reference device "is a good example of an entirely different choice in user interface design; it sacrifices usability for powerful functionality." (CIB at 127.) The Westerman approach teaches away from the kind of solution proposed by the '949 patent; instead Westerman teaches allowing the demands of increasing functionality to dictate the

gestures the user must make, whether or not those gestures have any intuitive relationship to the commands they are mapped to, while the '949 patent lets the user's natural, intuitive gesture drive the commands that are mapped to that gesture. (*Id.*, citing CX-2591C (Balakrishnan) at 32-33, Q59.)

Apple avers that As the Staff anticipated, Samsung does not demonstrate how or that one of ordinary skill in the art would combine the touchpad gestures described in the Westerman thesis with a touch screen as described in Wakai or Jin. (*Id.*) Gestures appropriate for a touch pad may not be reasonable to use on a touch screen, for:

... as Dr. Van Dam testified, touchpad systems need not account for the fact that the user's hands may obscure the input surface, because the system is displaying data on an entirely separate screen. (Tr. at 1550:2-1551:13.)" (*Id.*) When using a touch screen, the user's fingers partially obscure the display; therefore, the designer must consider how to account for and minimize this problem. (CX-2591C (Balakrishnan) at 33-35, Q60-62.) Therefore, many of the gestures the Westerman thesis describes, including gestures using both hands or using up to five fingers, may make sense on a touch pad, but may require a redesign to be effective on a touch screen (RX-36 at 42, 44, & 255-305.)

(*Id.*) Therefore, Apple argues Samsung "failed to prove by clear and convincing evidence that one of ordinary skill in the art would look to Westerman, when developing a system for interpreting gestures on a touch screen and changing screen content accordingly." (*Id.*)

The Staff argues that while Samsung does argue Westerman explicitly discloses its teaching is applicable to a touch screen device and that it would have been obvious to one of ordinary skill in the art to apply the disclosed teachings to a touch screen device, the evidence has shown that the Westerman thesis discloses a touchpad, not a touch screen. (SIB at 63-64, citing, *e.g.*, RX-3448C (van Dam) at Q&A 124.) The Staff also notes the touchpad device of Westerman operates in a different manner than that of the '949 touch screen. (SIB at 64, citing

Tr. 1553:6-1554:3; RX1266C.) The Staff, consistent with its anticipation arguments concerning Westerman, also argues that the evidence shows Westerman does not disclose or suggest vertical screen scrolling or differentiating between such scrolling and two-dimensional screen translation based on an angle of initial movement as discussed above.) (Id.) Thus, the Staff argues Samsung has not met its burden of establishing by clear and convincing evidence that the Westerman thesis renders the '949 patent obvious.

Analysis

I find the Staff's and Apple's, arguments to be supported by more credible evidence and logic than the arguments made by Samsung. In short, as both Apple and the Staff contend, Samsung has failed to carry its burden by clear and convincing evidence.

I reject Samsung's contention that Westerman discloses its teachings are applicable to touch screens. As discussed above, I have already found Westerman's teachings are not applicable to touch screens. I reiterate this finding, even considering the Prosecuting Attorney's testimony advocated by Samsung, which I reject for the reasons Apple advocates, but also because there is no proof he is a person of ordinary skill in the art or is an expert. Regardless, even if the Westerman reference discussed use of touch screens, I would reach the same conclusion about Westerman rendering the '949 patent obvious.

I also consider it critical the evidence shows Westerman does not disclose or suggest vertical screen scrolling or differentiating between such scrolling and two-dimensional screen translation based on an angle of initial movement as discussed above. (CX-2591C at Q&As 34-35.) One thing that is clear is that the '949 patents claims do just that. (See *e.g.*, JX-003 at 122:37-123:2; 123:3-7; 123:12-17; 124:1-7; and 124:7-33.) For this reason alone I would find

Samsung has failed to sustain its burden of proof to show the '949 patent is obvious by clear and convincing evidence. Yet, there is more.

Next, I find Samsung is unable to explain any credible motivation for a person of ordinary skill in the art to take Westerman and end up with the '949 patent. As Apple argues so well, the fundamental idea behind the two is different, for Westerman is focused on perhaps hundreds of gestures to achieve functionality on a touchpad, while the '949 patent is focused on achieving maximum functionality with a few very intuitive gestures on a touch screen the user has to see. (CX-2519C (DWS Balakrishnan DWS) at Q&As 57-62.) In evaluating Samsung's arguments, I considered and rejected Dr. van Dam's arguments (*see* RX-3448C at Q&A 128) addressing touch screen size as being variable. While there is a variability of touch screen size, it is more relevant that Westerman is about recognition of numerous fixed gestures by the human hand and the '949 is about intuitively recognizing a very limited group of gestures by a finger. Westerman clearly teaches away from the intuitive nature of the '949 patent with scripted or rote gestures.

e. Westerman Reference in view of Wakai

The Parties' Arguments

While still contending that Westerman discloses touch screen limitations and vertical scroll screening, Samsung argues one of ordinary skill in the art would have been motivated to combine the teachings of Wakai and thus the '949 patent would be obvious. (RIB at 138.) More specifically, the motivation would have been to combine Westerman with other touch screen art for touch screens and touchpads were within the same field and a predictable variation under *KSR*. (*Id.*)

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Samsung reiterates all of its touch screen arguments with regard to Westerman, which will not be repeated, other than to acknowledge it argues the size of the touch screen on the ‘9459 patent is not limited. (*Id.*)

Referring to its argument concerning anticipation and Wakai, Apple argues that Wakai does not even disclose two-dimensional screen translation as a possibility, apart from not distinguishing between one-dimensional scrolling and two-dimensional translations based upon the angle of initial movement. (CIB at 128.) Thus, it is not a proper primary reference.

Apple argues that the Wakai arguments are improper hindsight, no matter with what variation. (*Id.*) It asserts that finding obviousness with Wakai about combining two or more gestures, not using the angle of initial movement combined with a heuristic, the core of the ‘949 patent. (*Id.*)

Apple argues that both Westerman and Wakai take different approaches to user interface design than taken by the ‘949 patent. (CIB at 129.) Wakai maps one gesture to several potential functions that may have nothing to do with one another. (*Id.*) As previously discussed herein, there would be no motivation to take disclosures involving very similar movements with very different commands associated with them and add those disclosures to the “heart of the vertical screen scrolling heuristic ‘949 patent; mapping two very similar commands to two very similar gestures to create an intuitive, usable device.” (*Id.*)

The Staff rejects Samsung’s arguments and argues instead that Samsung has not met its burden of establishing by clear and convincing evidence such a combination of references renders the ‘949 patent obvious. (SIB at 65.)

Analysis

I find Samsung's argument that Westerman, in view of Wakai, makes the '949 patent obvious, to be virtually indistinguishable from all of its other Westerman and Wakai arguments I have already rejected for the reasons stated in my earlier discussion and there is no reason to repeat my reasoning. In addition, Samsung's argument vis-à-vis this topic is based upon attorney argument rather than credible opinion, for the citation to Dr. van Dam's direct witness statement by Samsung (RIB at 138, citing to RX-3448C at Q/As 123-128) addresses whether the Westerman reference deals with touch screens, not motivation to combine references. Accordingly, I find Samsung has failed to offer sufficient proof of motivation to combine Wakai and Westerman as a matter of law. Secondly, consistent with my findings concerning Westerman and Wakai discussed above, I find the differences between these references, by themselves or in combination, is such that they teach away from the '949 patent rather than offering any kind of predictable variation that would lead to the '949 patent. Specifically, as argued cogently by Apple, neither of these references distinguishes between one-dimensional scrolling and two-dimensional translations based upon the angle of initial movement, the core of the '949 patent. Accordingly, not only do I agree with Apple that Samsung's arguments are impermissible hindsight but I also find them unconvincing.

f. Secondary considerations of non-obviousness

The Parties' Arguments

Apple alleges Samsung failed to rebut Apple's evidence of objective indicia of non-obviousness. Specifically, Samsung failed to rebut the evidence of commercial success and copying of the '949 patent by Samsung. In addition, Apple alleges its products encountered

success in face of initial expressions of skepticism by industry observers, later high praise (including internal Samsung papers), and all of this was followed by Samsung's close analysis, benchmarking and even copying of Apple's GUI and other features – all of which is unrebutted. (CIB at 243.) Apple argues, given the facts, applicable precedent supports a finding of non-obviousness.

Without getting into specifics, Apple asserts it has realized truly significant revenues and profit arising from its Domestic Industry Products. (CIB at 244.) In addition, Apple argues it was the world's top smart phone vendor in 2011. (CIB at 245.) Hence, Apple's expert, Dr. Prowse, opines there is only one reasonable conclusion, which is that the iPhone, iPad, and iPod touch products have demonstrated substantial commercial success. (*Id.*)

Apple argues it has a strong success because of its GUI (ease of use) and its products. (*Id.*) Apple claims this has been verified by surveys, marketing research and Samsung's own documents. (*Id.*) In addition, Apple's expert verified the nexus between the success of Apple's products and Samsung's infringing products and their use of the Apple type GUI. (CIB at 246-247.) Apple's expert also testified the '949 patent was important to the success of its products. (CIB at 247.)

Apple next argues industry skepticism provides objective evidence of non-obviousness, but seemingly does not argue specific application to the '949 patent. (CIB at 248-249.) However, Apple does argue industry praise for its iPhone that does apply to its GUI and thus the '949 patent. (CIB at 250.) Apple also argues Samsung's internal documents praised its touch-based user interface. (CIB at 251.)

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Apple also alleges Samsung copied its products embodying the ‘949 patent and that the copying was no accident, including copying of the GUI, for consumers would expect this. (CIB at 252.)

The Staff reports that Apple alleges that commercial success and copying by Samsung confirm the non-obviousness of various patents, including the ‘949 patent. (SIB at 120.) The Staff also notes Apple alleges its asserted Graphical User Interface (GUI) patents [including the ‘949 patent] are responsible for the tremendous commercial success enjoyed by the Apple products that embody those patents. (Id.) The staff argues Apple provides several facts in support of its allegations.

In evaluating Samsung’s response, the Staff explains that even though Samsung contends Apple has not proven a nexus between commercial success and the inventions at issue in this investigation,

the Federal Circuit has held that “. . . if the marketed product embodies the claimed features, and is coextensive with them, then a nexus is presumed and the burden shifts to the party asserting obviousness to present evidence to rebut the presumed nexus.” *See Brown & Williamson Tobacco Corp. v. Philip Morris, Inc.*, 229 F.3d 1120, 1130 (Fed. Cir. 2000); *see also J.T. Eaton & Co. v. Atlantic Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed. Cir. 1997).

(Id.) The Staff argues the evidence shows the claimed features of the GUI patents contribute to the success of the Apple products at issue. (SIB at 121.) Regarding the nexus between commercial success and the graphical user interface patents the Staff offers that a 2008 survey (CX-1809) found that the “best feature of the iPhone” was the “fingertip navigation (zooming, scrolling, etc.)” and an “innovative feature” was the “multi-touch screen.” (CX-1809.)

Samsung argues that Apple’s evidence of commercial success and copying of the ‘949 patent lacks nexus. (RIB at 139.) Samsung argues that Dr. Prowse’s testimony on the success of

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the Apple GUI is not specific enough to the touch screen heuristic of the ‘949 patent and argues the same should apply to Dr. Balakrishnan for his failure to identify unique characteristics of the ‘949 patent. (RIB at 140.) Samsung makes the same arguments with regard to copying evidence offered by Dr. Balakrishnan and reiterates that everyone benchmarks. (RIB at 141.)

Analysis

I have already found that Apple’s iPad, iPad2, original iPhone, iPhone 3G, iPhone 3GS, iPhone 4, iPhone 4S, iPod Touch 3G, and iPod Touch 4G (collectively “Domestic Industry Products”) running both Apple iOS 3 and iOS 5 practice claim 1 of the ‘949 practice the ‘949 patent under the technical prong. What is more, it is unassailable that these products have been commercially successful (not even challenged by Samsung), even if they are no longer commercially successful individually because they are no longer sold. As noted by the Staff (SIB at 120), “. . . if the marketed product embodies the claimed features, and is coextensive with them, then a nexus is presumed and the burden shifts to the party asserting obviousness to present evidence to rebut the presumed nexus.” *See Brown & Williamson Tobacco Corp. v. Philip Morris, Inc.*, 229 F.3d 1120, 1130 (Fed. Cir. 2000); *see also J.T. Eaton & Co. v. Atlantic Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed. Cir. 1997). I find Samsung has not provided any probative evidence sufficient to rebut the presumed nexus.

Apple notes it was the world’s “top smartphone vendor” in 2011. (CX 34 at 1; CX-2597C (Prowse) at Q&As 53-54.) Regardless, even if Apple were not the market leader, I take notice of the fact that Apple (like Samsung) has been a strikingly successful participant in the smartphone market and that Apple is arguably the number one capitalized company in the world as of the writing of this determination. Moreover, there is no contest that the products employing

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the GUI claimed by the '949 patent contributed to Apple's success (although Samsung does challenge whether the Domestic Industry Products practice the claims of the '949 GUI patent, I have found the Domestic Industry Products practice the '949 GUI patent.) In support of Apple's claim success and the cause of its success (nexus), I find the testimony and explanation of Dr. Stephen Prowse to be credible, consistent, and supported by other credible evidence of record. (*E.g.*, CX-2597C (RWS) at Q&As 31, 32, 46, 81, 82, 94; and 128 *see also* CX-67C; CX-2596C (Joswiak) at Q&As 22, 27, 46, and 59-66; CX-2130 at 1 and CX-2131 at 1; CX-2132 at 1; CX-2582C; CX-2583C; and CX-2584C.)

Beyond Samsung's inability or choice not to challenge the success of the Apple products, I note there is evidence that Apple's GUI has contributed to the success of its products. (CX-1809.) As thoroughly discussed above, the one-dimensional scrolling and two-dimensional translations based upon the angle of initial movement, are the core of the '949 patent. Similarly, intuitive commands stemming from the '949 patent are at the very heart of the GUI of the Domestic Industry Products. Accordingly, the evidence establishes the commercial success of the Domestic Industry Products is due, at least in part, to the '949 patent. I find that Apple strongly believes its innovative and new GUI contributed to the success of its products and that it has empirical and substantive and credible proof of its belief. (CX-2596C (Joswiak) at Q&As 31, 32, 81, 82; and 88; *see also* Tr. 1965:24-1967:13; CX-35.) To Apple, GUI translated to ease of use and was a reason for the success of its products. (CX-2596C and CX-2596C (Joswiak) at Q&A 32.)

As discussed above, while Apple argues industry skepticism provides objective evidence of non-obviousness, it seemingly does not argue specific application to the '949 patent. (CIB at

248-249.) However, Apple does argue industry praise for its iPhone that does apply to its GUI and thus the '949 patent. (CIB at 250.) Specifically, Apple argued and established that:

the iPhone was called “the most inspired handset on the market,” and recognized it as “best” in many user interface categories, including web browser, noting its “touch-interaction which makes navigation, zooming and selection easy and intuitive.” (CX-319C, *passim*; CX-1671C at 10.) A Samsung document entitled “3G iPhone Counter Plan” compared the iPhone to one of Samsung’s smartphones and concluded that the Samsung phone was inferior in a number of respects, including because it has a “less sophisticated user interface,” with “no multi-touch UI.”

Internal Samsung documents praised the iPhone’s touch-based user interface. A document entitled “Competitor Analysis: GUI Benchmarking” described the iPhone as “the most inspired handset on the market,” and recognized it as “best” in many user interface categories, including web browser, noting its “touch-interaction which makes navigation, zooming and selection easy and intuitive.” (CX-319C, *passim*; CX-1671C at 10.) A Samsung document entitled “3G iPhone Counter Plan” compared the iPhone to one of Samsung’s smartphones and concluded that the Samsung phone was inferior in a number of respects, including because it has a “less sophisticated user interface,” with “no multi-touch UI.” (CX-74C; *see also, e.g.*, CX-69C (describing iPhone’s user interface as “fun” and “whimsical”); CX-73C (discussing iPhone’s user interface and observing that “Controlling Pan, Zoom and Scroll are simpl[e] and intuitive using finger gestures”); CX-1776C at 2 (“3G iPhone is redefining the US market dynamics”); CX-308C at 2 (“the iPhone has been successful at achieving a light and airy aesthetic while retaining good battery life and we believe Samsung can do the same”).)

(CIB at 251; CX-832 at 31.) Thus, I find, for the reasons argued by Apple that the industry praise it received is objective evidence of non-obviousness.

I also find there is evidence Samsung copied Apple’s ‘949 user interface, for I have found Samsung infringes the ‘949 patent as discussed above. But more, Apple introduced evidence tending to

(CX-1571C and *see* CX-2591C

(Balakrishnan RWS) at Q&A 96.)

Based upon the foregoing, I find there are strong indicia of non-obviousness with regard to the '949 patent that further strengthen Apple's already successful arguments that the patent is not obvious.

3. Written Description

Parties' Positions

Apple argues that the Samsung has failed to prove that the '949 patent does not satisfy the written description requirement. (CIB at 131.) Apple argues that there are many different heuristics disclosed inscribed in the specification and that the extensive written description fully supports the claims of the 949 patent. (*Id.*) Apple argues that Samsung's assertion that the specific rules used by each of the heuristics have to be described down to the finest possible detail is not legally supportable. (*Id.*) Apple argues it is unnecessary to spell out every detail of the invention in the specification. (*Id.*) Apple argues the one of ordinary skill in the art reading the 949 patent would know what the applicants have invented without having to be shown specific source code that would implement the invention. (*Id.* at 131-132.) Apple argues that Samsung's written description challenge is based on the same faulty claim construction of the term "heuristics" that it asserted in support of its non-infringement position. (*Id.* at 132.)

Samsung argues that the asserted claims the '949 patent are invalid for failing to meet the written description requirement because specification the '949 patent lacks any details regarding the claimed heuristics that would allow person of ordinary skill in the art to recognize that the applicants had actually invented such a heuristics. (RIB at 142.) Samsung argues that the specification does not disclose any level of detail about the heuristics themselves. (*Id.*)

Samsung argues that the specification effectively presents a heuristic is a black box, with a gesture is the input in the command is the output. (*Id.*) Samsung argues that the specification fails to ever disclose how the black box determines which command a process for a given gesture. (*Id.*) Samsung argues that a sufficiently detailed written description must disclose the rule used to determine which command to be processed in response to a particular gesture. (*Id.* at 143.) Samsung argues that no such rules disclosed. (*Id.*) Samsung also argues that the patent is silent on how to determine, in the first instance, whether a detect a gesture is a swipe gesture. (*Id.*) Samsung further argues that the patent fails to adequately describe selecting vertical scrolling or two-dimensional translation based on an angle of initial movement. (*Id.* at 143-144.) Samsung argues that the single embodiment of describing this your estate merely compares the measured angle against predetermined constant reference angle. (*Id.*) Samsung argues that at best it is inflexible algorithm and not a rule that assist in drawing inferences from data as required by the claims of the 949 patent. (*Id.*)

The Staff argues that one of ordinary skill in the art would appreciate that the ‘949 inventors were in possession of the claimed invention in light of the claim specification of fingers as the ‘949 patent specification discloses detailed examples of applying heuristics including descriptions of how the heuristics function. (SIB at 66.) Thus, the Staff argues the patent is not invalid for failure to satisfy the written description requirement. (*Id.* at 67.)

Analysis

The hallmark of the written description requirement is the disclosure of the invention. *Ariad Pharm., Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). To satisfy the written description requirement, the specification “must describe the invention

sufficiently to convey to a person of ordinary skill in the art that the patentee had possession of the claimed invention at the time of the application, *i.e.*, the patentee invented what is claimed. *LizardTech, Inc. v. Earth resource Mapping, Inc.*, 424 F.3d 1336, 1344 (Fed. Cir. 2005.) “[I]t is unnecessary to spell out every detail of the invention in the specification; only enough must be included to convince a person of skill in the art that the inventor possessed the invention and to enable such a person to make and use the invention without undue experimentation.” *Falkner v. Inglis*, 448 F.3d 1357, 1366 (Fed. Cir. 2006.) Compliance with the written description requirement is a question of fact and “the level of detail required to satisfy the written description requirement varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology.” *Adriad Pharm, Inc.*, 598 F.3d at 1351.

The ‘949 patent is directed to a “[t]ouch screen device, method, and graphical user interface for determining commands by applying heuristics.” (JX-003, cover page) The invention is born out of “a need for touch-screen-display electronic devices with more transparent and intuitive user interfaces for translating imprecise user gestures into precise, intended commands.” (*Id.* at 2:26-30.) Each of the asserted claims of the ‘949 patent requires a vertical screen scrolling heuristic, a two-dimensional screen translation heuristic, and a next item heuristic and as discussed below, each are described in detail in the specification of the ‘949 patent.

For example, the vertical screen scrolling heuristic and two-dimensional screen translation heuristics are described in the ‘949 patent at column 111, lines 29-49 and column 112:32-65, and in Figures 39C and 64A-B. (JX-003 at 111:29-49, 112:32-65, Figs. 39C, 64A-B.) These same sections also provide a written description of the horizontal screen scrolling

heuristic required by asserted dependent claims 6 and 10. (*Id.*) The specification also includes a detailed written description of the next item heuristic. (*Id.* at 33:65-34:6, 34:12-21, Fig. 12A, 16A.)

Contrary to Samsung's argument, the evidence shows that one of ordinary skill in the art who has read the '949 patent would know what the applicants invented without the need for the specific source code that would implement the claimed heuristics. (*See* CX-2591C (Balakrishnan RWS) at Q&A 102-106.) The evidence shows that one of ordinary skill would be able to look at Fig. 16A and the accompanying text, and know what specific source code could be used to recognize and interpret the "swipe" indicated by number 1616, and execute the corresponding claimed next item command. (*Id.* at Q&A 104-105.) Similarly, the evidence shows that one of ordinary skill in the art would be able to look at Fig. 39C and the accompanying text and know what specific code would be used to recognize and interpret the two gestures indicated by numbers 3937 and 3939 and execute the corresponding vertical screen scrolling command and two-dimensional screen translation command. (*Id.* at Q&A 103.)

Accordingly, I find for the reasons discussed above that Samsung has failed to prove by clear and convincing evidence that the asserted claims of the '949 patent are invalid for failure to satisfy the written description requirement of 35 U.S.C. § 112.

4. Enablement

The Parties' Positions

Apple argues that the Samsung has failed to prove that the '949 patent does not satisfy the enablement requirement. (CIB at 131.) Apple argues that Samsung's enablement argument fails for the same reason as its written description argument fails, that is both are based on the

unsupported assumption that the '949 patent specification must teach more than that certain types of rules can be used to map certain kinds of gestures to specific commands. (*Id.*) Apple argues that Samsung's expert relies on the same set of facts to support its written description argument as it does to support its lack of enablement argument. (*Id.*) Apple argues the one of ordinary skill in the art would not need to be given specific source code in or to implement the invention of the 949 patent because the claims and specification clearly describe that which was invented. (*Id.* at 133.) Apple argues that the details of any specific implementation, such as how to detect a finger contact with a touch screen or how to determine an angle of initial movement, would be well known to one of ordinary skill in the art. (*Id.*) Apple notes that I already stated in Order No. 16 Construing Claims that the evidence shows that one of ordinary skill in the art at the time of the invention would know an algorithm or rule to use to accomplish the claimed subject matter. (*Id.*)

Samsung argues that the asserted claims are invalid for failure to meet the enablement requirement because the disclosure of the '949 patent is insufficient for a person of ordinary skill in the art to determine which rules to apply for the claimed heuristics without having to perform undue experimentation. (RIB at 145.)

The Staff argues that contrary to Samsung's argument a person of ordinary skill in the art would not have to unduly experiment with different rules in order to practice the claimed invention. (SIB at 67.) The Staff argues that, even assuming *arguendo* that experimentation would have to occur, the evidence has shown that such experimentation would not be undue considering the complexity of the technology and the various levels of accuracies of such computerized touch screen systems. (*Id.*)

Analysis

To satisfy the enablement requirement of 35 U.S.C. § 112, the specification “must teach those of ordinary skill in the art how to make and use the invention without undue experimentation.” *Liquid Dynamics Corp. v. Vaughan Co.*, 449 F.3d 1209, 1224 (Fed. Cir. 2006) (internal quotations omitted). Samsung’s enablement argument fails for the same reason as its written description argument in that both are based on the unsupported assumption that the ‘949 patent specification must teach more than that certain types of rules can be used to map certain kinds of gestures to specific commands.

The evidence shows that one of ordinary skill in the art would not need to be given specific source code in order to implement the claimed invention of ‘949 patent because the claims and specification clearly describe that invention. (CX-2591C (Balakrishnan RWS) at Q&A 110-113.) The evidence shows that the details of any specific implementation, such as how to detect a finger contact with a touch screen or how to determine an angle of initial movement, would be well known to one of ordinary skill in the art. (*Id* at Q&A 111.)

Samsung argues that one of skill in the art seeking to practice the claims “would have to experiment with different rules in order to find a rule or combination of rules that infer the intended command from the gesture.” However, the evidence shows that even assuming *arguendo* that experimentation would have to occur, such experimentation would not be undue considering the complexity of the technology and the levels of accuracies of computerized touch screen systems. (See JX-003 at 111:4-65, 112:19-43; CX-2591C (Balakrishnan RWS) at Q&A 110-113.) See also *Liquid Dynamics Corp. v. Vaughan Co.*, 449 F.3d 1209, 1224 (Fed. Cir. 2006) (“Some experimentation is permissible, although it cannot be unduly excessive.”).

Accordingly, I find for the reasons discussed above that Samsung has failed to prove by clear and convincing evidence that the asserted claims of the '949 patent are invalid for failing to satisfy the enablement requirement of 35 U.S.C. § 112.

VIII. U.S. Patent No. RE41,922

A. Introduction

U.S. Patent No. RE41,922 (“the ‘922 patent”) is titled “Method and apparatus for providing translucent images on a computer display.” The patent issued on November 9, 2010, to Gough, et al. and was assigned to Apple, Inc. (JX-004, cover page.) The ‘922 patent is a broadening reissue of U.S. Patent No. 6,072,489, which issued on June 6, 2000, from an application filed on September 30, 1993. (*Id.*) U.S. Patent No. 6,072,489 is a continuation-in-part of patent application Ser. No. 08/060,572, filed May 10, 1993 under the title “Method and Apparatus for Displaying an Overlay Image,” now U.S. Patent No. 5,638,501. (*Id.* at 1:12-19.)

The ‘922 patent is directed to a method for displaying images on a display screen of an electronic device. (JX-004 at 3:22-32.) According to the patent, a base image is displayed on a display screen of the device and a translucent image is also displayed on the screen such that portions of the base image covered by the translucent image are at least partially visible through the translucent image. (*Id.*) The images are selectably active to receive user input, and the base image remains at least partially covered by the translucent image when selected. (*Id.*)

B. Asserted Claims

Apple argues that Samsung infringes claims 29-35 of the ‘922 patent. Claims 29, 31, and 33 are independent claims. Claims 30, 32, and 34-35 are dependent claims. The asserted claims read as follows:

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29. A method for displaying images on a display screen of an electronic device, comprising the steps of:

displaying a base image on a display screen of the electronic device; and

displaying a translucent image on said screen such that portions of said base image which are covered by said translucent image are at least partially visible through said translucent image, wherein said translucent image and said base image are selectably active to receive user input and the base image remains at least partially covered by said translucent image even when selected.

30. A method as recited in claim 29, wherein the electronic device is a handheld device.

31. A method of performing image operations in an electronic device, including the steps of:

presenting a first selected image with respect to which image operations are desired,

producing a translucent image effective for overlapping at least a portion of said first selected image, wherein said translucent image contains at least one feature of interest, and

conducting an image operation on said first selected image using said feature of interest while the translucent image overlaps at least a portion of the first selected image.

32. A method as recited in claim 31, wherein the electronic device is a handheld device.

33. A method for displaying images on a display screen of an electronic device, comprising the steps of:

displaying a base image on a display screen of said electronic device; displaying a translucent image on said screen such that portions of said base image which are covered by said translucent image are at least partially visible through said translucent image; and

receiving input in said displayed base image while said base image remains at least partially covered by said translucent image.

34. A method as recited in claim 33, wherein said base image is active to receive user inputs.

35. A method as recited in claim 33, wherein the electronic device is a handheld device.

C. Level of Ordinary Skill in the Art

Pursuant to Order No. 16, one of ordinary skill in the art relevant to the '922 patent has at least a Bachelor's degree in Computer Science or a related field, and either (1) an advanced degree with an emphasis on human-computer interaction or a related field; or (2) three to five years of experience, including programming in a windowing graphical user interface, with a basic understanding of how graphics are rendered and displayed. (CX-2352C at 17-18.)

D. Claim Construction

1. "image operation"

Pursuant to Order No. 16, the term "image operation" is properly construed to mean "any kind of operation conducted on an image or window."

2. Other claim terms

In addition to the disputed claim term identified above, pursuant to Order No. 16, the following undisputed claim constructions shall also apply: (1) "translucent image" is construed to mean "an image that can be seen but can also be seen through"; (2) "receiving input in said displayed base image" is construed in accordance with its plain and ordinary meaning; (3) "selectably active" is construed to have its plain and ordinary meaning; (4) "feature of interest" is construed to have its plain and ordinary meaning; (5) "partially visible" is construed to have its plain and ordinary meaning; and (6) "said base image is active to receive user inputs" is construed to mean "the base image is active to accept user input." (CX-2352C.)

E. Infringement

1. Direct Infringement

Apple alleges that each of the '922 Accused Products infringe claims 29-35 of the '922 patent. (CIB at 140.) Specifically, Apple argues that the '922 Accused Products running versions 2.2 and 2.3 of the Android operating system infringe all of the asserted claims through the use of translucent zoom buttons. (*Id.*) Apple also argues that the '922 Accused Products running versions 3.x or 4.0 infringe claims 31-33, and 35 of the '922 patent through the use of a translucent crop window. (*Id.*) Apple further argues that all of the '922 Accused Products infringe the asserted claims through use of translucent text selection. (*Id.*) I address each infringement allegation separately below.

As discussed below, I find that Samsung directly infringes claims 29, 30, and 33-35. However, claims 29, 30, and 33-35 are method claims and as such Samsung's direct infringement cannot form the basis of a violation of Section 337 because the infringement (*i.e.*, the practicing of the method claims) did not occur at the time of importation. *See Certain Electronic Devices with Image Processing Systems, Component Thereof, and Associated Software*, 337-TA-724, Comm'n Op. at 13-14 ("We also interpret the phrase 'articles that – infringe' to reference the status of the articles at the time of importation. Thus, infringement, direct or indirect, must be based on the articles as imported to satisfy the requirements of section 337.") For the same reason I discussed, *supra*, with regard to the '949 patent, I find Apple's argument to the contrary not persuasive.

Neither Apple nor its expert, Dr. Balakrishnan, addressed the '922 Design Around Products. (*See generally*, CIB; *see also* CX-2428C (Balakrishnan DWS) at Q&A 181 ("I

understand that certain Samsung products have been modified. My analysis of translucent zoom buttons in the Gallery application of Android versions 2.2-2.3 does not apply to these products.”) Thus, I find that Apple has failed to prove by a preponderance of the evidence that the ‘922 Design Around Products infringe the asserted claims of the ‘922 patent. In any event, Samsung’s expert, Dr. van Dam, and Samsung employee, Kihyung Nam, convincingly testified that the ‘922 Design Around Products do not satisfy the “translucent image” limitation because

(See RX-3636C (van Dam RWS) at Q&A

602-607; RX-3633C (Nam RWS) at Q&A 15-18.)

a. Zoom buttons in Gallery application in ‘922 Accused Products running Android 2.2 and 2.3

(1) Claim 29

The Parties’ Positions

Apple argues that certain of the ‘922 accused products infringe all the claims of the ‘922 patent through the use of translucent zoom buttons in the gallery application running on said products. (CIB at 140.) Apple argues that the gallery application provides translucent zoom buttons that partially overlap the image being displayed. (*Id.*) Apple argues that the translucent image required by the asserted claims is the zoom button itself. (*Id.* at 141.) Apple argues that the base image at least partially overlapped by the translucent image is the primary image being displayed by the application in the accused products. (*Id.*) Apple asserts that the evidence has demonstrated that the base image is selectably active while the translucent image overlaps it by showing that a swipe at across the base image causes a next item command to be executed. (*Id.*)

Apple also asserts that the evidence has demonstrated that the translucent image is selectably active while overlapping a base image by showing that user input to the zoom button on the translucent image causes a zoom command to be executed. (*Id.*)

Samsung does not contest infringement of claim 29. (RIB at 160-161.)

The Staff asserts that Samsung does not contest that the '922 Accused Products infringe claim 29 of the '922 patent. (SIB at 70.)

Analysis

Dr. Balakrishnan testified in detail that when Samsung employees use or test the '922 Accused Products running versions 2.2 or 2.3 of the Android operating system they practice each limitation of the claim and therefore infringe independent claim 29 of the '922 patent. (CX-2428C (Balakrishnan DWS) at Q&A 182-188, 343.) In particular, Dr. Balakrishnan opined that use of the zoom buttons in the Gallery application included in the '922 Accused Products infringes claim 29. (*Id.* at Q&A 182-183, 185-188.) More particularly, Dr. Balakrishnan testified that the Gallery application provides translucent buttons that partially overlay the base image as it is displayed. (*Id.* at Q&A 182, 185-187.) Dr. Balakrishnan testified that the base image and translucent image are both selectably active to receive user input and that "[w]hen the user taps on the circled 'zoom-in' button in the top left translucent toolbar, the application executes a zoom command" that allows a user to "zoom in" on the base image. (*Id.* at Q&A 182, 188.) According to Dr. Balakrishnan, while the translucent toolbar is in place, the user can execute a next item command by swiping her finger in the base image. (*Id.*) In support of his infringement opinion, Dr. Balakrishnan relied on his inspection of Samsung's accused products, the source code for the accused products, and the deposition testimony of Samsung's own

witnesses who testified about the operation of the accused products and the source code. (*Id.* at Q&A 177.)

Samsung does not contest that the ‘922 Accused Products meet all the limitations of claim 29 or that its employees practice the claimed method. (*See* RIB at 160-161.)

Accordingly, I find for the reasons discussed above that the ‘922 Accused Products satisfy all of the limitations of claim 29 and that Samsung infringes claim 29 of the ‘922 patent.

(2) Claim 30

Claim 30 depends from claim 29. The evidence shows that the ‘922 Accused Products are handheld devices and thus meet the additional limitation of claim 30. (CX-2428C (Balakrishnan DWS) at Q&A 118-119, 191.) Samsung does not contest that the ‘922 Accused Products satisfy the limitation of claim 30 or that its employees practice the claimed method. (*See* RIB at 160-161.) Accordingly, for the reasons discussed here as well as those discussed with regard to claim 29, I find the ‘922 Accused Products satisfy all of the limitations of claim 30 and that Samsung infringes claim 30 of the ‘922 patent.

(3) Claim 31

Parties Positions

Samsung argues that the Android zoom buttons do not satisfy the limitations of claim 31, because they are merely icons, or control objects, which do not constitute features of interest. (RIB at 160.)

Apple argues that the zoom buttons are “features of interest.” Apple argues that Samsung seeks to have the claim term “feature of interest” construed narrowly to exclude the zoom buttons from being considered as such. (CIB at 142.) Apple argues that nothing in the plain and

ordinary meaning of “feature of interest” would exclude the zoom buttons in the Samsung accused products. (*Id.* at 143.) Apple argues that Samsung’s expert must revert to its withdrawn claim construction to opine that image operations using features of interest must be conducted based on, or with reference to, graphical content displayed in another window. (*Id.*) Apple argues that the plain and ordinary meaning of the term “feature of interest” is simply some aspect of a translucent image which the user is interested in. (*Id.*) Apple argues that while user may be interested in the graphical content of the image the term “feature of interest” is not limited to that. (*Id.*) Apple further argues that the Staff’s assertion that the term “feature of interest” is a feature on which the user is conducting an image operation is also in error as the Staff provides no justification for adding the requirement that the image operation must be conducted on the feature of interest. (*Id.* at 143-144.)

The Staff argues that in the context of the ‘922 patent the plain and ordinary meaning of the term “feature of interest” is a feature on which the user is interested in conducting an image operation. (SIB at 71-72.) The Staff argues that the buttons in the Gallery application are not a feature of interest on which a user is interested in conducting an image operation, but rather tools used to perform the function. (*Id.* at 72.) The Staff argues that the buttons in the Gallery application are analogous to the “wand” control icon disclosed in the ‘922 patent, which Apple’s expert admitted is not a feature of interest. (*Id.*) Thus, the Staff argues that the buttons in the Gallery application are not features of interest. (*Id.*)

Analysis

Dr. Balakrishnan testified in detail that when Samsung employees use or test the ‘922 Accused Products running versions 2.2 or 2.3 of the Android operating system they practice each

limitation of the claim and therefore infringe independent claim 31 of the '922 patent. (CX-2428C (Balakrishnan DWS) at Q&A 193-203, 343.) Specifically, Dr. Balakrishnan opined that use of the zoom buttons in the Gallery application included in the '922 Accused Products infringes the claim. (*Id.*) In support of his infringement opinion, Dr. Balakrishnan relied on his inspection of Samsung's accused products, the source code for the accused products, and the deposition testimony of Samsung's own witnesses who testified about the operation of the accused products and the source code. (*Id.* at Q&A 177.)

The parties dispute whether the '922 Accused Products satisfy the "wherein said translucent image contains at least one feature of interest" limitation of the claim. Apple argues that the zoom buttons are features of interest within the plain and ordinary meaning of the term. Samsung and the Staff argue that the zoom buttons in the Gallery application in '922 Accused Products are not "features of interest" because they are used as control buttons to perform a certain function and are not of interest to the user.

At the Markman Hearing in this investigation the parties argued that the term "feature of interest" did not need to be construed and should be accorded its plain and ordinary meaning. Consequently, I construed the term to have its plain and ordinary meaning. (*See* CX-2352C at 18.) However, as is now clear, the parties have different notions about what the plain and ordinary meaning of the term "feature of interest" should be. Samsung and the Staff argue that the term refers to a feature on which the user is interested in conducting an image operation. That is, the feature of interest is the graphical content of interest to the user. Apple argues that a "feature of interest" is some aspect of the translucent image which the user is interested in.

Apple argues that while a “user certainly could be interested in the ‘graphical content’ of an image, ... the term is not limited to that.”

The plain and ordinary meaning of a claim term is not determined in a vacuum, but rather within the context of the patent from the view of one of ordinary skill in the art. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). Here, the evidence shows that one of ordinary skill in the art would have understood the term “feature of interest” in the context of the ‘922 patent to refer to a feature on which the user is interested in conducting an image operation.

To begin with it should be noted that the term “feature of interest” is never used in the specification of the ‘922 patent. However, I note the term “image of interest” is used throughout the specification and that in at least in one example the specification explicitly discusses “features” of an “image of interest.” Thus, I agree with both Samsung and the Staff that the term “image of interest” is relevant to the interpretation of the claimed “feature of interest.”

Turning to the specification and in particular the example corresponding to Figures 3a through 3e, the specification states, “Window 62 encloses an image, in this case a circle 68, for example. This circle 68 is considered to represent an arbitrary image of interest to the user.”

(JX-004 at 9:6-9.) The specification goes onto describe how the image of interest is used, stating that:

In this Figure, the overlaying window 70 has been rendered translucent. Further, opaque window 62 has the image of circle 68 displayed within the overlapping region of the two windows 62, 70. Finally, gadget bar 64 including wand icon 66 for transforming a selected one of windows 62, 70, is shown. This permits image operations to be conducted in translucent overlaying window 70 with reference to the image of circle 68 in window 62.

...

An example of one image operation which could be implemented is simply the operation of copying or tracing the image of circle 68 from the opaque window 62 onto translucent window 70.

(*Id.* at 9:46-53, 9:61-64.) Thus, according to the specification, “by following the steps of FIGS. 3a-3e, the user has been able to conduct image operations and to make traces or reference images based upon the underlying circle image 68 onto overlay window 70.” (*Id.* at 10:39-42.) The evidence shows that one of ordinary skill in the art would understand that in the above example from the specification the term “image of interest” refers to graphical content on the base image (*i.e.*, the image of the circle) that the user used as a reference or basis for conducting the image operation on the translucent image. (RX-3636C (van Dam RWS) at Q&A 611.) Likewise, the evidence shows that one of ordinary skill would understand from a similar example shown in Figs. 3f-3h, where the circle 75 “image of interest” is contained in the translucent image, that the term “image of interest” refers to the graphical content on which the user wishes to perform an image operation. (*Id.* at Q&A 612; JX-004 at 11:5-7 (“[T]he overlying translucent window 62 carries a selected image of interest with reference *to which* image operations are to be performed in the underlying opaque window 70.” (emphasis added)).)

While the above examples refer only to an image of interest, the specification extends the concepts described above to features of an image of interest. Specifically, the specification describes an embodiment of the invention where the base image contains an image of interest consisting of “a complex image of a photograph of a house” and the user can “make a sketch of *selected features of the house* on the overlaying translucent window.” (JX-004 at 59-65 (emphasis added).) The evidence shows that one of ordinary skill would understand this embodiment to teach a user conducting an image operation (*i.e.*, creating a sketch) using features

of interest displayed in an image on another window. (RX-3636C (van Dam RWS) at Q&A 613.) Moreover, the evidence shows that one of ordinary skill in the art would understand that by using the term “feature of interest” rather than “image of interest,” the claims merely indicate that the image operation does not need to use the entire image contained in the translucent window, but may use only selected features of that image. (*Id.* at Q&A 615.)

The prosecution history further supports this interpretation. For example, in regard to application claim 90 (a previous version of ‘922 patent claim 31, which recited “feature of interest”), the applicant stated, “[application] [c]laim 90 requires that image operations are conducted with respect to the first selected image (conducted on the base window) ***based upon*** features of interest in the translucent overlaid window.” (JX-0010 at 765 (emphasis added).)

For the foregoing reasons, I find that the only interpretation supported by both the specification and the prosecution history of the term “feature of interest” is a feature on which a user is interested in conducting an image operation. I also find this interpretation comports with the plain and ordinary meaning of the phrase “feature of interest” in the context of the ‘922 patent as understood by one of ordinary skill in the art.

Turning back to Apple’s infringement contentions, in light of the above understanding of the term “feature of interest,” I find that a control element such as the zoom button used in the Gallery application in the ‘922 Accused Products is not a “feature of interest” as it is not a feature on which the user is interested in conducting an image operation. Accordingly, I find Apple has not shown that the ‘922 Accused Products satisfy all of the limitation of claim 31 and thus has failed to prove by a preponderance of the evidence that the ‘922 Accused Products running Android 2.2 or 2.3 infringe independent claim 31.

(4) Claim 32

Claim 32 depends from independent claim 31. Because I have found hereinabove that claim 31 is not infringed, I also find that dependent claim 32 is not infringed for the same reason. *See Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1553 (Fed. Cir. 1989) (“It is axiomatic that dependent claims cannot be found infringed unless the claims from which they depend have been found to have been infringed”).

(5) Claim 33

Independent claim 33 is analogous in relevant part to independent claim 29. Dr. Balakrishnan testified in detail that when Samsung employees use or test the ‘922 Accused Products running versions 2.2 or 2.3 of the Android operating system they practice each limitation of the claim and therefore infringe independent claim 33. (CX-2428C (Balakrishnan DWS) at Q&A 182-183, 209-213, 343.) In support of his infringement opinion, Dr. Balakrishnan relied on his inspection of Samsung’s accused products, the source code for the accused products, and the deposition testimony of Samsung’s own witnesses who testified about the operation of the accused products and the source code. (*Id.* at Q&A 177.)

Samsung does not contest that the ‘922 Accused Products satisfy the limitations of claim 33 or that its employees practice the claimed method. (*See* RIB at 160-161.)

Accordingly, for the reasons discussed above and those discussed with regard to claim 29, I find that the ‘922 Accused Products running Android 2.2 or 2.3 meet each and every limitation of claim 33 and that Samsung infringes claim 33 of the ‘922 patent.

(6) Claims 34 and 35

Claims 34 and 35 depend from independent claim 33. The evidence shows that the base image in the Gallery application remains active to receive user input. (CX-2428C (Balakrishnan DWS) at Q&A 216.) The evidence also shows that the ‘922 Accused Products are handheld devices. (*Id.* at Q&A 217.) Thus, the evidence shows that the ‘922 Accused Products meet the additional limitations of claims 34-35. Samsung does not contest that the ‘922 Accused Products satisfy the limitations of claims 34-35 or that its employees practice the claimed methods. (*See* RIB at 160-161.) Accordingly, for the reasons discussed here as well as those discussed with regard to claim 33, I find the ‘922 Accused Products running Android 2.2 or 2.3 satisfy all of the limitations of claims 34 and 35 and that Samsung infringes claims 34 and 35 of the ‘922 patent.

b. Crop window in Gallery application in ‘922 Accused Products running Android 3.x and 4.0

(1) Claim 31

The Parties’ Positions

Samsung argues that the ‘922 Accused Products do not infringe claim 31 of the ‘922 patent because: (1) the cropping feature only includes _____ and not the required translucent image and base image; and (2) the image cropping “ok” button is not a feature of interest. (RIB at 154.) Samsung argues that Apple’s expert did not adequately examine the Android source code and the functions called by that code in reaching his infringement opinion, because if he had done so he would have found that the image cropping function in Android is created by _____. (*Id.* at 155-156.) Samsung argues that _____ because there is _____

Apple has failed to prove the existence of the claimed

translucent image and first selected image / base image. (*Id.* at 156-157.) Samsung also argues that the “ok” button identified by Apple is not a feature of interest, but rather a control button. (*Id.* at 158.)

Apple argues that the Gallery application in the ‘922 Accused Products allows a user to crop an image being displayed and that performing the crop image function infringes claim 31 of the ‘922 patent. (CIB at 144.) With regard to Samsung’s argument that the crop image function does not use a translucent image and a base image, Apple argues that

(*Id.*) Thus, Apple argues the accused products include the claimed separate translucent image and base image. (*Id.*) Apple argues that although Samsung’s expert disputes , he offers no analysis of any source code or any other explanation for how he believes

(*Id.*) With regard to Samsung’s argument that the crop operation does not occur while the translucent image overlaps the base image, Apple argues that when the user clicks the “ok” button to execute the image operation, a “saving picture” message appears over the translucent image and the base image. (*Id.* at 146.) Apple argues that the translucent image thus continues to partially overlap the first selected image while the crop image operation is being conducted. (*Id.*) Apple acknowledges that after the crop image operation is completed the translucent image disappears, but argues that does not defeat infringement. (*Id.*) Apple argues that the claim

requires only that the translucent image partially overlaps the base image while an image operation is conducted, not the entire time the image operation is being conducted. (*Id.*) With regard to Samsung's argument that the "ok" button is not a feature of interest, Apple argues that Samsung's assertion fails for the same reason it set forth, *supra*, with regard to the Gallery zoom buttons. (*Id.* at 145.) Apple argues that a feature of interest is not necessarily interesting for its graphical content, but may instead be interesting for its function. (*Id.* at 145-146.)

Staff argues that for reasons similar to those presented with regard to the gallery zoom buttons, the "ok" button is not a "feature of interest" as that term is used in the '922 patent. (SIB at 75.) The staff also argues that, contrary to Samsung's argument, the evidence has shown that the cropping image operation at least begins while the translucent image overlaps the base image in memory. (*Id.*)

Analysis

Dr. Balakrishnan testified in detail that when Samsung employees use or test the '922 Accused Products running versions 3.x or 4.0 of the Android operating system they infringe independent claim 31 of the '922 patent. (CX-2428C (Balakrishnan DWS) at Q&A 220, 223, 225-231, 247, 249-256, 343.) In particular, Dr. Balakrishnan testified that use of the crop function in the Gallery application in the '922 Accused Products running versions 3.x or 4.0 of the Android operating system satisfies all of the limitations of the claim. (*Id.* at Q&A 220.) More particularly, Dr. Balakrishnan testified that when a user begins a crop operation, a translucent border that can be resized using diamond-shaped icons appears and surrounds the outside of the original image. (*Id.*) Dr. Balakrishnan testified that when the user taps the circled "ok" button, the Gallery application executes a crop image operation, which deletes the portions

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of the image that had been covered by the translucent border. (*Id.*) According to Dr. Balakrishnan, this shows using a feature of interest on a translucent image to conduct an image operation while the translucent image overlaps at least a portion of the first selected image and a base image which is active to receive input. (*Id.*) In support of his infringement opinion, Dr. Balakrishnan relied on his inspection of Samsung's accused products, the source code for the accused products, and the deposition testimony of Samsung's own witnesses who testified about the operation of the accused products and the source code. (*Id.* at Q&A 177.)

Samsung argues only that the '922 Accused Products do not infringe claim 31 of the '922 patent because: the cropping feature and not the required translucent image and base image; the crop operation

; and the image cropping "ok" button is not a feature of interest.

(a) Does the cropping function use a translucent image and a base image?

In support of its argument that the crop overlay and underlying image are not separate images as required by claim 31, Samsung argues that Dr. Balakrishnan's source code analysis was deficient and that "in contrast to Dr. Balakrishnan, Dr. van Dam analyzed the code and confirmed that

Dr. Balakrishnan confirmed during the hearing that he

was familiar with the stencil buffer used to store this translucent image, that he was familiar with the OpenGL functions actually used to blend that image with the base image, and that the stencil buffer was separate from the underlying base image. (*See* Tr. at 1211:10-1212:23.)

For the reasons discussed above, I find Samsung has failed to adequately rebut the testimony of Dr. Balakrishnan that

satisfies the limitation

“translucent image.” Nevertheless, as discussed, *infra*, I find the ‘922 Accused Products running Android 3.x or 4.0 do not infringe claim 31 because they do not meet the “feature of interest” limitation of the claim.

(b) Does the crop operation occur while the translucent image overlaps the first selected image?

The evidence shows that when a user clicks the “ok” button to execute an image operation, the translucent image continues to partially overlap the first selected image. (CX-2428C (Balakrishnan DWS) at Q&A 254-256.) Contrary to Samsung’s argument, the claim language requires only that the translucent image partially overlap the base image while the image operation is conducted. There is no requirement that the translucent image must overlap the base image during the entire image operation. Accordingly, I find Samsung’s argument not persuasive. Nevertheless, as discussed, *infra*, I find the ‘922 Accused Products running Android 3.x or 4.0 do not infringe claim 31 because they do not meet the “feature of interest” limitation of the claim.

(c) Is the “ok” button a feature of interest in the cropping function?

Samsung and the Staff contend that there is no feature of interest in the cropping function, because the “ok” button identified by Apple is simply a control element. (RIB at 158; As discussed in detail, *supra*, the plain and ordinary meaning of the term “feature of interest” in the context of the ‘922 patent as understood by one of ordinary skill in the art is a feature on which a user is interested in conducting an image operation. Based on this understanding, I find that a control element such as the “ok” button used in the Gallery application in the ‘922 Accused Products is not a “feature of interest.” (See RX-3636 (van Dam RWS) at Q&A 616, 635-636.) Accordingly, I find Apple has not shown that the ‘922 Accused Products satisfy all of the limitations of claim 31 and thus has failed to prove by a preponderance of the evidence that the ‘922 Accused Products running Android 3.x and 4.0 infringe independent claim 31.

(2) Claim 32

Claim 32 depends from independent claim 31. Because I have found hereinabove that claim 31 is not infringed, I also find that dependent claim 32 is not infringed for the same reason. *See Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1553 (Fed. Cir. 1989) (“It is axiomatic that dependent claims cannot be found infringed unless the claims from which they depend have been found to have been infringed”).

(3) Claim 33

The Parties’ Positions

Samsung argues that the ‘922 Accused Products do not infringe claim 33 of the ‘922 patent because: (1) the cropping feature only includes a single image and not the required translucent image and base image; and (2) the image cropping feature does not receive input in a

base image while the base image remains partially covered by the translucent image. (RIB at 154.) Samsung argues that Apple's expert did not adequately examine the Android source code and the functions called by that code in reaching his infringement opinion, because if he had done so he would have found that the image cropping function in Android is created by

Samsung argues that when cropping a photo a user can manipulate the crop rectangle but the user cannot interact with the photo. (*Id.*)

Samsung argues that when the desired crop size is determined, the user can only press the crop button. (*Id.*) Samsung argues that when the crop button is pressed,

(*Id.*) Samsung argues that instead, the cropping area is (*Id.*) Samsung argues the when the button is pressed as required by claims 33 and 35 of the '922 patent. (*Id.* at 157-158.)

Apple argues that the '922 Accused Products infringe claim 33 of the '922 patent. With regard to Samsung's argument that the cropping feature does not use a translucent image and base image, Apple argues that

(*Id.*) Thus, Apple argues the accused products include the claimed separate translucent image and base image. (*Id.*) Apple argues that although Samsung's expert disputes _____, he offers no analysis of any source code or any other explanation for how he believes

(*Id.*)

With regard to Samsung's argument that the image cropping feature does not receive input in a base image while the base image remains partially covered by the translucent image, Apple argues that the term "input" should be accorded its broadest interpretation to include any type of input, "including data coming from user input and data coming from other applications." (*Id.* at 147.) Apple argues that the '922 patent uses the phrase "user input" to indicate direct interaction with a window, while "input" is to use more broadly to indicate any data, including data coming from user input and data coming from other applications. (*Id.* at 146-147.) Apple argues that Samsung's interpretation of this phrase cannot be reconciled with the doctrine of claim differentiation. (*Id.* at 147.) Apple argues that claim 34 depends from claim 33. (*Id.*) Apple argues that claim 34 requires that base image be active to receive user inputs. (*Id.*) Apple argues that under the doctrine of claim differentiation user input must mean something different than input else claim 34 would be superfluous. (*Id.*) Apple argues that contrary to Samsung's assertion, the fact that claim 34 states that the base image is active does not further limit claim 33 but rather reiterates that the base image receives a special kind of input- user input. (*Id.*) Apple also argues that the Staff's assertion that the crop image command essentially reads data from the displayed image and thus does not receive input is not an accurate characterization of the image

operation. (*Id.* at 148.) Apple argues that it is the size of the translucent crop rectangle that determines which portions of the base image will be deleted. (*Id.*)

The Staff argues that in the context than ‘922 patent, a command to crop an image is not input received in the base image as required by asserted claim 33. (SIB at 76.) According to the Staff, the ‘922 patent explicitly states that user input is permitted at either the base image or the translucent image. (*Id.*) Staff argues that Apple’s not shown that claim differentiation in this instance requires that the term be broadened in the manner in which it seeks. (*Id.*) The Staff argues that this is especially true in light of the specification, which only appears to provide context for user input. (*Id.*) Thus, the Staff argues that claim 33 is not infringed by the accused products. (*Id.*)

Analysis

Dr. Balakrishnan testified in detail that when Samsung employees use or test the ‘922 Accused Products running versions 3.x or 4.0 of the Android operating system they infringe independent claim 33 of the ‘922 patent. (CX-2428C (Balakrishnan DWS) at Q&A 234-243, 259-265, 343.) In support of his infringement opinion, Dr. Balakrishnan relied on his inspection of Samsung’s accused products, the source code for the accused products, and the deposition testimony of Samsung’s own witnesses who testified about the operation of the accused products and the source code. (*Id.* at Q&A 177.)

Samsung argues only that the ‘922 Accused Products do not infringe claim 33 of the ‘922 patent because: the cropping feature only includes _____ and not the required translucent image and base image; and the image cropping feature does not receive input in a base image while the base image remains partially covered by the translucent image.

(a) Does the cropping feature use a translucent image and a base image?

Samsung argues as it did with regard to claim 31 that the cropping feature does not use a separate translucent image and base image. For the reasons discussed, *supra*, with regard to claim 31, I find Samsung has failed to adequately rebut the testimony of Dr. Balakrishnan that

satisfies the limitation “translucent image.” Nevertheless, as discussed, *infra*, I find the ‘922 Accused Products running Android 3.x or 4.0 do not infringe claim 33 because they do not meet the “receiving input in said displayed base image” limitation of the claim.

(b) Does the cropping feature receive input in the displayed base image?

The parties dispute whether the ‘922 Accused Products satisfy the “receiving input in said displayed base image” limitation of the claim. Samsung and the Staff argue that within the context of the ‘922 patent a command to crop an image is not “input” received by the base image. (SIB at 76.) Apple argues that the plain and ordinary meaning of “input” would include data corresponding to a command to crop the base image. (CIB at 146.)

At the Markman Hearing in this investigation the parties argued that the phrase “receiving input in said displayed base image” did not need to be construed and should be accorded its plain and ordinary meaning. Consequently, I construed the term to have its plain and ordinary meaning. (See CX-2352C at 18.) However, as is now clear, the parties have different notions about what the plain and ordinary meaning of the term “input” should be. Samsung and the Staff argue that the term refers to user input. Apple argues that the plain and

ordinary meaning of the term “input” is not limited to user input and may include data coming from the crop command.

The plain and ordinary meaning of a claim term is not determined in a vacuum, but rather within the context of the patent from the view of one of ordinary skill in the art. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). Here, the evidence shows that one of ordinary skill in the art would have understood the phrase “receiving input in said displayed base image” in the context of the ‘922 patent to refer to receiving user input in the displayed base image.

Turning first to the claim language, I address Apple’s argument that pursuant to the doctrine of claim differentiation the term “input” in claim 33 must be broader than the phrase “user input” in dependent claim 34 else claim 34 would be superfluous. Claim 34 reads, “The method as recited in claim 33, wherein the base image is active for receiving user inputs.” (JX-004 at 28:4-5.) Contrary to Apple’s argument, the doctrine of claim differentiation is not applicable, because interpreting input in claim 33 to refer to user input would not render claim 34 superfluous as claim 34 includes an additional requirement that the base image be active. Further, the doctrine of claim differentiation is not a hard and fast rule and as such cannot trump the meaning of the term “input” as dictated by the specification. *Marine Polymer Technologies, Inc. v. HemCon, Inc.*, 672 F.3d 1350, 1359 (Fed. Cir. 2012) (“claim differentiation is not a hard and fast rule and will be overcome by a contrary construction dictated by the written description or prosecution history.”) (internal quotations omitted.)

Here, the specification consistently uses “input” to refer to “user input.” (See JX-0004 at 1:37-45, 2:13-18, 3:55-65, 20:53-21:11; JX-010 at 72-73, 79-85.) Dr. Balakrishnan points to

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column 24 lines 11 to 16 as support for Apple's position, but this passage does not use the term "input" to refer to data sent from another application. (RX-3636C (van Dam RWS) at Q&A 641.) In the passage quoted by Dr. Balakrishnan, the "input" is actually "screen input," meaning user input to the screen using a pen or stylus. (*Id.*) The patent explains that whereas in other systems, this user input would be sent to a first application program, the system of the '922 patent allows a second application program to "intercept" this user input, so that the input is received by the second application program rather than the first application program. (*Id.*) Thus, the evidence shows this passage does not support any distinction between the term "input" and "user input."

(See RX-3636C (Balakrishnan RWS) at Q&A 642, RX-3635C (Chang DWS) at Q&A 72-74.)

For the foregoing reasons, I find that the only interpretation supported by the specification of the phrase "receiving input in said displayed base image" is receiving user input in the displayed base image. I find this interpretation comports with the plain and ordinary meaning of the phrase "receiving input in said displayed base image" in the context of the '922 patent as understood by one of ordinary skill in the art.

Turning back to Apple's infringement contentions, in light of the above understanding of the term "input," I find that the cropping feature does not receive input in the displayed base image while the base image remains partially covered by the translucent image. Accordingly, I

find Apple has not shown that the ‘922 Accused Products satisfy all of the limitation of claim 33 and thus has failed to prove by a preponderance of the evidence that the ‘922 Accused Products running Android 3.x or 4.0 infringe independent claim 33.

(4) Claim 35

Claim 35 depends from independent claim 33. Because I have found hereinabove that claim 33 is not infringed, I also find that dependent claim 35 is not infringed for the same reasons. *See Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1553 (Fed. Cir. 1989) (“It is axiomatic that dependent claims cannot be found infringed unless the claims from which they depend have been found to have been infringed”).

c. Text selection in Browser application in ‘922 Accused Products running Android 2.2, 2.3, 3.x and 4.0

(1) Claim 29

The Parties’ Positions

Samsung argues that the text selection feature in the Browser application in the accused Android devices does not use a translucent overlay as required by each of the claims. (RIB at 158.) Samsung argues that the text selection in Android works by

(*Id.* at 158-159.) Thus,

Samsung argues there is no translucent image that covers any portion of the text as required by each of the asserted claims. (*Id.* at 159.)

(*Id.*) Samsung also argues that Apple’s expert provided no evidence of actual blending or translucency in the context of text selection. (*Id.*) Samsung

argues that the code cited by Apple's expert does not show that blending is performed and that Apple's expert never analyzed the underlying functions in the source code. (*Id.* at 159-160.)

Apple argues that use of the text selection feature, which allows users to copy portions of a web page in the Browser application infringes claim 29 of the '922 patent. (CIB at 149.) With regard to Samsung's argument that the text selection feature does not use a translucent overlay, Apple argues that the text selection rectangles are translucent images according to the construction of that term in that they can be seen and can be seen through. (*Id.* at 151.)

The Staff asserts that Apple has shown that the accused products use translucent images. The Staff argues that this is particularly true in light of the fact that Samsung's argument does not address Order 16 Construing Claims. (SIB at 77.)

Analysis

Dr. Balakrishnan testified in detail that when Samsung employees use or test the '922 Accused Products running versions 2.2, 2.3, 3.x, or 4.0 of the Android operating system they practice each limitation of the claim and therefore infringe independent claim 29 of the '922 patent. (CX-2428C (Balakrishnan DWS) at Q&A 270-277, 305-313, 343; CX-2591C (Balakrishnan RWS) at Q&A 211-215.) In particular, Dr. Balakrishnan opined that use of the

text selection feature in the Browser application in the '922 Accused Products meets all the limitations of claim 29. (CX-2428C (Balakrishnan DWS) at Q&A 270-277, 305-313; CX-2591C (Balakrishnan RWS) at Q&A 211-215.) More particularly, Dr. Balakrishnan testified that the text selection feature creates a translucent rectangle that overlays the browser, highlighting that portion of the web page. (CX-2428C (Balakrishnan DWS) at Q&A 272, 307; CX-2591C (Balakrishnan RWS) at Q&A 211-215.) Dr. Balakrishnan testified that the translucent rectangle at least partially overlaps the web page and that the base image and translucent image are selectably active to receive user input. (CX-2428C (Balakrishnan DWS) at Q&A 273-276, 310-313.) According to Dr. Balakrishnan, the Browser application allows users to create a translucent overlay over selected portions of the text on a web page, which allows the user to execute image operations, such as a copy or cut operation, on the selected text. (*Id.* at Q&A 268.) In support of his infringement opinion, Dr. Balakrishnan relied on his inspection of Samsung's accused products, the source code for the accused products, and the deposition testimony of Samsung's own witnesses who testified about the operation of the accused products and the source code. (*Id.* at Q&A 177.)

Samsung argues that the '922 Accused Products do not infringe claim 29 because the text selection feature does not use a translucent overlay as required by the claim. (RIB at 158.) Instead, Samsung argues that the text selection in the Browser application works by

(*Id.* at 158-159.)

Contrary to Samsung's argument, I find the evidence presented by Apple shows that the text selection feature does in fact employ a translucent overlay.

Specifically, the evidence shows

Thus, for the reasons discussed above, I find that the text selection feature of the Browser application uses a translucent overlay. I find that neither the testimony of Samsung's expert, Dr. van Dam, nor Google employee, Bart Sears, adequately rebuts Dr. Balakrishnan's detailed testimony. Accordingly, I find that Apple has proven by a preponderance of the evidence that

the '922 Accused Products satisfy each and every limitation of claim 29 of the '922 patent and that Samsung infringes claim 29.

(2) Claim 30

Claim 30 depends from claim 29 and adds a limitation requiring that the electronic device of claim 29 be a handheld device. Samsung does not contest that this limitation is satisfied by the '922 Accused Products and in any event, the evidence shows that the '922 accused products are in fact handheld devices. (CX-2428C (Balakrishnan DWS) at Q&A 279, 315.) Accordingly, for the reasons discussed above as well as with regard to claim 29, I find Apple has proven by a preponderance of the evidence that the '922 Accused Products meet all the limitations of claim 30 and that Samsung infringes claim 30 of the '922 patent.

(3) Claim 31

Dr. Balakrishnan testified in detail that when Samsung employees use or test the '922 Accused Products running versions 2.2, 2.3, 3.x or 4.0 of the Android operating system they infringe independent claim 31 of the '922 patent. (CX-2428C (Balakrishnan DWS) at Q&A 280-292, 316-328, 343.) In particular, Dr. Balakrishnan testified that use of the text selection feature in the Browser application in the '922 Accused Products satisfies all of the limitations of the claim. (*Id.* at Q&A 280-292, 316-328.) More particularly, Dr. Balakrishnan testified that the use of the "cut" button on text selected through the text selection feature of the Browser application operates to remove that text from the underlying image. (*Id.* at Q&A 284-289, 320-325.) According to Dr. Balakrishnan, the "cut" button is a feature of interest on a translucent image used to conduct an image operation while the translucent image overlaps at least a portion of the first selected image. (*Id.* at Q&A 284-286, 320-322.) In support of his infringement

opinion, Dr. Balakrishnan relied on his inspection of Samsung's accused products, the source code for the accused products, and the deposition testimony of Samsung's own witnesses who testified about the operation of the accused products and the source code. (*Id.* at Q&A 177.)

Samsung and the Staff argue that the '922 Accused Products do not infringe claim 31 of the '922 patent because the "cut" button is not a feature of interest, but rather a control element to remove selected text. (RIB at 158, 160; SIB at 78.) As discussed in detail, *supra*, the plain and ordinary meaning of the term "feature of interest" in the context of the '922 patent as understood by one of ordinary skill in the art is a feature on which a user is interested in conducting an image operation. Based on this understanding, I find that a control element such as the "cut" button used in the Browser application in the '922 Accused Products is not a "feature of interest." (*See* RX-3636 (van Dam RWS) at Q&A 652-653.) Accordingly, I find Apple has not shown that the '922 Accused Products satisfy all of the limitations of claim 31 and thus has failed to prove by a preponderance of the evidence that the '922 Accused Products infringe independent claim 31.

(4) Claim 32

Claim 32 depends from independent claim 31. Because I have found hereinabove that claim 31 is not infringed, I also find that dependent claim 32 is not infringed for the same reason. *See Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1553 (Fed. Cir. 1989) ("It is axiomatic that dependent claims cannot be found infringed unless the claims from which they depend have been found to have been infringed").

(5) Claim 33

Dr. Balakrishnan testified in detail that when Samsung employees use or test the ‘922 Accused Products running versions 2.2, 2.3, 3.x or 4.0 of the Android operating system they infringe independent claim 33 of the ‘922 patent. (CX-2428C (Balakrishnan DWS) at Q&A 295-299, 331-335, 343.) In support of his infringement opinion, Dr. Balakrishnan relied on his inspection of Samsung’s accused products, the source code for the accused products, and the deposition testimony of Samsung’s own witnesses who testified about the operation of the accused products and the source code. (*Id.* at Q&A 177.)

Samsung argues that the ‘922 Accused Products do not infringe claim 33 of the ‘922 patent for the same reason it cited with regard to claim 29, namely that the text selection feature does not use a translucent image. (RIB at 158-160; RX-3636C (van Dam RWS) at Q&A 657.)

However, as I discussed, *supra*, with regard to claim 29, I find Apple has shown by a preponderance of the evidence that the text selection feature uses a translucent image. Thus, I find Samsung’s argument not persuasive. Thus, in light of Dr. Balakrishnan’s testimony, and for the same reasons I espoused with regard to claim 29, I find that the ‘922 Accused Products meet every limitation of claim 33. Accordingly, the evidence shows that Samsung infringes claim 33 of the ‘922 patent.

(6) Claims 34 and 35

Claims 34 and 35 depend from independent claim 33. Because I have found hereinabove that claim 33 is not infringed, I also find that dependent claims 34 and 35 are not infringed for the same reasons. *See Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1553 (Fed. Cir.

1989) (“It is axiomatic that dependent claims cannot be found infringed unless the claims from which they depend have been found to have been infringed”).

2. Indirect Infringement

a. Direct Infringement

Parties’ Positions

Apple argues that the end users of Samsung’s ‘922 Accused Products directly infringe the asserted claims when they use the Browser and Gallery applications on the ‘922 Accused Products to zoom on an image, crop an image, or perform text selection. (CIB at 157-158.)

Apple argues that prove direct infringement, a complainant must prove that during the relevant period it is more likely than not that a person in the United States performed the claimed method. (*Id.* at 157.) Apple argues that there is sufficient circumstantial evidence that at least once an end user used the Gallery or Browser applications in an infringing manner. (*Id.*) Apple argues that the likelihood that at least one end user has performed the infringing functions at least once is overwhelming particularly in light of the explicit instructions provided explaining how to use the functions and the large number of accused products sold. (*Id.* at 157-158.)

Samsung argues that Apple failed to prove direct infringement by a third party. (RIB at 151.) Samsung argues that Apple has only provided evidence that Samsung employees use the accused products in the allegedly infringing manner. (*Id.*) Samsung also argues that Dr. Balakrishnan admitted that he cites to no evidence of direct infringement by anyone other than Samsung employees. (*Id.*)

The Staff argues that end users of the ‘949 Accused Products practice the method claims of the ‘922 patent. (SIB at 80.)

Analysis

To prove indirect infringement of the method claims, either by inducement or contributory infringement, Apple must show that the method claims have been directly infringed. *Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1326 (Fed. Cir. 2004) (citation omitted) (“There can be no inducement or contributory infringement without an underlying act of direct infringement.”). Direct infringement may be proven by either direct or circumstantial evidence. *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 1272 (Fed. Cir. 1986) (“It is hornbook law that direct evidence of a fact is not necessary. ‘Circumstantial evidence is not only sufficient, but may also be more certain, satisfying and persuasive than direct evidence.’”) (quoting *Michalich v. Cleveland Tankers, Inc.*, 364 U.S. 325, 330 (1960)); see also *Alco Standard Corp v. Tenn. Valley Auth.*, 808 F.2d 1490, 1503 (Fed. Cir. 1986) (“Although the evidence of infringement is circumstantial, that does not make it any less credible or persuasive.”).

I have found, *supra*, that the ‘922 Accused Products do not meet all the limitations of asserted claims 31 and 32. Therefore, there can be no direct infringement with regard to those claims. As direct infringement is a prerequisite to a finding of indirect infringement, I also find that Apple has failed to prove by a preponderance of the evidence that claims 31 and 32 are indirectly infringed by Samsung.

With regard to claims 29, 30, and 33-35, the evidence shows that Samsung provides user manuals that instruct the end users of its ‘922 Accused Products how to use the Gallery and Browser applications that are included in the ‘922 Accused Products. (See CX-2428C (Balakrishnan DWS) at Q&A 344.) The evidence shows that these manuals teach the end users,

inter alia, how to view images using the Gallery application. (*Id.*) For example, the user manual for the Fascinate SCH-1500 instructs users how to increase and decrease the size of a picture by “[t]ouch[ing] the zoom icons to zoom incrementally.” (*Id.*; CX-0348 at S-ITC-000046647.) Similarly, the evidence shows that Samsung user manuals also instruct users how to use the cropping feature of the Gallery application by “[t]ouch[ing] and drag[ing] the crop box, or mov[ing] the sides or corners of the crop box to create the crop area, then touch[ing] ok.” (*See, e.g.,* CX-411 at 57.) The evidence further shows that Samsung instructs users on how to perform the text selection feature in the Browser application. (*See, e.g., id.* at 41 (“Selecting Text: Touch and hold the text you want to select to display the selector cursors, then touch and drag the cursors to highlight the text you want to select.”).) The evidence shows that all of the ‘922 Accused Products’ user manuals contain similar instructions. (*See, e.g.,* CX-336-53, CX-356-59, CX-361-62, CX-375-400, CX-416-31.)

In addition, the evidence shows that Samsung publicly demonstrates use of the ‘922 Accused Products in an infringing manner, including in videos posted to its Mobile’s YouTube channel (*See* CX-277 at 1:10-1:15 (showing translucent zoom buttons in the Gallery application of a Samsung Galaxy S phone.)) Finally, the evidence shows that SEA directly instructs end users on how to use these products, including the use of the infringing Gallery and Browser applications, through its customer support staff. (CX-2557C (Merrill Dep.) at 71:15-75:9, 93:16-99:24, 192:13-195:9.)

To prove direct infringement, Apple must have proven that during the relevant period “more likely than not one person somewhere in the United States had performed the claimed method.” *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1318 (Fed. Cir. 2009). In light of

the large numbers of the ‘922 Accused Products sold by Samsung (*see* CDX-183C and CDX-184C

) and the user manuals and demonstrations that teach end users how to zoom, crop and select text in a manner that necessarily practices the limitations of claims 29, 30, and 33-35, I find that the likelihood that at least one end user has performed the claimed method at least once is overwhelming. *See Toshiba Corp. v. Imation Corp.*, No. 2011-1204, slip op. at 11 (Fed. Cir. June 11, 2012) (“[W]here an alleged infringer designs a product for use in an infringing way and instructs users to use the product in an infringing way, there is sufficient evidence for a jury to find direct infringement.”); *see also Certain Semiconductor Chips*, Inv. No. 337-TA-661, ID at 43 (“[E]vidence of extensive sales in the United States has been found sufficient to show direct infringement by end users that perform a claimed method when operating an accused product as the manufacturer intended.”) Accordingly, for the reasons discussed, *supra*, I find that Apple has proven direct infringement of claims 29, 30, and 33-35 by the end users of the ‘922 Accused Products.

b. Inducement

The Parties’ Positions

Apple argues that Samsung induces infringement by providing user manuals for the accused products to its customers that contain instructions for using the Gallery and Browser applications in a manner that infringes the asserted claims of the ‘922 patent. (CIB at 156.) Apple argues that the user manuals for the accused products instruct users how to zoom while viewing pictures, perform the infringing crop operation, and perform the infringing text selection function. (*Id.*) Apple also argues that Samsung publicly demonstrates use of the ‘922 Accused

Products in a manner that infringes the asserted claims of the ‘922 patent. (*Id.*) Additionally, Apple argues that SEA directly instructs its customers through its customer support staff on how to use the accused products including use of the infringing Browser and Gallery applications. (*Id.*) Apple further argues that Samsung had actual knowledge of the ‘922 patent and of Apple’s contentions that its products infringe the ‘922 patent. (*Id.* at 157.) Thus, Apple argues the evidence shows that Samsung induces its customers to infringe the ‘922 patent. (*Id.*)

Samsung argues that Apple has failed to prove the requisite elements of indirect infringement. (RIB at 150-151.) Samsung argues that Apple failed to prove direct infringement by any third party. (*Id.* at 151.) Samsung also argues that Apple failed to prove that it possessed the requisite knowledge and intent required to establish liability for inducement. (*Id.* at 151-153.) Samsung argues there is no evidence of specific intent to infringe and in fact to the contrary, the evidence shows that Samsung had a good faith belief that its products do not infringe the ‘922 patent and that the ‘922 patent is invalid. (*Id.* at 152-153.) Samsung also argues that Apple failed to establish that the accused features are especially adapted for use in an infringement of the ‘922 patent and lack substantial non-infringing uses. (*Id.* at 153.)

Staff argues that Samsung induces infringement of the claims by providing user manuals instructing its end users of its products to use the Browser and Gallery applications in a manner that infringes the method claims of the ‘922 patent. (SIB at 80.) The Staff argues that Samsung knew or should have known of the existence of the ‘922 patent as of _____ and that its actions regarding instructing its end users would induce infringement of the asserted method claims. (*Id.*)

Analysis

I have already found, *supra*, that Apple has shown by a preponderance of the evidence that claims 29, 30, and 33-35 of the '922 patent are directly infringed by the end users of the '922 Accused Products. Thus, the only questions that remain are whether Samsung's actions induced the infringing acts and whether Samsung knew or should have known its actions would induce actual infringement.

As discussed in detail, *supra*, Samsung provides manuals that instruct end users of the '922 Accused Products to use, *inter alia*, the Browser and Gallery applications in a manner that infringes claims 29, 30, and 33-35 of the '949 patent. Additionally, as previously discussed, Samsung publically demonstrates in an infringing manner the use of the '922 Accused Products and provides direct instruction through its support staff to end users on how to use the infringing Browser and Gallery applications. Thus, I find Samsung's actions induced the infringing acts of the end users of the '922 Accused Products.

The evidence shows that Samsung had actual knowledge of U.S. Patent No. 6,072,489, the patent that reissued as the '922 patent, and of Apple's contention that Samsung's products were infringing the '922 patent as early as (CX-406C at 15.) In any event, Samsung was certainly aware of the '922 patent and Apple's specific infringement contentions as of the date they were served a copy of the Complaint in this investigation, which was August 2, 2011. (See Notice of Investigation, EDIS Document ID 455848 (August 2, 2011); JX-132C at 85.) See also, *Certain Inkjet Ink Cartridges With Printheads and Components Thereof*, Inv. No. 337-TA-723, Initial Determination, 2011 ITC LEXIS 1503 at *145 (June 10, 2011) (finding the knowledge requirement for contributory infringement satisfied based on service of the

complaint). Thus, I find that the evidence shows Samsung had knowledge of the '922 patent and Apple's general allegation of infringement regarding same at least as early as August 2011.

Despite of having been on notice of the '922 patent and having been provided claim charts showing alleged infringement, the evidence shows that Samsung continues to manufacture, import, and sell the '922 Accused Products. The evidence also shows that the Browser and Gallery applications in the '922 Accused Products are designed in such a manner that they cannot be fully used for their intended purposes without infringing claims 29, 30, and 33-35 of the '922 patent. *See Water Technologies*, 850 F.2d at 668-69 (Inferring specific intent to cause infringement from a defendant's knowledge of the patent and control over the design or manufacturing of the product used for direct infringement.). The evidence further shows, as previously discussed, that Samsung instructs end users to use the Gallery and Browser applications in such a manner that necessarily infringes the '922 patent. *See Grokster*, 545 U.S. at 936 (Recognizing that providing instruction on how to engage in an infringing use "show[s] an affirmative intent that the product be used to infringe."). Accordingly, I find that Apple knew or should have known that its actions instructing and demonstrating to end users how to use the Browser and Gallery applications actively encouraged them to use the '922 Accused Products in a manner that infringes claims 29, 30, and 33-35 of the '922 patent.¹⁵ Thus, for the reasons

¹⁵ Samsung argues that the user manuals and demonstrations are insufficient evidence on which to base a finding of inducement, because "they never instruct users on how to practice any claim of the '922 patent." (*See* RX-3636 (van Dam RWS) at Q&A 694.) However, there is no requirement that the alleged inducing acts must instruct a user how to practice an asserted claim in its entirety. The law only requires that the alleged inducing acts *induce* another to infringe an asserted patent claim. *Fujitsu Ltd. v. Netgear Inc.*, 620 F.3d 1321, 1331-1332 (Fed. Cir. 2010) ("To establish inducement, a patent owner must show that the accused infringer induced the infringing acts.").

espoused above, I find that Samsung designs, manufactures, imports and sells the accused products with the specific intent to induce infringement of claims 29, 30, and 33-35 of the '922 patent.

Accordingly, I find that Samsung actively induces infringement of claims 29, 30 and 33-35 of the '922 patent in violation of 35 U.S.C. § 271(b).

c. Contributory Infringement

The Parties' Positions

Apple argues that Samsung contributes to the infringement of the accused products by its customers. (CIB at 158.) Apple argues that by at least the filing of the Complaint in this investigation, Apple knew of the '922 patent and that the '922 Accused Products were especially made or adapted for use in an infringing manner. (*Id.*) Apple argues that the relevant source code used by the '922 Accused Products to control the zoom, crop, and text selection functions have no purpose other than to practice the claimed methods and therefore have no substantial non-infringing use. (*Id.*) Apple argues that it is irrelevant that Samsung's accused devices as a whole can perform other non-infringing functions. (*Id.*) Apple argues that the relevant question is whether the source code has any substantial non-infringing use. (*Id.*) Apple argues that the accused functions in the '922 Accused Products have no non-infringing use as it is not possible to zoom, crop, or select text in the accused products without infringing the '922 patent. (*Id.*) Thus, Apple argues Samsung is liable for contributory infringement. (*Id.* at 159.)

Samsung argues that Apple did not prove contributory infringement because it failed to show that the accused components do not have substantial non-infringing uses and are especially adapted for use in an infringement of the patent. (RIB at 153.) Samsung argues that Apple does

not even identify what the component is that is allegedly especially adapted for use in an infringement of the patent. (*Id.*) Samsung argues that all Apple identifies is the “source code discussed above,” which is insufficient to meet its burden. (*Id.*)

The Staff argues that the evidence does not show that Samsung contributes to infringement of the asserted method claims. (SIB at 80.) In particular, the Staff argues that Apple has failed to show that the accused products are especially adapted for use in an infringement of the ‘949 patent. (*Id.*) The Staff argues that although Apple asserts that the source code in the ‘949 Accused Products has no purpose other than to practice the claimed methods, the evidence shows the source code in the accused products exist in various forms and that neither type of source code is especially adapted for use in infringement of the ‘949 patent. (*Id.* at 80-81.)

Analysis

Under 35 U.S.C. § 271(c), a party is liable for contributory infringement if he “offers to sell or sells within the United States or imports into the United States ... a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use.” Apple argues that the “material or apparatus” is “the source code used by the accused products to control the zoom, crop, and text selection functions.” (CIB at 158.) In support Apple relies on the testimony of its expert, Dr. Balakrishnan, who stated only that

(CX-2428C

(Balakrishnan DWS) at Q&A 345.) Dr. Balakrishnan's testimony is entirely conclusory and fails to explain in any detail how in fact the source code relied upon is adapted for use in an infringement of the '922 patent or why such source code does not have any substantial non-infringing use. Thus, I find Apple has failed to meet its burden of showing that source code used to control the zoom, crop, or text selection functions is especially made for use in infringement of the patent, and have no substantial non-infringing uses.

Moreover, I disagree with Apple that the relevant "material or apparatus" is "the source code used to control the zoom and crop functions in the Gallery application or text selection function in the Browser application. Independent claims 29 and 33 are both broader than the portions of source code that control the zoom, crop and text selection functions. For example, method claim 33 requires "displaying a base image on a display screen of said electronic device" and "receiving input in said displayed base image,"

Because the claims require more than just control of the zoom, crop and text selection functions, the relevant "material or apparatus" cannot be limited to the source code relied on by Apple. Rather, I find the "material or apparatus" is more properly characterized as the Browser and Gallery applications. With regard to the Browser and Gallery applications, the evidence shows that those applications have non-infringing uses that are substantial. (*See* RX-3636C (van Dam RWS) at Q&A 701; *see also* CX-0348.) Accordingly, for this reason also, I find Apple has failed to prove that Samsung contributory infringes claims 29, 30, or 33-35 of the '922 patent.

F. Technical Prong of the Domestic Industry Requirement

Parties' Positions

Apples alleges that each of its '922 Domestic Industry Products practices the '922 patent. (CRB at 69.) Apple contends that Samsung argues for the first time in this investigation in its initial post hearing brief that its domestic products do not satisfy the technical prong of the domestic industry requirement because Apple has failed to show that it practices the method steps of claim 29. (*Id.*) Thus, Apple argues Samsung has waived its argument pursuant to Ground Rule 9.2. (*Id.*) Apple argues that moreover the evidence shows that end users have used Apple products to practice the claimed method. (*Id.*)

Samsung argues that the '922 Domestic Industry Products do not satisfy the technical prong requirement because Apple has failed to show that it practices the claimed methods. (RIB at 161.)

The Staff argues that Apple has demonstrated that the use of its products is covered by at least claim 29 of the '922 patent. (SIB at 81.) The Staff argues that Samsung does not contest that Apple's Domestic Industry Products practice the claims of the '922 patent. (*Id.*) Thus, the Staff argues that the evidence shows that Apple has satisfied the technical prong of domestic industry requirement for the '922 patent. (*Id.*)

Analysis

Dr. Balakrishnan testified in detail that Apple's iPad, iPad2, original iPhone, iPhone 3G, iPhone 3GS, iPhone 4, iPhone 4S, iPod Touch 3G, and iPod Touch 4G (collectively "'922 Domestic Industry Products") running both Apple iOS 3 and iOS 5 practice claim 29 of the '922 patent. (*See* CX-2428C (Balakrishnan DWS) at Q&A 164-176.) Specifically, Dr. Balakrishnan

testified that the ‘922 patent is practiced by each of the Domestic Industry Products through at least the operation of the Photo applications. (*Id.* at Q&A 164.) Dr. Balakrishnan based his opinion on his inspection and testing of the operation of those applications in the Domestic Industry Products, his analysis of the source code files used by the applications, and documents produced by Apple showing certain features of these products. (*Id.* at Q&A 165.)

I have reviewed Samsung’s pre-hearing brief and find that Samsung did not address the technical prong of the domestic industry requirement with regard to the ‘922 patent. (*See* Respondents’ Pre-hearing Brief at 89-114.) Ground Rule 9.2 states:

Any contentions not set forth [in the pre-hearing brief] with the level of particularity required herein shall be deemed abandoned or withdrawn, except for contentions of which a party is not aware and could not have been aware in the exercise of reasonable diligence at the time of filing the pre-hearing brief.”

Accordingly, pursuant to Ground Rule 9.2, Samsung has waived any argument contesting the technical prong of the ‘922 patent.

In any event, the evidence shows that end users have used Apple’s products to practice the claimed methods. Specifically, the evidence shows Apple sells a large number of products and that those products include a Photo application that when used for its intended purposes satisfies every limitation of claim 29 of the ‘922 patent. (CDX-182C; CX-2428C (Balakrishnan DWS) at Q&A 164-176.) Even Samsung’s expert, Dr. van Dam, testified that Apple’s products practice the ‘922 patent. (RX-3636C (van Dam RWS) at Q&A 621.) The evidence also shows Apple explicitly instructs its users to practice the ‘922 patent through, for example, rotating an image using a translucent button. (CX-167 at 109; *see* CX-2428C (Balakrishnan DWS) at Q&A 173-76.) The evidence shows all of Apple’s user manuals provide similar instructions. (*See* CX-167C–70C, CX-172C, CX-176–79C, CX-181–82C.) Thus, I find that, more likely than not, at

least one person has used the '922 Domestic Products to perform the claimed methods. *Lucent*, 580 F.3d at 1318.

Accordingly, I find for the reasons discussed above that Apple satisfies the technical prong of the domestic industry requirement with regard to the '922 patent.

G. Validity

1. Anticipation

a. U.S. Patent No. 5,651,107 (Frank)

The Parties' Positions

Apple argues that Samsung has failed to show by clear and convincing evidence that the Frank patent is prior art to the '922 patent and thus Apple argues the Frank patent cannot anticipate the asserted claims. (CIB at 165.) Apple argues that the effective filing date of the Frank patent is December 15, 1992, but that the proven reduction to practice date of the '922 patent occurred no later than October 16, 1992. (*Id.*) Apple argues that the reduction to practice date is supported by the declaration of inventor Michael Gough that was filed during the prosecution of the '922 patent as well as the two documents that were attached thereto, one dated October 16, 1992 and the other dated December 3, 1992. (*Id.*) Apple also argues that the reduction to practice date is supported by the testimony of Michael Gough in this investigation. (*Id.* at 166.) Apple argues that the reduction to practice date is further corroborated by a "Preliminary Developer Note" dated November 6, 1992 and written by non-inventor Mitchell Gass. (*Id.*) Apple argues that this document discloses the same elements as the October 16, 1992, document presented to the PTO during prosecution. (*Id.*) Apple argues that Mr. Gough's testimony confirms that The Developer Note accurately describes the prototype he and the other

inventors had developed before October 16, 1992. (*Id.*) Apple argues that Samsung has not offered any evidence to counter this showing of an earlier reduction to practice. (*Id.*) Apple notes that Samsung's expert testified that he was unqualified to offer any opinion regarding reduction to practice. (*Id.* at 166-167.)

Apple argues that even if Frank was prior art, it does not anticipate the asserted claims. (*Id.* at 167.) Apple argues that Frank discloses only one window as being selectively active to receive user input, and no two windows are disclosed as being selectively active to receive user input, as required by claims 29 and 30 of the '922 patent. (*Id.*) Apple argues that in Frank either the top window is active or the bottom window is active, but not both. (*Id.*)

Samsung argues that the Frank patent anticipates claims 29, 31, 33, and 34 of the 9 to 2 patent. (RIB at 162.) Samsung argues that the Frank patent is prior art under Section 102(e). (*Id.*) Samsung argues that the application that issued as Frank was filed on December 15, 1992 before the alleged invention of the '922 patent. (*Id.*) Samsung contends that during prosecution Apple did not challenge the deficiencies of the Frank patent when it was cited by the examiner during prosecution, but instead merely argued it was not prior art by swearing behind the reference with an inventor declaration. (*Id.* at 162-163.)

Samsung argues that Apple cannot prove an earlier reduction to practice date to avoid the Frank patent. (*Id.*) Samsung argues that Apple's proof is based solely on inventor testimony that is uncorroborated by any competent evidence. (*Id.*) Samsung argues that mere inventor testimony is not enough to show an earlier reduction to practice and that the patentee bears the burden to produce sufficient independent corroborating evidence. (*Id.*) Samsung asserts that Apple has relied heavily on an invention declaration submitted to the PTO during prosecution,

but that such declaration is not binding in these proceedings. (*Id.*) Samsung argues that other than inventor testimony in the form of the Gough declaration, Apple is only able to point to three documents none of which provide legally sufficient corroboration. (*Id.* at 163-164.) Samsung argues that the undated and unsigned abstract written by inventor Gough that Apple relies on to support its claim of an earlier reduction to practice is insufficient as a matter of law as it is akin to an unwitnessed lab notebook. (*Id.* at 164.) Samsung also argues that the Developer Note cited by Apple is insufficient as it expressly states that the product was not even finished. (*Id.*) Samsung notes that, in fact, the Developer Note cautions the reader that the information is just a preliminary incomplete proposal and is not the current version of Pen Manager. (*Id.*) Samsung further argues that the undated and unsigned screenshot that Apple relies on is both unclear and unreliable. (*Id.*) Samsung argues that the evidence shows that the screenshot was altered during the course of prosecution. (*Id.* at 164-165.) Samsung argues that during his deposition Mr. Gough was unable to explain when or by whom the screenshot was created. (*Id.* at 166.) Samsung also argues that other inventors did not recognize the screenshot and could not otherwise identify when the invention of the '922 patent had been reduced to practice. (*Id.* at 166-167.) Samsung further argues that it is impossible to tell whether the screenshot shows the basic element of translucency. (*Id.* at 167.)

Samsung contends that Apple has not disputed the Frank patent disclose all the limitations of claims 31, 33, and 34. (*Id.* at 168.) Samsung also contends that Apple does not dispute that the Frank patent teaches all the limitations of claim 29, with the exception of the "selectably active" limitation. (*Id.*) Samsung argues that the Frank patent addresses the same problem in the art as does the '922 patent and seeks to solve it in the same way. (*Id.*) Samsung

argues that the Frank patent discloses a transparency mechanism to present information such that the user can see through certain windows to view underlying data and processes that would normally be obscured. (*Id.* at 169.) Samsung argues that Frank uses alpha blending to provide varying levels and transparency (*i.e.*, translucency). (*Id.*) Samsung argues the Frank patent also discloses interacting with the base window without bringing it to the top. (*Id.*) Samsung argues that contrary to Dr. Balakrishnan's testimony, Frank discloses a method whereby user can select a base window to make it active to receive user input without reordering the windows on the display. (*Id.* at 169-170.) Samsung argues that Frank suggests that the base window can be selected using a button on the corner the screen, or by other methods such as "icons, highlighted title bars, and mechanisms." (*Id.*)

The Staff argues that the Frank patent is not prior art to the '922 patent. (SIB at 82.) The Staff argues that although Samsung's expert Dr. van Dam opined that the documents submitted to the USPTO were not sufficient corroborating evidence, Samsung has not met its burden of providing clear and convincing evidence of this issue, because Dr. van Dam admitted that he was unqualified for dealing with the [priority] issues that come up in such a discussion." (*Id.* at 82-83.) The Staff argues, however, that should it be determined that Frank is prior art, then Frank anticipates claims 29 and 30 of the '922 patent. (*Id.* at 83.) The Staff contends that Apple argues that Frank does not anticipate because Frank only discloses one window being active to receive user input at any given time. (*Id.*) The Staff argues, however, that this is irrelevant because the claim does not require that both windows be active simultaneously, only that they are "selectively active." (*Id.*)

Analysis

Samsung argues that claims 29, 31, 33, and 34 of the '922 patent are anticipated by U.S. Patent No. 5,651,107 ("the Frank patent). (RX-279.) In support, Samsung relies primarily on the testimony of its expert, Dr. van Dam, who testified that the Frank patent anticipates claims 29, 31, 33, and 34 of the '922 patent. (See RX-3448C (van Dam DWS) at Q&A 391-417.)

The Frank patent was filed on December 15, 1992, which is before the September 30, 1993, priority date of the '922 patent. (See RX-233; JX-004.) Apple, however, argues that the '922 patent is entitled to an earlier date of invention. (CIB at 165-166.) In particular, Apple argues that the invention embodied in the '922 patent was reduced to practice by October 16, 1992. (*Id.*)

In order to establish actual reduction to practice, the inventor must prove that he constructed an embodiment or performed a process that met all the limitations of the claim, and that he determined that the invention would work for its intended purpose. *Teva Pharmaceutical Industries Ltd. v. Astrazeneca Pharmaceuticals LP*, 661 F.3d 1378, 1383 (Fed. Cir. 2011.); *Cooper v. Goldfarb*, 154 F.3d 1321, 1327 (Fed. Cir. 1998). To prove reduction to practice by inventor testimony, the inventor's testimony must be corroborated by independent evidence. See *Cooper*, 154 F.3d at 1330.

However, a "rule of reason" analysis is applied to determine whether an inventor's testimony regarding reduction to practice has been sufficiently corroborated. See *Holmwood*, 948 F.2d at 1238, 20 U.S.P.Q.2d at 1714. The rule requires an evaluation of all pertinent evidence when determining the credibility of an inventor's testimony. See *Price*, 988 F.2d at 1195, 26 U.S.P.Q.2d at 1037. In order to corroborate a reduction to practice, it is not necessary to produce an actual over-the-shoulder observer. Rather, sufficient circumstantial evidence of an independent nature can satisfy the corroboration requirement. See *Knorr*, 671 F.2d at 1373, 213 U.S.P.Q. at 200. Furthermore, an actual reduction to practice does not require corroboration for every factual issue contested by the parties.

See Ethicon, Inc. v. United States Surgical Corp., 135 F.3d 1456, 1464, 45 U.S.P.Q.2d 1545, 1551 (Fed. Cir. 1998); *Mann v. Werner*, 52 C.C.P.A. 1578, 347 F.2d 636, 640 (1965) (“This court has rejected the notion that each individual act in the reduction to practice of a count must be proved in detail by an unbroken chain of corroboration.”).

Id.

During prosecution of the ‘489 patent, which was reissued as the ‘922 patent, the examiner raised the Frank patent as prior art. Without addressing the merits of Frank’s disclosures, the patent applicants executed a declaration by one of the inventors of the ‘489 patent, Michael Gough, establishing that their invention had been reduced to practice earlier than the effective filing date of the Frank patent. (JX-010 at 351.) The applicants attached as appendices to the declaration two documents. The first document, dated October 16, 1992, was titled “Invention Abstract for Use of an Overlay Screen for Pen Computing.” (*Id.* at 354.) The second document was a screenshot dated December 3, 1992. (*Id.* at 356.) The examiner accepted these documents and the declaration of the Mr. Gough as establishing an earlier reduction to practice date of the invention of the ‘922 patent, and withdrew the rejection based on Frank. (*Id.* at 907.)

In the present investigation, Apple relies on the declaration of Mr. Gough (“Gough declaration”), as well as the Invention Abstract dated October 16, 1992, and the screenshot dated December 3, 1992, to show that the invention embodied in the asserted claims of the ‘922 patent was reduced to practice prior to the effective filing date of the Frank patent. Apple also relies on a document titled “The Pen Manager: Preliminary Developer Note” (“Developer Note”), which is dated November 6, 1992, and authored by Mitchell Gass.

Mr. Gough states in relevant part in his declaration to the USPTO that:

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As the document entitled “Invention Abstract for Use of an Overlay Screen for Pen Computing” (attached as Appendix A) indicates, I and my co-inventors had developed translucent tools for use in a pen based application prior to December 15, 1992, the effective filing date of Frank. These tools were described as appearing in an overlay screen layer separate from the underlying main screen and through which the main screen could be viewed to provide a substantially unobscured view of the main screen’s contents. “Invention Abstract for Use of an Overlay Screen for Pen Computing,” dated December 3, 1992, at ¶ 3.

Prior to authoring the above-described Invention Abstract, I and my co-inventors had developed and implemented a computer program that produced a translucent screen overlay through which images on the computer screen directly beneath the translucent overlay could be viewed. A printout, dated October 16, 1992, of a captured screen of a computer executing software that implements the method of the invention as recited in pending independent claims 1, 9, 17, 23, and 26, is attached hereto as Appendix B. The screen shows the desktop of a computer running the Macintosh® operating system. In the background can be seen a base image including a window entitled “PenMac Report.” Within the “PenMac Report” window base image is displayed text and graphics, the text including the phrase “addition of a second software engineer” and the graphics including a first time-line showing a period from March through December and a second time-line showing a period from July through October. A translucent overlay image is layered on top of the base image. The translucent overlay image includes the words and phrases “Why,” “Wow, That is quick” and “Overlap?” in addition to arrows pointing to certain portions of the text and graphics in the base image. As can be seen from Exhibit B, the regions of the base image that are directly beneath the translucent overlay image can be seen through the translucent overlay image simultaneously therewith. The writing that appears in the translucent overlay image was produced with a pen coupled with the computer system on which the base and translucent images are displayed.

(*Id.* at 351-352.)

Consistent with the Gough declaration and the Invention Abstract is the Developer Note written by non-inventor Mitchell Gass. The Developer Note describes a system that lets “applications use a pen and digitizer as input devices for any Macintosh computer, including the Pen Macintosh.” (JX-67 at GILLEY00000490.) The Developer Note explains that pen input is captured in a “collection region” and displayed in an “inking region” and that these two regions

are specified by masks. (*Id.* at GILLEY00000491.) The Developer Note also describes the use of a separate overlay window that accepts user input. Specifically, the Developer Note describes the use of two screens, “[t]he normal screen, which contains application windows, is like the screen for all other Macintosh computers. Above this screen is an overlay screen, a virtual screen that contains ink (what you see when you write ...) and recognizer windows (the windows that let you see and correct the output of recognizers ...).” (*Id.* at GILLEY00000488.) The Developer Note additionally explains that “[a]pplications can control where on the screen pen input is collected and where ink is displayed.” (*Id.*) Further, the Developer Note describes an annotation function that allows a user to annotate text in the displayed document. The Developer Note explains that:

To annotate text, the user taps a special button, known as the **annotation button**, on the onscreen keyboard. This inserts a human-interface element known as an **annotation mark** at the insertion point in the document. To enter the annotation, the user taps the annotation mark, which opens the overlay screen in which to write the annotation. The annotations can be written anywhere over the current document. Tapping the annotation mark closes the overlay.

Annotations are stored as raw pen data; they are not sent to recognizers, and they are simply redrawn when a user opens them. Because annotation marks are embedded in the document, annotations move automatically when the surrounding text is moved.

(*Id.* at GILLEY00000499 (emphasis in original).) The Developer Note goes on to explain that annotations can be made using a special translucent highlighter pen that allows a user to highlight text in the document and have the highlight move automatically with the text. (*Id.* at GILLEY00000487, GILLEY00000499 (“Because annotation marks are embedded in the document, annotations move automatically when the surrounding text is moved.”)) In particular, the Developer Note states:

Not all pens are the same. Each pen has a pen style, a set of characteristics that affect what is written. These characteristics are

- translucency (a normal pen is opaque; a special highlighter pen can be used for annotation)

(*Id.* at GILLEY00000487.) The Developer Note also explains that a pen can be used in the place of the mouse. (*Id.* at GILLEY00000488-489.) Specifically, the Developer Note states that “**Mouse mode** is the mode in which pen input is treated as mouse input (that is, direct input to an application, rather than strokes [in the overlay screen]).” (*Id.* (emphasis in original).)

As set forth above, it is plain to see that the Developer Note discloses much of the same elements described in the October 16 Invention Abstract submitted to the PTO during prosecution. In fact, in many instances the language between the two documents is almost verbatim. For example, the Invention Abstract states:

A Pen Macintosh has, in effect, two screens. The normal screen, which contains application windows, is like the screen for all other Macintosh computers. Immediately above this screen is an overlay screen, a virtual screen that displays (1) handwriting input and (2) recognizer windows (the windows that let users see and correct the output of handwriting recognizers).

(JX-10 at 354.) Likewise, the Developer Note states:

A Pen Macintosh has, in effect, two screens. The normal screen, which contains application windows, is like the screen for all other Macintosh computers. Above this screen is an **overlay screen**, a virtual screen that contains **ink** (what you see when you write, as described in the next section) and **recognizer windows** (the windows that let you see and correct the output of recognizers, as described in later chapters).

(*Id.* at GILLEY00000488.) Mr. Gough also testified that the Developer Note describes the design of a prototype that is consistent with his declaration submitted to the USPTO. (*See* CX-2594C (Gough DWS) at Q&A 18-50.) Samsung does not rebut Mr. Gough’s testimony. In fact, Samsung’s expert, Dr. van Dam acknowledged that he was “unqualified for dealing with the

[priority] issues that come up in such a discussion.” (Tr. at 1601:15-25; RX-3448C (van Dam RWS) at Q&A 397.)

The Developer Note was written by a non-inventor and thus, it constitutes independent corroborating evidence of the reduction to practice of the ‘922 patent before the effective filing date of the Frank patent. The Developer Note is consistent with the Invention Abstract and the Screenshot relied on Mr. Gough. I find that taken together and evaluated as a whole under the rule of reason, the evidence presented by Apple is sufficient to corroborate the testimony of Mr. Gough that the invention of the ‘697 patent was reduced to practice prior to the effective filing date of the Frank patent. Because the ‘697 patent antedates the Frank patent, I find the Frank patent is not prior art and thus find that Samsung has failed to prove by clear and convincing evidence that the asserted claims of the ‘697 patent are anticipated by the Frank patent.¹⁶

Samsung takes issue with much of this evidence presented by Apple, but I am not persuaded by Samsung’s arguments. First, Samsung contends that the “Invention Abstract for Use of an Overlay Screen for Pen Computing” dated October 16, 1992, is insufficient as a matter of law to support a claim of reduction to practice arguing that the invention abstract is akin to an unwitnessed inventor notebook. In support, Samsung relies on *Medichem, S.A. v. Rolabo, S.L.*,

¹⁶ Apple argues that even if the Frank patent is determined to be prior art, it still is not anticipatory because “[i]n Frank, only one window is disclosed as being active to receive user input at any given time, and no two windows are disclosed as being active to receive user input, as required by claims 29 and 30.” (CIB at 167.) I agree with the Staff that claim 29 of the ‘922 patent does not require that the two windows be simultaneously active to receive user input as Apple suggests. Rather, claim 29 merely requires that the translucent image and based image be “selectively active to receive user input.” Thus, I find Apple’s argument not persuasive. Accordingly, if the Frank patent is found to be prior art, I would find that at least the Frank patent anticipates claim 29 of the ‘922 patent.

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437 F.3d 1157, 169-70 (Fed. Cir. 2006). Contrary to Samsung's argument, however, the Federal Circuit in *Medichem* did not unequivocally state that an unwitnessed inventor notebook could not support a claim of reduction to practice. Rather the Federal Circuit stated that an "unwitnessed notebook is insufficient *on its own* to support a claim of reduction to practice." *Medichem*, 437 F.3d at 1170 (emphasis added). Thus, while it may be true that standing on its own, the invention abstract is insufficient to corroborate Mr. Gough's testimony of a prior reduction to practice, such is not the case. Here, the invention abstract is consistent with other evidence presented by Apple, including the Developer Note, which was written by a non-inventor.

Next, Samsung argues that because the developer note was for "a product that was not even finished," it cannot serve as evidence of conception or reduction to practice. I disagree. Contrary to Samsung's argument, there is no requirement that the inventor has to have developed a ready to market product. Rather, it is sufficient that the document explicitly confirms Mr. Gough's testimony that he and the other inventors had conceived of the claimed invention and had constructed a prototype with all claimed limitations before the effective date of the Frank patent.

Finally, Samsung argues that the screenshot relied on by Mr. Gough is "unclear and unreliable." While it is true that the evidence adduced by Samsung certainly shows that the screenshot was modified to add the date 1992, the addition of the date does not diminish that the screenshot shows a PenMac Report and other features that generally comport with the testimony of Mr. Gough and the Developer Note.

b. Star 7 Handheld Device

The Parties' Positions

Samsung argues that the Frank patent was based on a device created by Sun Microsystems known as the “Star 7” and that the Star 7 anticipates the claims of the ‘922 patent because it “included all of the functionality described in the Frank patent.” (RIB at 170.)

Samsung argues the testimony of the inventors of the Frank patent that the conception and work towards reducing the Frank patent to practice was completed by

(RIB at 170;

RX-1996C; *see also* RX-3448C, Q 426-427.) Samsung further argues that even if Apple were able to antedate the Frank patent based on the Gough declaration, it has not overcome the earlier work of the on the Star 7 handheld device as detailed in which constitutes evidence of prior invention by another under 35 U.S.C. § 102(g)(2).

Samsung argues the Star 7 handheld device described in anticipates all of the claims of the ‘922 patent. (RIB at 170-73.) Samsung argues it included all of the functionality described in the Frank patent. (RIB at 171-172.) Thus, Samsung argues that for the reasons stated with respect to the Frank patent, Star 7 anticipates claims 29, 31, 33, and 34 of the ‘922 patent. (*Id.*) In addition, Samsung argues that the Star 7 was a handheld device, and thus, anticipates claims 30, 32, and 35, which require a handheld device. (*Id.* at 172.)

Samsung argues the document discloses each of the limitations of the asserted claims of the ‘922 patent. Samsung argues the document describes the Star 7 device as

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(RIB at 172.) Samsung also argues the document discloses the ubiquitous use of translucency, noting that fundamental to both the graphics system and user interface was the idea of (Id.) Additionally, Samsung argues the document provides

(Id. at 172-173.) Samsung argues the text refers to this operation as (Id.) Samsung argues drawn by the user is a feature of interest, just like the one disclosed in the '922 patent. (Id.)

(Id.) Samsung argues this one example from teaches all of the claim limitations of the asserted claims and provides yet another independent basis for invalidity (Id.)

Apple argues that Samsung has not proven by clear and convincing evidence that the Star 7 system disclosed any element claimed by the '922 patent other than translucency, much less proven that the Star 7 discloses every element of any claim. (CIB at 167-168.) Apple argues

that the marketing book about the Star 7 project, which notes that in the Star 7 project, discloses no other elements of the claimed methods of the '922 patent. (CIB at 167-168.) Specifically, Apple argues that the Star 7 document does not disclose any other element of the '922 patent claims, including how windows or images were arranged in this system, or how user input was processed. (*Id.*) Apple argues the testimony of Star 7 designer James Gosling similarly fails to establish that the device practiced the '922 patent claims, or indeed any technical details of how it functioned. (*Id.*)

Apple argues that Samsung cannot assign all of the Frank patent's disclosures an earlier date based on the supposed earlier construction of the Star 7 system as it impermissibly conflates 102(g) and 102(e)(2); the disclosures of a patent which is not prior art to the '922 patent are not relevant to an asserted prior invention under 102(g). (CIB at 167-168.) Apple argues that Samsung was required to prove by clear and convincing evidence what was disclosed by the asserted Star 7 device, and is has failed to do so. (*Id.*) Apple also argues that the scant evidence of record as to the Star 7 system refutes Dr. Van Dam's assumption that it embodied all of the teachings of the Frank patent. (*Id.*) Apple further argues that the Star 7 device could not have been an embodiment of the Frank patent because the Star 7 device is that it was handheld while Frank discloses separate peripheral devices, including a keyboard and a mouse, coupled to a separate CPU, coupled to a separate monitor. (*Id.*)

The Staff argues that Samsung has not met its burden in proving by clear and convincing evidence that the Star 7 device anticipates the '922 claims. In particular, the Staff argues there is no evidence that Dr. Van Dam analyzed the actual Star 7 device. (SIB at 88.) The Staff further argues that Dr. Van Dam based its opinion regarding anticipation on internal Sun Microsystem

documents and testimony from the Star 7 inventor, from which Dr. Van Dam generally concludes that the devices disclose “translucency” and “the graphical user interface function of the ‘922 patent.” (*Id.*) Moreover, the Staff argues Dr. Van Dam’s analysis is insufficient to establish that the Star 7 device anticipates the ‘922 claims, as his analysis does not address whether the Star 7 device discloses all of the specific claim elements. (*Id.*) The Staff further argues that the evidence has shown that Samsung has not met its burden of establishing that the Star 7 device practices the invention disclosed in the Frank patent, as Dr. Van Dam’s analysis does not address whether the Star 7 device discloses the specifics of the Frank invention. (*Id.*)

Analysis

Samsung includes for the first time in its initial post-hearing brief the argument that the document discloses each of the limitations of the asserted claims of the ‘922 patent. (RIB at 172-173.) This argument was not presented in Samsung’s pre-hearing brief and thus pursuant to Ground Rule 9.2 Samsung has waived said argument. Moreover, Samsung’s entire argument that the document meets all the claims limitations of the asserted claims consists of nothing more than attorney argument. (*Id.*) Attorney argument is not a substitute for factual evidence and thus on the merits Samsung’s argument fails to clearly and convincingly show that the document anticipates the asserted claims of the ‘922 patent. *See Gemtron Corp. v. Saint-Gobain Corp.*, 572 F.3d 1371, 1380 (Fed. Cir. 2009) (noting that “unsworn attorney argument is not evidence”); *Johnston v. IVAC Corp.*, 885 F.3d 1574, 1581 (Fed. Cir. 1989) (“Attorneys’ argument is no substitute for evidence.”).

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Samsung argues that the asserted claims of the '922 patent are anticipated by a device created by Sun Microsystems known as the "Star 7" that "included all the functionality described in the Frank Patent." (RIB at 171.) In support, Samsung primarily relies on the testimony of its expert, Dr. van Dam, who testified that:

Based on RX-3518C, RX-1996C and RX-2443, as I previously discussed, it is my opinion the Star 7 practiced all of the teachings of the Frank patent, and thus, for the reasons I discussed previously, anticipates claims 29, 31, 33, and 34 of the '922 patent. In addition, whereas the Frank patent does not explicitly disclose a handheld device, based on the documents I just mentioned, it is clear that the Star 7 device was a handheld device. Thus the Star 7 device also anticipates claims 30, 32, and 35 of the '922 patent.

(See RX-3448C (van Dam DWS) at Q&A 429; *see also id.* at Q&A 421-428.)

The evidence presented by Samsung establishes that the Star 7 device was completed at least as of the (See RX-1996C at FRANK00000054; RX-3518C (Gosling Dep.) at 143:14-144:14.) Thus, the Star 7 device existed before the October 16, 1992, date of invention asserted by Apple for the '922 patent. Accordingly, the Star 7 is prior art under 35 U.S.C. 102 (g)(2).

The evidence presented by Samsung that the Star 7 device anticipates the asserted claims of '922 patent is wholly inadequate to satisfy its clear and convincing evidentiary burden. The total of eight questions and answers that Dr. van Dam dedicates to supporting his opinion that the Star 7 anticipates consist mostly of large block quotes from the deposition of Dr. Gosling (one of the inventors of the Frank patent) and a document titled, There is no evidence that Dr. van Dam ever examined the Star 7 device or examined its source code. Rather Samsung and Dr. van Dam seek to rely on the disclosure in the Frank patent to prove the functionality of the Star 7 device.

However, I have already found herein that the Frank patent is not prior art to the '922 patent and thus Samsung's attempt to rely on its disclosure to prove how the Star 7 functioned prior to the date of invention for the '922 patent is logically incorrect. Moreover, the evidence presented by Samsung simply does not clearly and convincingly establish that the Star 7 device implemented the features and functionality disclosed in the Frank patent. Other than repeatedly touting the Star 7 as _____, Samsung makes no effort to show that the other limitations of the asserted claims are also disclosed by the Star 7 device. To prove that the Star 7 device anticipates, however, Samsung must show that the Star 7 device discloses each and every one of the limitations of the asserted claims. Here, there can be no question that Samsung has failed to adduce evidence of such.

Accordingly, I find for the reasons above that Samsung has failed to prove by clear and convincing evidence that the Star 7 device anticipates the asserted claims of the '922 patent.

c. U.S. Patent No. 5,260,697 (Barrett)

The Parties' Positions

Apple argues that Samsung has not proven by clear and convincing evidence that Barrett anticipates any of the '922 patent claims. (CIB at 159-162). Apple argues Barrett discloses a tablet with a stylus for input where the user can interact with applications on the tablet by using the stylus on three "simulated" devices: a keyboard, a mouse, and a handwriting input device. (CIB at 159.) Apple further argues that these simulated devices are displayed to the user as overlays which "appear to be on top of the application's display" area. (*Id.*) Apple argues that these overlaid simulated devices are *opaque* in Barrett. (*Id.* at 159-60.) Specifically, Apple argues that by displaying virtual devices instead of the underlying application wherever those

devices are present, and displaying the application if there is no virtual device, Barrett creates displays like the one seen in Figure 10 which depicts only opaque images. (*Id.* at 160-61.)

Apple argues that Samsung's expert Dr. Van Dam did not testify the Barrett *actually* discloses translucent images but instead, as he admitted on cross examination, his opinions about Barrett were based on his view that the disclosure of Barrett could be *extended* to other, undisclosed techniques to make translucent images. (CIB at 161.) Apple argues because there is no disclosure of translucency in Barrett, Barrett does not anticipate any claim of the '922 patent. Similarly, Apple argues because Barrett never discloses screen door translucency, Barrett does not anticipate any claim of the '922 patent. (*Id.*)

Apple argues that a stable, persistently overlapping system of images, in which a user can interact with the base layer while it continues to be overlaid by the translucent window, required by claims 29, 30, and 34, is absent from Barrett. (CIB at 161.) Apple argues that the system of Barrett uses virtual devices as an interface layer and while this interface layer is displayed, all user input is received, processed, and passed along by this layer. (*Id.*) Apple argues that Barrett never states or even suggests that the system would continue to display these virtual devices while the user interacts with the application plane. (*Id.*) Thus Apple argues that Barrett does not disclose the required element of claims 29, 30, and 34 of the '922 patent that the base image is active to receive user input while at least partially covered by the translucent image. (CIB at 161-62.)

Samsung argues that the Barrett patent anticipates each and every limitation of the '922 patent. (RIB at 173.) Samsung argues Barrett is prior art under 35 U.S.C. § 102(e); the application that issued as Barrett was filed on November 13, 1990, well before the earliest

invention date ever alleged by Apple for the '922 patent. (*Id.*) Moreover, Samsung argues that Apple did not disagree with Samsung's assertion as Barrett as § 102(e) art; thus to the extent any question of its propriety under § 102(e) is deemed abandoned or waived. (*Id.*)

Samsung argues that along with the "ink plane," Barrett provides a "mask plane" buffer, which together form Barrett's "overlying interface." (RIB at 174.) Samsung argues the virtual devices are drawn in the "ink plane;" from there they are combined with display data output by the standard applications. (*Id.*) Samsung argues that taken all together, the overlying interface provides a means through which the "virtual devices" form a "user interface that logically overlays, but does not interfere with, the operation of the preexisting program[s]." (*Id.*)

Samsung argues that Apple concedes in its pre-hearing brief that Barrett discloses each and every limitation save two: (1) the existence of a translucent image as required by each asserted claim, (2) "accepting user input in the base layer while it continues to be overlaid with the translucent window, which is required by claims 29, 30, and 34." (RIB at 174.) Samsung argues this statement appears to mix limitations, and in no way meets the particularity requirement of Ground Rule 9.2. Therefore Samsung argues that Apple should be held to waive all but the argument that Barrett fails to disclose translucent images. (*Id.*)

Samsung argues that a person of ordinary skill in the art would understand that a mask plane with multiple bits per pixel used to select "among a set of image combining arrangements" refers to translucency. (*Id.* at 175.) Samsung argues that Apple erroneously tries to limit the scope of the patent to Figure 10, which depicts opaque images. (*Id.*) Samsung further argues that Dr. van Dam showed one way that the operations disclosed in Barrett could be used to implement translucency. (*Id.*)

Samsung argues that Barrett teaches that the base image and the translucent image are selectably active to receive user input, and the base image remains at least partially covered by the translucent image even when selected. (RIB at 176.) Samsung argues that Barrett discloses a handwriting recognition device that can operate in pointing mode and writing mode. (*Id.*)

Samsung argues Barrett discloses one particular embodiment in which the system automatically selects an appropriate mode – that is, no separate user activation step is necessary to select the base image or the translucent image. (*Id.*) Samsung argues that by default, the system operates in pointing mode, in which pen input simulates mouse input in the base image. (*Id.*) Samsung argues that when the user touches a writing field – which is visible on the display – the system switches to writing mode, which allows for handwriting input in the translucent image. (*Id.*)

Samsung then argues that because the user can select whether the base image is active (pointing mode) or the translucent image is active (writing mode), the base image and the translucent image are selectably active. (*Id.*)

The Staff argues that Samsung's argument is insufficient to establish anticipation, as it implicitly acknowledges that the reference does not expressly teach translucent overlay images. (SIB at 86-87.) The Staff further argues that Samsung expert witness Dr. Van Dam has acknowledged that Figure 10 is the only figure in the Barrett patent that depicts overlays and that all of the displayed overlays are opaque. (*Id.*) Moreover, the Staff argues that Dr. Van Dam explicitly admits that the very basis of his opinion that the Barrett reference anticipates the '922 patent is his belief that the Barrett disclosure "could be extended to more complex disclosures [than what Barrett actually discloses]." (*Id.*) Therefore, the Staff argues that Samsung has not presented clear and convincing evidence that Barrett anticipates the claims of the patent. (*Id.*)

Analysis

Samsung argues that claims 29-35 of the '922 patent are anticipated by U.S. Patent No. 5,260,697 ("the Barrett patent). In support, Samsung relies primarily on the testimony of its expert, Dr. van Dam, who testified that the Barrett patent anticipates all the asserted claims of the '922 patent. (*See* RX-3448C (van Dam DWS) at Q&A 359-382.)

The Barrett patent was filed on November 13, 1990, which is before the October 16, 1992 date of invention asserted by Apple, as well as the September 30, 1993, priority date of the '922 patent. (*See* RX-233.) Thus, the Barrett patent is prior art under 35 U.S.C. § 102(e).

Every asserted claim of the '922 patent requires a translucent image that at least partially overlaps the base image/first selected image. (*See* JX-004 at 26:43-28:7.) Dr. van Dam testified that Barrett discloses this limitation of the asserted claims. Specifically, Dr. van Dam testified that Barrett discloses a mask plane for combining the graphical data of the standard display buffer (*i.e.*, the application) and the ink plane buffer (*i.e.*, the virtual device). (*See* RX-3448C (van Dam DWS) at Q&A 361.) Dr. van Dam testified that when the mask plane uses multiple bits per pixel, Barrett discloses that the system can select "among a set of image combining arrangements, such as AND, OR, XOR, NOR, and NAND, in addition to simply selecting between the VGA and ink data." (*Id.*) Dr. van Dam testified that one of ordinary skill in the art would understand the phrase "such as" in the above quote to indicate that the above operations are exemplary and that "other image combining arrangements could be used," including image arrangements that would "combine the graphical data of the VGA controller and the ink plane" to render the virtual devices translucent over the underlying application. (*Id.*)

Contrary to Dr. van Dam's testimony, there is nothing in Barrett that discloses combining the visual data from the display plane with the display from a pre-existing program to achieve translucency. (CX-2591C (Balakrishnan RWS) at Q&A 133.) Rather, the evidence shows that "the mask plane in Barrett ... would instead be used to select the pixel corresponding to the 'top' image in every case where the image overlapped the 'bottom' image" resulting in "simply two opaque, overlapping images, neither of which could be seen through." (*Id.*) Consistent with this evidence, the Barrett patent discloses in Figure 10, the only figure to show overlapping images, overlapping images that are not translucent, but rather opaque. (*Id.*) There simply is no disclosure in Barrett that clearly and convincingly teaches the claimed translucent image. Accordingly, I find that Samsung has failed to show that Barrett discloses every limitation of the asserted claims and thus I find Samsung has failed to prove by clear and convincing evidence that the asserted claims of the '922 patent are anticipated by Barrett.

Moreover, to anticipate, Samsung must show by clear and convincing evidence that Barrett discloses each and every limitation of the asserted claims either expressly or inherently. *King Pharms., Inc. v. Eon Labs, Inc.*, 616 F.3d 1267, 1274 (Fed. Cir. 2010) ("Under 35 U.S.C. § 102, anticipation exists when a single piece of prior art satisfies, either expressly or inherently, every limitation of the claimed invention."). Here, Samsung does not argue that Barrett explicitly discloses a translucent image. Rather, Samsung insinuates in its post-hearing brief that such a concept is inherently disclosed, arguing that "one of ordinary skill in the art would understand these image combining arrangements to refer to translucency." However, at the hearing Dr. van Dam testified:

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Q. And you believe -- well, first of all, it's your opinion that the techniques shown here are techniques that Barrett teaches to use to generate the kind of image shown in Figure 10, right?

A. For sure.

Q. That's the image with the opaque overlays?

A. That's right.

Q. But you also think that the Barrett patent suggests other possibilities for how images could be combined including something that could result in a translucent image?

A. Correct.

Q. And the basis for your opinion that Barrett anticipates the '922 patent is that you believe this disclosure in Barrett could be extended to more complex operations that could include transparency, right?

A. Transparency or translucency, yes.

Q. And you think that's true because Barrett uses the words such as, which to you, implies other possibilities for image combinations than the ones that are explicitly listed, right?

A. Correct.

(Tr. at 1612:5-1613:5.) Dr. van Dam admits in the above testimony that Barrett neither expressly nor inherently discloses translucency, but that the disclosed mask plane concept in Barrett can be "extended" to perform more complex operations such as translucency. This is not an anticipation argument but a single reference obviousness argument, where Samsung is alleging that the claims of the '922 patent are obvious in light of Barrett in view of the knowledge of one of ordinary skill in the art. Accordingly, I find for this additional reason that Samsung has failed to prove by clear and convincing evidence that the asserted claims of the '922 patent are anticipated by the Barrett patent.

d. NeWS

The Parties' Positions

Apple argues that Samsung has not proven by clear and convincing evidence that the '922 patent is anticipated by either of the NeWS references. (CIB at 162-65.) Specifically, Apple argues that the NeWS references fail to disclose translucency, image operations using a feature of interest, required by claims 31 and 32, or the use of a handheld device, required by claims 30, 32, and 35, and therefore do not anticipate any claim of the '922 patent. (*Id.*)

Apple argues that the NeWS Book describes a number of graphical user interfaces, some of which include “canvasses” to display information on a screen. (CIB at 163.) Apple argues these canvasses are all either “transparent” or “opaque,” neither of which are translucent. (*Id.*) Therefore, Apple argues the NeWS Book does not anticipate any claim of the '922 patent. (*Id.*) In addition, Apple argues the NeWS Book does not disclose the required element of claims 31 and 32 that a feature of interest in a translucent image be used to conduct image operations on the underlying image and does not disclose a handheld device. (*Id.*)

Apple argues that Samsung attempts to rely on what it asserts is an “X/NeWS system running on SPARCstation LX” but that Samsung has not identified the source of this device, nor has it provided any technical detail about its operation. (CIB at 163-64.) In addition, Apple argues that the X/NeWS operating system was created in 1994 but Samsung expert witness Dr. van Dam relied on dates associated with the source code for the “PizzaTool” and “RasterRap” programs which are not asserted prior art. (*Id.*) Therefore, Apple argues Samsung has not proven either that this device is prior art or that it discloses the elements claimed by the '922 patent, both facts it must show by clear and convincing evidence. (*Id.*)

Apple argues that Samsung also has not proven that this system disclosed two critical elements of the '922 patent; translucency, and user input to the base image while it is overlaid. (RIB at 164-65.) Apple argues that Samsung has not provided any technical detail about how NeWS, "PizzaTool," or "RasterRap" programs work. (*Id.*) Apple argues that Samsung offers no evidence that these programs actually displayed translucent images and that it would have been possible to achieve this exact same visual effect shown in these screenshots by changing some of the pixel values for the base image, rather than blending two images. (*Id.*) Thus Apple argues that Samsung has no evidence that NeWS employed translucent images, and therefore does not disclose any claim of the '922 patent nor do these screenshots prove that a user can interact with the base image while it is covered by a translucent image, as required by claims 29, 30 and 34 of the '922 patent. (CIB at 162-165.)

Samsung argues the Network/extensible Window System ("NeWS") developed by Sun Microsystems anticipates claims 29, 31, 33, and 34 of the '922 patent. (RIB at 176-179). Samsung argues NeWS existed as early as 1984, the relevant features are described in publications published in 1988 and 1989, and a SPARCstation LX system running a 1991 release of NeWS practices claims 29, 31, 33, and 34 of the '922 patent. (*Id.* at 176-77.) Thus, Samsung argues NeWS is prior art under 35 U.S.C. § 102(a).

Samsung argues that NeWS discloses translucent images. Specifically, Samsung argues that NeWS uses drawing surfaces known as "Canvasses," which may overlap each other on a display and which may be explicitly marked as "overlay" canvasses for presentation over other images in a main display plane. (RIB at 177.) In addition, Samsung argues that at least the 1991 version of NeWS, installed on a SPARCstation LX provided as a physical exhibit, included

applications that use translucent images. (*Id.*) Samsung argues that Apple does not rebut Samsung's evidence that the NeWS version on the SPARCstation LX system is no older than 1991 – namely, the dates provided in the relevant source code files. (*Id.* at 177-78.)

Samsung argues that NeWS discloses that the base image and the translucent image are selectably active to receive user input, and the base image remains at least partially covered by the translucent image even when selected. (RIB at 178.) Samsung argues that NeWS discloses image operations using a feature of interest. (*Id.* at 178-79.)

The Staff argues that Samsung has not met its burden of establishing that the NeWS publication anticipates the claims of the '922 patent, as Samsung acknowledges that the NeWS publication does not disclose translucency. (SIB at 84.)

Analysis

Samsung argues that claims 29, 31, 33 and 34 of the '922 patent are anticipated by the Network/extensible Window System ("NeWS") developed by Sun Microsystems. In support, Samsung relies primarily on the testimony of its expert, Dr. van Dam, who testified in detail that NeWS anticipates the asserted claims of the '922 patent. (*See* RX-3448C (van Dam DWS) at Q&A 430-452.)

The evidence shows that the relevant features of NeWS were described in a printed publication dated 1998 titled, "NeWS and X, Beauty and the Beast?" and a printed publication dated 1999 titled, "The NeWS Book." (*See* RX-1025C; RX-3024.) These two references were published prior to the October 16, 1992 date of invention argued by Apple for the '922 patent.

While no party raises the issue, I note that the document "NeWS and X, Beauty and the Beast?" on which Samsung relies heavily in support of its anticipation argument is marked as a

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confidential exhibit and marked on the first page of the document “ORACLE CONFIDENTIAL BUSINESS INFORMATION, SUBJECT TO PROTECTIVE ORDER” with the words “Do Not Distribute” written across the top of the first page. (See RX-1025C) The confidential nature of the publication suggests “NeWS and X, Beauty and the Beast?” is not a “printed publication” for purposes of 102(a), because it was not publically accessible. *Carella v. Starlight Archery and Pro Line Co.*, 804 F.2d 135, 139 (Fed. Cir. 1986); *Pfund v. U.S.*, 40 Fed.Cl. 313, 333 (Fed. Cl. 1998) (“A document is considered a printed publication as of the date on which the document became sufficiently accessible to the public interested in the art.”) Thus, at a very minimum, I find Samsung has failed to establish when this document became publically accessible.

Samsung also relies on a SPARCstation LX system that allegedly runs a 1991 release of NeWS to establish that NeWS is prior art. However, the evidence shows that the 1991 date is not the date of the NeWS system itself, but rather the date Dr. van Dam found in source code files he reviewed that pertain to NeWS. (See RX-3448C (van Dam DWS) at Q&A 436.) Dr. van Dam provides no basis to assume that because some of the individual source code files are dated 1991 or earlier that the date of the NeWS system as a whole also is entitled to such a date. The fact that the operating system used on the SPARCstation was created in 1994 (after the date of invention / priority date of the ‘922 patent) further cuts against the strength of Samsung’s argument. Accordingly, I find Samsung has failed to prove by clear and convincing evidence that the NeWS running on the SPARCstation LX system is prior art. Thus, any testimony of Dr. van Dam regarding the NeWS running on the SPARCstation LX must be discounted.

Each of claims 29, 31, 33 and 34 of the ‘922 patent requires a translucent image that at least partially overlaps the base image/first selected image. (See JX-004 at 26:43-28:7.) Dr. van

Dam testified that The NeWS Book “clearly discloses a translucent image that overlays a base image,” but then admits one question and answer later that “No. The transparent canvasses in [The NeWS Book] merely illustrate how overlays work in NeWS. It is my opinion that the NeWS system used translucent images based on my examination of the SPARCstation LX.” (RX-3448C (van Dam DWS) at Q&A 440.) As Dr. van Dam admits, and as the testimony of Dr. Balakrishnan shows, The NeWS Book discloses only that the NeWS system used a system of canvases that could overlap one another and that these canvases could be either transparent or opaque. (*Id.*; CX-2591 (Balakrishnan RWS) at Q&A 173; *see also* RX-3024 at 96¹⁷.) Nothing in the book discloses translucency as that term has been construed in the ‘922 patent. (*Id.*)

Dr. van Dam relies exclusively on the NeWS running on the SPARCstation LX to support his opinion that NeWS discloses a translucent image. However, I have found hereinabove that Samsung has failed to prove that the version of NeWS running on the SPARCstation LX was prior art. Thus, Dr. van Dam’s testimony regarding the SPARCstation LX cannot be relied on to show that NeWS discloses translucency as it is unclear whether the features Dr. van Dam relies on to show translucency (which I note are not discussed in The NeWS Book) are included and/or implemented in the same way in a prior art version of NeWS. Discarding Dr. van Dam’s testimony, Samsung is left with no evidence that NeWS shows a translucent image partially overlapping a base image. Accordingly, I find Samsung has failed to prove by clear and convincing evidence that NeWS discloses all of the limitations of claims 29,

¹⁷ The page number to which I refer is the page number located after the exhibit number in the top right hand corner of the exhibit.

31, 33 and 34 and thus Samsung has failed to prove that NeWS anticipates claims 29, 31, 33 or 34 of the '922 patent.

Even if NeWS running on the SPARCstation LX was prior art, which it is not, the evidence still fails to show clearly and convincingly that NeWS discloses a translucent image partially overlapping a base image. Dr. van Dam testified that it was his opinion based on his examination of the SPARCstation LX that NeWS discloses translucent images. (RX-3448C (van Dam DWS) at Q&A 441.) In support, Dr. van Dam relied on screen shots from two programs, PizzaTool and RasterRap, that he testified disclosed the claimed translucent image. (*Id.* at Q&A 442-443, 445-446.) However, contrary to Dr. van Dam's testimony, it is impossible to tell from the screen shots alone whether the NeWS actually creates a separate translucent and base image as required by the asserted claims.¹⁸ (CX-2591C (Balakrishnan RWS) at Q&A 188-189.) The evidence shows that "[i]t is possible to create a display that gives the appearance of translucency by simply darkening some of the pixels in a single image without ever combining two images." (CX-2591C (Balakrishnan RWS) at Q&A 203; *see also id.* at Q&A 190, 192.) Thus, even if NeWS running on the SPARCStation LX was prior art, I would find that Samsung failed to prove by clear and convincing evidence that NeWS discloses every limitation of the claims 29, 31, 33 and 34.

¹⁸ Samsung argues that Apple's argument that the screenshots do not disclose a translucent image because there is no evidence that actual blending occurred as opposed to the programmatic transformation of certain pixels is inconsistent with its infringement argument. (RIB at 178) However, the evidence shows that unlike Dr. van Dam, Dr. Balakrishnan actually examined the Android source code in Samsung's accused products to determine that those products create a separate translucent image. (*See* CX-2591C (Balakrishnan RWS) at Q&A 188-197, 203.)

2. Obviousness

a. Barrett alone or in combination with Foley/van Dam

Samsung argues that if Barrett is not found to anticipatory then Barrett renders each and every claim of the '922 patent obvious, either alone or in combination with a publication written by Foley, van Dam, et al. titled, "Computer Graphics, Principles and Practice" ("Foley/van Dam"). (RIB at 180.) Samsung argues that Dr. Van Dam describes three methods that would be known to a person of ordinary skill in the art for implementing translucency on the system of Barrett: (1) screen door transparency; (2) alpha blending using binary operations; and (3) interpolated translucency as taught by Foley/van Dam. (*Id.*) Samsung argues that a person of ordinary skill in the art would have been motivated to consider these three methods to apply to the system of Barrett. (*Id.*) Samsung argues that the combination of Barrett and Foley/van Dam would be obvious as a matter of law because it is a simple application of a known technique to a new medium. (*Id.* at 181.)

Analysis

Samsung argues that Barrett alone would render the claims of the '922 patent obvious because a person of ordinary skill in the art reading Barrett would know "how to implement a simple form of translucency known as 'screen door translucency.'" Specifically, Samsung contends that Barrett teaches combining the base image and the virtual devices using a mask plane, and that "one simple way" of configuring a mask plane is to create a hash of the two images. What Samsung and its expert Dr. van Dam fail to address is why one of ordinary skill in the art would have been motivated to modify the teachings of Barrett to develop translucency. Samsung makes the mistake of arguing that the invention is obvious because someone could

have developed translucency, instead of showing how Barrett would motivate/teach one of ordinary skill in the art to do it. *See Takeda Chem. Indus., Ltd. v. Alphapharm Pty., Ltd.*, 492 F.3d 1350, 1356-57 (Fed. Cir. 2007) (“[T]he [Supreme] Court acknowledged the importance of identifying ‘a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does’ in an obviousness determination.”) (citation omitted). In this case, Samsung offers no reason for one of skill in the art to construct the “screen door” mask plane identified by Dr. Van Dam. In fact, the evidence shows that the mask plane taught by Barrett is used for a purpose completely unrelated to translucency; to create a set of overlapping opaque windows. (*See* CX-2591C (Balakrishnan RWS) at Q&A 131-134.) Thus, I find Samsung’s argument not persuasive.

Samsung also argues that one of ordinary skill in the art “could come up with any number of ways to implement translucent images” based on the image combining operations already suggested. In fact, Samsung’s expert Dr. van Dam opines that “simple logic circuitry could be added to the example in Figure 2 of Barrett to implement such blending.” As with the screen door translucency discussed above, Samsung again fails to provide any explanation why one of ordinary skill in the art would be motivated to modify Barrett in the first instance. Samsung only offers hindsight reasoning. *See In re NTP, Inc.*, 654 F.3d 1279, 1299 (Fed. Cir. 2011) (“Care must be taken to avoid hindsight reconstruction by using ‘the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result claimed in suit.’”) Accordingly, I find Samsung’s argument not persuasive.

Finally, Samsung argues that one could have combined the “interpolated transparency” disclosed in the Foley/van Dam textbook with Barrett to create translucency. Contrary to

Samsung's argument, however, the evidence shows that it would not have been obvious to one of ordinary skill in the art to combine the complicated interpolated translucency of Foley/van Dam with the simple system of Barrett.

I have found hereinabove that Barrett does not disclose the claimed translucency, but rather illustrates only opaque overlays. Yet, Samsung fails to provide any reasoning why one of ordinary skill would be motivated to modify Barrett to create translucency. Samsung simply presumes that one of ordinary skill would be motivated to do so. Having provided no evidence of motivation, Samsung's obviousness argument must fail.

Moreover, the evidence shows that Barrett uses a simple mask plane to display pixels, with the system choosing which pixels to display based on simple logic operators, such as AND, OR, etc. (RX-233 at 8:54-8:69.) By contrast, the Foley/van Dam textbook explicitly discloses translucency using a very complex set of mathematical equations. (*See* CDX-826.) As Dr. Balakrishnan convincingly testified, the arithmetic operation used by Foley/van Dam would require more computations than the logical operations of Barrett. (CX-2591C (Balakrishnan RWS) at Q&A 1380-140.) Additionally, the evidence shows that the operation disclosed in Foley/van Dam calculates a floating point alpha value that is significantly more complicated than the simple logic calculations in Barrett. (*Id.*) The evidence shows that to modify Barrett to use the translucency of Foley/van Dam, the system of operation disclosed by Barrett would have to be changed to a more complicated system, which would not have been obvious to do, especially since Barrett was a portable device. (*Id.*) Notably, Samsung's expert Dr. van Dam provides no rationale for combining Barrett and Foley/van Dam.

Accordingly, I find that Samsung has failed to prove by clear and convincing evidence that the asserted claims of the '922 patent are obvious in light of Barrett in view of Foley/van Dam.

b. Frank in combination with Barrett

Samsung argues that if the Frank patent is found to be not anticipatory, then the Frank patent renders claims 29,31, 33 and 34 of the '922 patent obvious in light of Barrett. (RIB at 182.) Samsung argues that the techniques disclosed in the Frank patent apply to computer display systems generally, and are not limited to non-handheld devices. (*Id.*) Samsung argues that, in fact, the Frank patent was implemented on a hand-held system referred to as the Star 7 system. (*Id.*) Thus, Samsung argues such a combination was clearly obvious to the inventors. (*Id.*)

Analysis

I have found hereinabove that the '922 patent antedates the Frank patent. Therefore, the Frank patent is not prior art. According, the Frank patent cannot support an obviousness argument and thus I find that Samsung has failed to prove by clear and convincing evidence that claims 29, 31, 33 and 34 are obvious in light of Frank in view of Barrett.

IX. U.S. Patent No. 7,912,501

A. Introduction

U.S. Patent No. 7,912,501 ("the '501 patent") is titled "Audio I/O Headset Plug and Plug Detection Circuitry." (JX-006, cover page.) The patent issued on March 22, 2011, to Johnson et al. and was assigned to Apple, Inc. (*Id.*) The '501 patent has an effective filing date of January 5, 2007. (*Id.*)

The '501 patent is directed to a plug and plug detection circuitry. According to the specification, detection circuitry determines whether a microphone type of plug (*e.g.*, a four region plug including a microphone region and two audio regions, or a three region plug including a microphone region and one audio region) or a non-microphone type of plug (*e.g.*, stereo plug) is inserted into a jack of an electronic device. (JX-006 at 1:36-52.) The detection circuitry can provide a signal indicative of whether the received plug is a microphone or non-microphone type. (*Id.*) The detection circuitry is also adapted to provide another signal that indicates whether a plug is received by the jack. (*Id.*) The detection circuitry may also detect user activated functions performed in response to user activation of one or more switches included with the headset. (*Id.*)

B. Asserted Claims

Apple argues that Samsung infringes claims 1-4 and 8 of the '501 patent. The asserted claims read as follows:

1. A system for detecting which type of plug is received by a portable electronic device, the system comprising:

a jack constructed to receive a plug selected from at least a microphone type and a non-microphone type, wherein the jack comprises a microphone connector electrically coupled to CODEC circuitry and microphone detection circuitry, a ground connector coupled to a ground source, a right connector coupled to the CODEC circuitry, and a left connector coupled to the CODEC circuitry, and wherein the ground connector is positioned between the microphone connector and either the left connector or the right connector;

the microphone detection circuitry operative to:

determine whether the received plug is the microphone type or the non-microphone type; and

provide a signal indicative of whether the received plug is the

microphone type or the non-microphone type.

2. The system of claim 1, wherein the device is a mobile telephone.
3. The system of claim 1, wherein the detection circuitry is operative to monitor the microphone connector for a switch activation event.
4. The system of claim 3, wherein the detection circuitry is operative to change the state of the signal in response to a monitored switch action event.

...

8. The system of claim 1, further comprising: a processor electrically coupled to receive at least the signal and a HEADSET DETECT signal.

C. Level of Ordinary Skill in the Art

Apple proposes that a person of ordinary skill in the art at the time of the invention of the '501 patent would have had "at least a bachelor's degree in electrical engineering or the equivalent, and at least one to two years of work experience in the field." (CX-2599C (Phinney RWS) at Q&A 21.) Samsung proposes that a person of ordinary skill at the time of the invention of the '501 patent would have had "at least the equivalent of a first college degree in digital electronics, electrical engineering, computer engineering, computer science, or a related technical degree, as well as one to two years of post-degree experience in the engineering of computer systems and/or consumer electronics." (RIB at 220 ("The level of ordinary skill in the art is the same as that for the '697 patent"); RX-3450C (Russ DWS) at Q&A 65.) For all intents and purposes the two proposals are the same and the parties do not argue otherwise. Having reviewed the two proposals I have decided to adopt Samsung's proposal as it is more specifically worded. Thus, I find that one of ordinary skill in the art at the time of the '501 patent would have had "at least the equivalent of a first college degree in digital electronics, electrical engineering, computer engineering, computer science, or a related technical degree, as well as

one to two years of post-degree experience in the engineering of computer systems and/or consumer electronics.”

D. Claim Construction

Pursuant to Order No. 16, the following undisputed claim constructions shall apply:

(1) “next item heuristic”/“next item command” is construed in accordance with its plain and ordinary meaning; (2) “two-dimensional screen translation” is construed to mean “movement of screen content in two dimensions”; (3) Order No. 16 adopted the parties’ undisputed claim constructions for the following claim terms: (1) “CODEC circuitry” is construed to mean “coder/decoder capable of converting a digital audio signal into an analog audio signal and capable of converting an analog audio signal into a digital audio”; (2) “microphone detection circuitry” is construed to mean “circuitry that determines whether a received plug is a microphone type or a non-microphone type”; (3) “switch activation event” is construed to mean “activation of one or more accessory switches”; (4) “HEADSET DETECT signal” is construed to mean “a signal that indicates whether a plug has been inserted into the jack”; (5) “left connector” is construed to mean “a connector that carries an audio signal component”; and (6) “right connector” is construed to mean “a connector that carries an audio signal component.”

(See CX-2352C at 34-36.)

E. Infringement

Apple divides its infringement contentions into four categories based on whether the ‘501 Accused Products are:

(See CX-2429C (Phinney DWS) at Q&A 213-217.) Apple has identified for each category of products a representative product that it relies on for purposes of its infringement analysis. (*Id.*) Those products are identified above in parentheses. Samsung has not contested that the products relied on by Apple are representative.

Neither Apple nor its expert, Dr. Phinney, addressed the ‘501 Design Around Product. (*See generally*, CIB.) Thus, I find that Apple has failed to prove by a preponderance of the evidence that the ‘501 Design Around Product infringes the asserted claims of the ‘501 patent. In any event, the evidence shows that the ‘501 Design Around does not practice claims 1-4 and 8 of the ‘501 patent.

In particular, the evidence shows that the Design Around

(*Id.*). Therefore, the Design Around does not practice the “determine” or “provide a signal indicative” of plug type limitations of claim 1. (*Id.*) Apple does not seem to contest this. (*See* Tr. 967:4-22)

1. Products employing GND-detection scheme and a comparator for microphone detection and switch activation events

Apple has identified the Continuum SCH-I400 as the representative device on which it bases its infringement contentions for this category of accused products. (CX-2429C (Phinney DWS) at Q&A 214.) None of the other '501 Accused Products fall within this category. (*Id.*)

Dr. Phinney testified in detail that the Continuum SCH-I400 infringes the asserted claims of the '501 patent. (CX-2429C (Phinney DWS) at Q&A 218-249.) In support, Dr. Phinney relied on his reverse engineering and testing of numerous Samsung products, as well as Samsung's responses to interrogatories in this investigation, including Samsung's identification of the operating system, jack, and CODEC used in each of the accused devices. (*Id.* at Q&A 196.)

Samsung states in its initial post-hearing brief that it only contests infringement of those devices that use an ADC for plug type detection. (RIB at 225-226.) Consistent with that position, it does not appear from Samsung's initial post-hearing brief that Samsung contests that the Continuum SCH-I400 infringes the asserted claims. (*See* RIB at 226 n.18.) However, Dr. Russ testified on behalf of Samsung that he did not believe that Apple's expert, Dr. Phinney, had sufficiently shown that the Continuum SCH-I400 did not use an ADC for plug type detection and thus concluded that the Continuum SCH-I400 fell into the data converter implementation category. (RX-3637C (Russ RWS) at Q&A 681.) Accordingly, out of an abundance of caution, I will address Samsung's non-infringement arguments in the context of the Continuum SCH-I400.

a. Claim 1

Dr. Phinney testified in detail that the Continuum SCH-I400 infringes claim 1 of the '501 patent. (CX-2429C (Phinney DWS) at Q&A 220-235.) Samsung contests only that the Continuum SCH-I400 satisfies the claimed microphone detection circuitry. (RIB at 224.) In particular, Samsung argues that the Continuum SCH-I400 does not determine whether the received plug is the microphone type or non-microphone type and does not provide a signal indicative of whether the received plug is the microphone type or non-microphone type. (*Id.* at 225-230.)

The Parties' Positions

Apple argues that the Continuum SCH-I400's

Samsung argues that the accused products in this category do not infringe because they use complicated software, not circuitry, to perform the claimed functions. (RIB at 225.)

Specifically, Samsung argues

Thus, Samsung argues the output of is not a determination of anything. (Id.) Samsung also argues that the products in this category do not provide a signal indicative of plug type. (Id. at 229.) Instead, Samsung argues that to determine plug type. (Id.) According to Samsung,

The Staff summarized the parties' positions and concluded that the evidence shows

Analysis

The evidence shows that the microphone detection circuitry of the Continuum SCH-I400 comprises

Samsung's non-infringement argument ignores the record evidence that the Continuum SCH-I400 includes detection

Moreover, Samsung fails to offer any expert testimony to rebut this evidence. (*See generally*, RX-3637C (Russ RWS).) Accordingly, I find Samsung's argument not persuasive.

Based on the evidence presented by Apple and for the reasons discussed above, I find Apple has proven by a preponderance of the evidence that the Continuum SCH-I400 meets each and every limitation of claim 1 and thus infringes claim 1 of the '501 patent.

b. Claim 2

The evidence shows that the Continuum SCH-I400 is a mobile handset. (CX-2429C (Phinney DWS) at Q&A 237; CX-0917C at S-ITC-000046382.) Samsung does not contest this evidence. In fact, Samsung offers no non-infringement argument particular to claim 2. (RIB at 232) Accordingly, for the reasons expressed here and with regard to claim 1, I find Apple has proven by a preponderance of the evidence that the Continuum SCH-I400 infringes claim 2 of the '501 patent.

c. Claim 3

Dr. Phinney testified in detail that the Continuum SCH-I400 infringes claim 3 of the '501 patent. (CX-2429C (Phinney DWS) at Q&A 239; JX-0032; CDX-0681C.) Samsung argues that the Continuum SCH-I400 does not infringe this claim because the device does not use the microphone detection circuitry to monitor the microphone connector for a switch activation event. (RIB at 232.) Rather, Samsung argues that the Continuum SCH-I400

Thus, the evidence shows that the detection circuitry is operative to monitor the microphone connector for a switch activation event.

Contrary to Samsung's argument, the record evidence shows that the Continuum SCH-I400

Thus, the evidence is clear that the microphone detection circuitry in the Continuum SCH-I400 is

Consequently, I find Samsung's non-infringement argument not persuasive.

Accordingly, for the reasons discussed here and with regard to claim 1, I find Apple has proven by a preponderance of the evidence that the Continuum SCH-I400 infringes claim 3 of the '501 patent.

d. Claim 4

Dr. Phinney testified in detail that the Continuum SCH-I400 infringes claim 4 of the '501 patent. (CX-2429C (Phinney DWS) at Q&A 241; CDX-0681C.) Samsung argues that the Continuum SCH-I400 does not infringe this claim because the device does not change the state of the "signal" in response to a monitored switch activation event. (RIB at 233.) Samsung argues that claim 4 requires that the signal indicative of plug type must be the signal that changes

in response to a switch activation event, but that the Continuum SCH-I400

Therefore, I

find that the detection circuitry in the Continuum SCH-I400 is operative to change the state of the signal in response to a signal activation event.

Accordingly, for the reasons discussed here, as well as the reasons discussed with regard to claims 1 and 3 on which claim 4 depends, I find Apple has proven by a preponderance of the evidence that the Continuum SCH-I400 infringes claim 4 of the '501 patent.

e. Claim 8

Dr. Phinney testified in detail that the Continuum SCH-I400 infringes claim 8 of the '501 patent. (CX-2429C (Phinney DWS) at Q&A 243, 249; JX-0025; JX-0032.) Samsung argues that the Continuum SCH-I400 does not infringe this claim because the device does not generate the claimed signal and that even if it did,

as the

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claim requires. (RIB at 234.) Samsung's non-infringement argument is based on the incorrect belief that the Continuum SCH-I400 . As discussed, *supra*, the Continuum SCH-I400 Thus, I find Samsung's argument not persuasive.

The evidence shows that the application processor in the Continuum SCH-I400 is

Accordingly, for the reasons discussed here and with regard to claim 1, I find by a preponderance of the evidence that the Continuum SCH-I400 infringes claim 8 of the ‘501 patent.

2. Products employing a receptacle switch for plug detection, comparator for microphone detection, and dedicated comparator for switch activation event

Apple has identified the Transform SPH-M920 as the representative device on which it bases its infringement contentions for this category of accused products. (CX-2429C (Phinney DWS) at Q&A 215.) The other of the ‘501 Accused Products that fall within this category are: the Acclaim SCH-R880; the Epic 4G SPH-D700; the Indulge SCH-R910; the Indulge SCH-R915; and the Intercept SPH-M910. (*Id.*)

Dr. Phinney testified in detail that the Transform SPH-M920 infringes the asserted claims of the ‘501 patent. (CX-2429C (Phinney DWS) at Q&A 250-281.) In support, Dr. Phinney relied on his reverse engineering and testing of numerous Samsung products, as well as Samsung’s responses to interrogatories in this investigation, including Samsung’s identification of the operating system, jack, and CODEC used in each of the accused devices. (*Id.* at Q&A 196.)

Samsung states in its initial post-hearing brief that it only contests infringement of those devices that use an ADC for plug type detection. (RIB at 225-226.) Consistent with that position, it does not appear from Samsung’s initial post-hearing brief that Samsung contests that the Transform SPH-M920 infringes the asserted claims. (*See* RIB at 226 n.18.) However,

Dr. Russ testified on behalf of Samsung that he did not believe that Apple's expert, Dr. Phinney, had sufficiently shown that the Transform SPH-M920 did not use an ADC for plug type detection and thus concluded that the Transform SPH-M920 fell into the data converter implementation category. (RX-3637C (Russ RWS) at Q&A 681.) Accordingly, out of an abundance of caution, I will address Samsung's non-infringement arguments in the context of the Transform SPH-M920.

a. Claim 1

Dr. Phinney testified in detail that the Transform SPH-M920 infringes claim 1 of the '501 patent. (CX-2429C (Phinney DWS) at Q&A 252-267.) Samsung argues, as it did with regard to the Continuum SCH-I400, that the Transform SPH-M920 fails to satisfy the claimed microphone detection circuitry. (RIB at 224.) In particular, Samsung argues that the Transform SPH-M920 does not determine whether the received plug is the microphone type or non-microphone type and does not provide a signal indicative of whether the received plug is the microphone type or non-microphone type. (*Id.* at 225-230.)

The Parties' Positions

Apple argues Dr. Phinney established that each limitation of claim 1 is literally present in the Transform SPH-M920 (CIB at 183). Apple asserts Samsung's sole defense is the Transform SPH-M920 and the accused products it represents should be grouped with Samsung products using a data converter for microphone detection. (*Id.*)

Thus, Apple clearly has met its burden to show that the Transform SPH-M920 and the products it represents infringe claim 1 of the '501 patent.

(CIB at 184.)

Samsung argues that the accused products in this category do not infringe because they

The Staff recognizes that Apple and Samsung have presented similar arguments for both the SPH-M920 and the Continuum SWCH-1400. (SIB at 109.) Therefore, the Staff reiterates its argument concerning claims 1, 3, and 8 as they apply to the Continuum SCH-1400 and thus the Staff argues the SPH-920 device infringes claims 1, 3, and 8 of the '501 patent for the same reasons. (*Id.*)

Analysis

The evidence shows that the microphone detection circuitry in the Transform SPH-M920

Samsung's non-infringement argument ignores the record evidence that the Transform
SPH-M920

Moreover, Samsung fails to offer any expert

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testimony to rebut this evidence. (*See generally*, RX-3637C (Russ RWS).) Accordingly, I find Samsung's argument not persuasive.

Based on the evidence presented by Apple and for the reasons discussed above, I find by a preponderance of the evidence that the Transform SPH-M920 meets each and every limitation of claim 1 and thus infringes claim 1 of the '501 patent.

b. Claim 2

The evidence shows that the Transform SPH-M920 is a mobile handset. (CX-2429C (Phinney DWS) at Q&A 269; CX-0339.) Samsung does not contest this evidence. In fact, Samsung offers no non-infringement argument particular to claim 2. (RIB at 232) Accordingly, for the reasons expressed here and with regard to claim 1, I find by a preponderance of the evidence that the Transform SPH-M920 infringes claim 2 of the '501 patent.

c. Claim 4

Dr. Phinney testified in detail that the Transform SPH-M920 infringes claim 4 of the '501 patent. (CX-2429C (Phinney DWS) at Q&A 272-273, 279.) Samsung argues that the Transform SPH-M920 does not infringe this claim because the device does not change the state of the "signal" in response to a monitored switch activation event. (RIB at 233.) Samsung argues that claim 4 requires that the signal indicative of plug type must be the signal that changes in response to a switch activation event, but that the Transform SPH-M920

(*Id.*) Samsung further argues that this claim is not met under the doctrine of equivalents. (*Id.* at 233-234.)

(1) Literal Infringement

The Parties' Positions

Apple notes Samsung admitted it presented substantially the same argument or claim 4 as it presented for claim 3. (CIB at 188.) Therefore, Apple made the same argument for both claim 3 and 4. (CIB at 188-189.)¹⁹

Apple argues, that unlike Samsung alleges,

Nor can Samsung point to any

such requirement.

(CIB at 188.)

Samsung argues products with “dedicated comparator for switch activation” do not practice claim 4 literally. (RIB at 233.) Samsung posits the devices do not “change the state of *the signal* in response to a monitored switch action event” as required by claim 4. (*Id.*) Moreover, claim 4 requires that the claim 1 signal, which indicates the plug type, must change after a switch action event, such as the push of a button. (*Id.*) Samsung alleges its products use

¹⁹ Samsung reiterates in its Reply Brief, is that it does not infringe dependent claims 3 and 4 since claim 1 is not infringed. (RRB at 92.)

Relating back to claim 3, which it argues is applicable to claim 4, Samsung further argues that when Apple admitted

it made a fatal error. (RRB at 92.) This is because Claim 3 requires the microphone detection circuitry to detect plug type and monitor switch events. (RRB at 92 and RIB at 232-34).

The Staff does not appear to argue literal infringement under this claim, but rather argues infringement under the doctrine of equivalents. (SIB at 109.)

Analysis

The evidence shows that the detection circuitry of the SPH-M920

Claim 4 requires a change in the state of “the signal” in response to a switch activation event, “the signal” being the same signal that is indicative of plug type. The evidence shows,

Thus, the Transform SPH-M920 does not satisfy the limitation of claim 4 requiring a single signal that both indicates plug type as well as the presence of a switch activation event. According, I find Apple has failed to show by a preponderance of the evidence that the Transform SPH-M920 literally infringes claim 4.

(2) Infringement Under Doctrine of Equivalents

The Parties' Positions

As noted, Apple maintains that Samsung presented the same argument for claim 4 as it presented for claim 3. Hence, Apple maintains the Transform SPH-M920 and the Accused Products it represents also infringe claim 4 by equivalents. (CIB at 188.) Apple avers the Transform SPH-M920

Therefore, the Transform SPH-M920 and the Accused Products it represents infringe claim 4 by equivalents.

(CIB at 188-189.)

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Samsung argues Apple cannot show infringement under the doctrine of equivalents.

Samsung asserts:

does not (1) perform substantially the function, (2) in substantially the same way, (3) to achieve substantially the same result as the limitation literally recited in the claim. *Graver Tank*, 339 U.S. at 608.

(RX-3637C, Q 740-42 at 71, Q 754-56 at 74; CX-1138C; JX-0032C; JX-0046C; JX-0045C; JX-0047C; CX-0931C; CX-1135C; JX-0038C). Another difference is that

so the output is different from the ‘501 patent’s implementation. (*Id.*).

(RIB at 233-234.) Samsung claims these are not insubstantial differences.

In its Reply Brief, Samsung reiterated and emphasized that using separate circuits for “microphone detection” and “switch activation” adds complication and is less space efficient. (RRB at 92 and RIB at 233-34). Samsung further asserted that ultimately, a “dedicated comparator” implementation does not rely upon reading the active microphone signal so the output is different from the ‘501 patent’s implementation. (*Id.*)

The Staff argues the Transform SPH-M920 does infringe Claim 4 under the doctrine of equivalents because the accused products perform “substantially the same function as the recited limitation (changing the state of a signal in response to a monitored switch activation even) in substantially the same way. (SIB at 109.) In agreeing with Apple, the Staff also concurs that the same way in this instance is that

Analysis

Dr. Phinney testified that the parallel implementation in the SPH-M920 performs substantially the same function as the recited limitation, in substantially the same way as the recited limitation

, and yields substantially the same result as the recited limitation

(CX-2429C (Phinney DWS) at Q&A 279.) Dr. Russ testified on behalf of Samsung that the parallel implementation does not infringe under the doctrine of equivalents because that implementation “uses more real estate, is more costly, requires more software, and outputs a different signal than the literal claim limitation.” (See RX-3637C (Russ RWS) at Q&A 742.) Dr. Phinney does not address the fact that the SPH-M920 operates in a different way than the claim by

I agree with Dr. Russ, that such a difference is not insubstantial. Thus, I find that Apple has failed to prove that the Transform SPH-M920 infringes claim 4 under the doctrine of equivalents.

d. Claim 8

Dr. Phinney testified in detail that the Transform SPH-M920 infringes claim 8 of the ‘501 patent. (CX-2429C (Phinney DWS) at Q&A 275, 281; CX-0931; JX-0045C.) Samsung argues that the Transform SPH-M920 does not infringe this claim because the device does not generate the claimed signal and that even if it did,

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Samsung's non-infringement argument is based on the incorrect belief that the Transform SPH-M920

As discussed, *supra*, the Transform SPH-M920

Thus, I find Samsung's argument not persuasive.

The evidence shows that the Transform SPH-M920 includes circuitry

Accordingly, for the reasons discussed here and with regard to claim 1, I find by a preponderance of the evidence that the Transform SPH-M920 infringes claim 8.

3. Products employing a switch for plug detection, data converter for microphone detection, and dedicated comparator for switch activation events

Apple has identified the Galaxy Tab 7.0 SCH-1800 as the representative device on which it bases its infringement contentions for this category of accused products. (CX-2429C (Phinney DWS) at Q&A 216.) The other of the '501 Accused Products that fall within this category are: the Caliber SCH-R850; the Captivate SGH-I897; the Captivate Glide SCH-I927; the Droid Charge SCH-I510; the Exhibit 4G SGH-T759; the Exhibit II 4G SGH-T679; the Fascinate SCH-I500; the Focus SGH-I917; the Galaxy Ace (S5830L); the Galaxy Player 5.0 YP-G70C/NAW; the Galaxy Player 4.0 YP-G1CWY; the Galaxy S 4G SGH-T959V; the Galaxy S II SGH-1777; the Galaxy Tab 7.0 SGH-T849; the Galaxy Tab 7.0 SGH-T869; the Galaxy Tab 7.0 SGH-I987; the Galaxy Tab 7.0 SPH-P100; the Galaxy Tab 7.0 SGT-P1010/W16; the Galaxy Tab 7.0 Plus GT-P6210; the Galaxy Tab 8.9 SGH-I957; the Galaxy Tab 8.9 GT-P7310/M16; the Galaxy Tab 10.1 SGH-T859; the Galaxy Tab 10.1 SCH-I905; the Galaxy Tab 10.1 GT-P7510/M16; the Gravity SGH-T589; the Infuse 4G SGH-I997; the Mesmerize SCH-I500; the Nexus S GTI9020; the Nexus S GT-I9020A; the Nexus S GT-I9020T; the Omnia II SCH-I920; the Repp SCH-R680; the Showcase SCH-I500; the Sidekick SGH-T839; the Stratosphere SCH-I405; the Suede SCH-R710; the Transfix SCH-R730; the Transform Ultra SPH-M930; and the Vibrant SGH-T959. (*Id.*)

Dr. Phinney testified in detail that the Galaxy Tab 7.0 SCH-1800 infringes the asserted claims of the ‘501 patent. (CX-2429C (Phinney DWS) at Q&A 282-311.) In support, Dr. Phinney relied on his reverse engineering and testing of numerous Samsung products, as well as Samsung’s responses to interrogatories in this investigation, including Samsung’s identification of the operating system, jack, and CODEC used in each of the accused devices. (*Id.* at Q&A 196.)

a. Claim 1

Dr. Phinney testified in detail that the Galaxy Tab 7.0 SCH-1800 infringes claim 1 of the ‘501 patent, both literally and under the doctrine of equivalents. (CX-2429C (Phinney DWS) at Q&A 282-299.) Samsung argues that the Galaxy Tab 7.0 SCH-1800 fails to satisfy the claimed microphone detection circuitry. (RIB at 224.) In particular, Samsung argues that the Galaxy Tab 7.0 SCH-1800 does not

Samsung further argues that this claim is not met under the doctrine of equivalents. (*Id.* at 230-232.)

(1) Literal Infringement

The Parties’ Positions

Apple argues that the Galaxy Tab 7.0 SCH-I800 literally infringes claim 1. (CIB at 184-186.)

Apple argues that the

application processor does so by comparing a digitized representation of the signal on the microphone connector to pre-determined thresholds. (*Id.*) Apple argues that the processor provides a signal that is a determination of plug type by storing that determination in memory.

(*Id.*)

Samsung argues that the accused products in this category do not infringe because

Analysis

For the reasons discussed in detail below, I find the Galaxy Tab 7.0 SCH-I800 does not literally infringe claim 1 of the '501 patent.

Does the Galaxy Tab 7.0 SCH-1800 include microphone detection circuitry that determines whether the received plug is the microphone type or non-microphone type?

Apple asserts that the

Contrary to Apple's argument, the evidence shows that

First, I note that claim 8, which depends from claim 1, requires that the system of claim 1 further comprise "a processor electrically coupled to receive at least the signal and the HEADSET DETECT signal." Thus, the language of the claims supports finding a distinction between a processor and the microphone detection circuitry. (RX-3637C (Russ RWS) at Q&A 692.) Second, and perhaps more importantly, I note that the specification of the '501 patent offers only one description of the microphone detection circuitry and that that description is of circuitry that includes a simple transistor – essentially an on/off switch in hardware form. (See Tr. 1122:8-1123:4, 1124:16-22; RX-3637C (Russ RWS) at Q&A 692; JX-0006 at 10:67-11:2, Fig 5.) Apple's expert, Dr. Phinney, agrees:

Q. And the '501 patent in Figure 5 discloses microphone detection circuitry that **uses a transistor to make the determination of plug type, right?**

A. Yes, it shows that embodiment, yes.

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Q. And the transistor that we see here, number 532, is actually -- determines whether it's a microphone type or nonmicrophone type, right?

A. I think that's a fair statement because that's where the comparison operation occurs.

(Tr. 940:13-24 (emphasis added).) Dr. Phinney further testified that unlike the claimed invention,

like the one described in the circuitry of the '501 patent. (Tr. 945:24-946:2.)

Thus, in light of the above evidence, I find that is not "circuitry" as that term is used in the context of the '501 patent. Accordingly, I find that the Galaxy Tab 7.0 SCH-I800 and the other devices in this category of products do not satisfy the "microphone detection circuitry" limitation of claim 1. Therefore, I find Apple has failed to show by a preponderance of the evidence that the Galaxy Tab 7.0 SCH-I800 literally infringes claim 1.

Moreover, even if the application processor was considered circuitry in the context of the '501 patent, the evidence still fails to show that the microphone detection circuitry determines plug type.

The teachings of the '501 patent make clear that it is not directed to "microphone detection *software*," it is directed unambiguously to "microphone detection

circuitry.” (See e.g., JX-005 at 1:6-7, 5:59-60) The ‘501 patent uses the word “software” just one time in discussing what could possibly be stored on “storage device 104” of Figure 1. (JX-0006 at 2:67). That storage device in Figure 1, however, has nothing to do with plug-type detection. The ‘501 patent’s specification does not use the words “source code,” or even the word “code,” nor does it teach any software algorithms or pseudo-code. (*See generally* JX-0006). As Dr. Phinney acknowledged, circuitry is “physical in nature.” (Tr. 958:14-16.) That is, circuitry is tangible. In contrast, code executed on a processor is not physical in nature. (*See* RX-3637C (Russ RWS) at Q&A 692 (“Software is ... not hard-wired or fixed, like circuitry. Circuitry is a hardware-based implementation, the opposite of a software-based implementation.”).) Dr. Phinney further acknowledged the contrast between code executed on a processor and circuitry, stating that the code executed on a processor is a collection of instructions, whereas circuitry can merely *include* instructions. (Tr. 958:10-13 (emphasis added).)

Thus, in light of the above evidence, I find that software code is not “circuitry” as that term is used in the context of the ‘501 patent. Accordingly, I find the Galaxy Tab 7.0 SCH-I800 and the other devices in this category of products fail to satisfy the limitation of claim 1 that requires “microphone detection circuitry operative to: determine whether the received plug is the microphone type or non-microphone type.” Therefore, I find for this additional reason that Apple has failed to show by a preponderance of the evidence that the Galaxy Tab 7.0 SCH-I800 literally infringes claim 1.

Does the Galaxy Tab 7.0 SCH-1800 include microphone detection circuitry that provides a signal indicative of whether the received plug is the microphone type or non-microphone type?

I disagree.

Contrary to Apple's argument, For
example, the evidence shows that a signal can be characterized by voltage, whereas a value cannot. (RX-3637C (Russ RWS) at Q&A 693.) There simply is no basis for finding that
is the claimed signal. Further, the evidence shows that the alleged signal

Accordingly, I find the Galaxy Tab 7.0 SCH-I800 and the other
devices in this category of products fail to satisfy the limitation of claim 1 that requires
"microphone detection circuitry operative to: ... provide a signal indicative of whether the
received plug is the microphone type or non-microphone type." Therefore, I find for this

additional reason that Apple has failed to show by a preponderance of the evidence that the Galaxy Tab 7.0 SCH-I800 literally infringes claim 1.

(2) Infringement Under Doctrine Of Equivalents

The Parties' Positions

Apple argues that the in both hardware (the patent) and software (Galaxy Tab 7.0 SCH-1800) the determination of plug type is based on the voltage at the microphone connector. (CIB at 185.) Apple argues that using software to determine plug type and to provide a signal indicative of that type performs substantially the same function as the recited limitation (to determine whether the received plug is the microphone or non-microphone type), in substantially the same way (by making a digital determination based on the voltage at the microphone connector), and yields substantially the same result (a signal indicative of whether the received plug is the microphone or non-microphone type). (*Id.* at 185-186.) Specifically, Apple argues that using software to determine plug type by comparing a signal to pre-determined voltage thresholds is equivalent to using hardware to compare a voltage to a threshold value. (*Id.*) Apple further argues that setting the value of a memory location based on this determination is equivalent to providing a signal indicative of this determination. (*Id.*)

Samsung argues it does not practice either element of the claimed “microphone detection circuitry” because

(RIB at 225-226.) Samsung alleges the Staff summed it up best in its Pre-Hearing Brief when it said that Apple will not be able to show that the SCH-I800 or the SGH-T989 infringe claim 1 because “the software implementation performs each of the claimed limitations in a substantially different manner, as evidence[d] by the different type of operations and nature

of the software implementation.” (*Id.*) Samsung closes by arguing that because Apple cannot prove infringement of claim 1 it cannot prove infringement of the remainder of the asserted claims, which depend from claim 1. (*Id.*)

The Staff agrees with Samsung. (SIB at 110-111.)

Analysis

Apple argues that the software implementation of the invention in the accused products is insubstantially different from the hardware driven solution described in the specification and claims of the ‘501 patent. Not true. The evidence, as discussed below, shows that the software implementation in the accused products determines plug type and provides a signal indicative of plug type in a manner that is substantially different than that which is claimed.

Microphone detection circuitry operative to determine whether the received plug is the microphone type or non-microphone type

Apple argues that the use of software in the Galaxy Tab 7.0 SCH-1800 to determine plug type is equivalent to the claimed microphone detection circuitry used to determine plug type in claim 1. In so arguing, Apple contends that the way in which the Galaxy Tab 7.0 SCH-1800 determines plug type is “by making a digital determination based on the voltage at the microphone connector.” (CIB at 185-186.) However, the evidence shows this is not an accurate representation of the way in which the Galaxy Tab 7.0 SCH-1800 operates to determine plug type. Specifically, the evidence shows that in the Galaxy Tab 7.0 SCH-1800

By contrast, the claimed invention relies on the voltage at the microphone connector to determine plug type. The evidence shows that

Thus, the evidence shows that determining plug type in software is not substantially the same way as determining plug type in hardware. (*Id.* (“Performing determination in software is not substantially the same way as performing determination in hardware, let alone very simple hardware.”).) Accordingly, I find Apple has failed to prove by a preponderance of the evidence that the Galaxy Tab 7.0 SCH-1800 and the other devices in the category infringe claim 1 under the doctrine of equivalents.

Microphone detection circuitry operative to provide a signal indicative of whether the received plug is the microphone type or non-microphone type

Apple argues that the use of software in the Galaxy Tab 7.0 SCH-1800 to provide a signal indicative of plug type is equivalent to the claimed microphone detection circuitry used to provide such a signal in claim 1. In so arguing, Apple contends that the way in which the Galaxy Tab 7.0 SCH-1800 provides a signal indicative of plug type is “by making a digital determination based on the voltage at the microphone connector.” (CIB at 185-186.) However, contrary to Apple’s argument the evidence shows that using software to provide a signal indicative of plug type is not substantially the same way as using hardware to provide the signal. (RX-3637C (Russ RWS) at Q&A 697 (“Performing determination in software is not substantially the same way as performing determination in hardware, let alone very simple hardware.”).) Moreover, the evidence shows the results of both implementations are completely different.

, the claimed microphone detection circuitry provides a voltage signal indicative of plug type. (*Id.* at Q&A 699.) Thus, the evidence shows

that

Accordingly, I find for this additional reason that Apple has failed to prove by a preponderance of the evidence that the Galaxy Tab 7.0 SCH-1800 and the other devices in the category infringe claim 1 under the doctrine of equivalents.

A signal indicative of whether the received plug is the microphone type or non-microphone type

Apple argues that

in the Galaxy Tab 7.0 SCH-1800 is equivalent to the signal provided by the claimed microphone detection circuitry in claim 1. (CIB at 186.) The evidence shows,

however, that

(RX-3637C

(Russ RWS) at Q&A 699.) The evidence shows

(*Id.*) The evidence also shows that

(*Id.*) Moreover, the

evidence shows

(*Id.*) Thus, the evidence shows that

is not insubstantially the same as the claimed signal. (*Id.*) Accordingly, I find for this additional reason that Apple has failed to prove by a preponderance of the evidence that the Galaxy Tab 7.0 SCH-1800 and the other devices in the category infringe claim 1 under the doctrine of equivalents.

b. Claims 2-4, 8

Claims 2-4 and 8 depend from claim 1. I have found hereinabove that the Galaxy Tab 7.0 SCH-1800 does not infringe claim 1 of the '501 patent. Thus, for the reasons discussed with

regard to claim 1, I find the Galaxy Tab 7.0 SCH-1800 and the other devices in the category do not infringe claims 2-4 and 8. *See Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1553 (Fed. Cir. 1989) (“It is axiomatic that dependent claims cannot be found infringed unless the claims from which they depend have been found to have been infringed”).

4. Products employing L-detection, a data converter for microphone detection, and dedicated comparator for switch activation events

Apple has identified the Galaxy S II SGH-T989 as the representative device on which it bases its infringement contentions for this category of accused products. (CX-2429C (Phinney DWS) at Q&A 217.) The other of the ‘501 Accused Products that fall within this category are: the Epic 4G Touch SPH-D710; the Focus Flash SGH-I677; the Focus S SGH-I937; the Galaxy Nexus SCH-I515; the Galaxy S II SGH-T989; the Galaxy S II Skyrocket SGH-I727; the Illusion SCH-I110; and the Note GT-N7000.

Dr. Phinney testified in detail that the Galaxy S II SGH-T989 infringes the asserted claims of the ‘501 patent. (CX-2429C (Phinney DWS) at Q&A 312-343.) In support, Dr. Phinney relied on his reverse engineering and testing of numerous Samsung products, as well as Samsung’s responses to interrogatories in this investigation, including Samsung’s identification of the operating system, jack, and CODEC used in each of the accused devices. (*Id.* at Q&A 196.)

a. Claim 1

Dr. Phinney testified in detail that the Galaxy S II SGH-T989 infringes claim 1 of the ‘501 patent, both literally and under the doctrine of equivalents. (CX-2429C (Phinney DWS) at Q&A 314-329.) Samsung argues that the Galaxy S II SGH-T989 fails to satisfy the claimed microphone detection circuitry. (RIB at 224.) In particular, Samsung argues that the Galaxy S II

SGH-T989 does not determine whether the received plug is the microphone type or non-microphone type and does not provide a signal indicative of whether the received plug is the microphone type or non-microphone type. (*Id.* at 225-230.) Samsung further argues that this claim is not met under the doctrine of equivalents. (*Id.* at 230-232.)

Apple addresses the Galaxy Tab 7.0 SCH-1800 and Galaxy S II SGH-T989 together in its initial post-hearing brief making the same infringement arguments with regard to both devices. (*See* CIB at 184-186.) Likewise, Samsung addresses the two categories of devices represented by the Galaxy Tab 7.0 SCH-1800 and Galaxy S II SGH-T989 together in its initial post-hearing brief. (*See* RIB at 225-232.) Thus, for all intents and purposes, the same infringement analysis applied in detail, *supra*, with regard to the Galaxy Tab 7.0 SCH-1800 applies with equal force here with regard to the Galaxy S II SGH-T989.

In particular, the evidence shows that the Galaxy S II SGH-T989 does not meet the requirement of claim 1 that the “microphone detection circuitry ... determine whether the received plug is the microphone type or non-microphone type.” (*See* RX-3637C (Russ RWS) at Q&A 692.) In addition, the evidence shows that the Galaxy S II SGH-T989 fails to literally satisfy the limitation of claim 1 that requires the “microphone detection circuitry” be operative to “provide a signal indicative of whether the received plug is the microphone type or non-microphone type.” (*Id.* at Q&A 693.) Thus, I find for the same reasons I espoused with regard to the Galaxy Tab 7.0 SCH-1800 that the Galaxy S II SGH-T989 and the other devices in the category do not literally infringe claim 1 of the ‘501 patent.

The evidence further shows that the Galaxy S II SGH-T989 does not meet the requirement of claim 1 that the “microphone detection circuitry ... determine whether the

received plug is the microphone type or non-microphone type” under the doctrine of equivalents. (*Id.* at Q&A 696-697.) In addition, the evidence shows that the Galaxy S II SGH-T989 does not meet the requirement of claim 1 that the “microphone detection circuitry” be operative to “provide a signal indicative of whether the received plug is the microphone type or non-microphone type” under the doctrine of equivalents. (*Id.* at Q&A 697, 699.) Thus, I find for the same reasons I espoused with regard to the Galaxy Tab 7.0 SCH-1800 that the Galaxy S II SGH-T989 and the other devices in the category do not infringe claim 1 of the ‘501 patent under the doctrine of equivalents.

b. Claims 2-4, 8

Claims 2-4 and 8 depend from claim 1. I have found hereinabove that the Galaxy S II SGH-T989 does not infringe claim 1 of the ‘501 patent. Thus, for the reasons discussed with regard to claim 1, I find the Galaxy S II SGH-T989 and the other devices in the category do not infringe claims 2-4 and 8. *See Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1553 (Fed. Cir. 1989) (“It is axiomatic that dependent claims cannot be found infringed unless the claims from which they depend have been found to have been infringed”).

F. Technical Prong of the Domestic Industry Requirement

Apple alleges that each of its Domestic Industry products (*i.e.*, the iPhone, iPhone 3G, iPhone 3GS, iPhone 4, iPhone 4S, iPad, iPad 2, and iPod touch) practices the claims of the ‘501 patent, as each and every claim limitation is present in the accused products. (CX-2429C (Phinney DWS) at Q&A 151-155.) In particular, Dr. Phinney testified that each element of claim 1 is present in the representative Domestic Industry Products (*i.e.*, the iPhone 3G and iPad 2). (*See* CX-2429C (Phinney DWS) at Q&A 151, 157-166, 176-188; CDX-0659C through

CDX-0662C, CDX-0669C through CDX-0673C.) Dr. Phinney also testified that Apple's Domestic Industry Products are mobile telephones, including the iPhone, iPhone 3G, iPhone 3GS, iPhone 4 N90 and N92, and iPhone 4S practice claim 2. (CX-2429C (Phinney DWS) at Q&A 152, 167.) Dr. Phinney further testified that each element of claims 3, 4 and 8 is present in the representative Domestic Industry Products. (*Id.* at Q&A 168-170, 172-175, 189-192.)

The Staff agrees that Apple has satisfied the technical prong of the domestic industry requirement with regard to the '501 patent.

Respondents do not dispute that the technical prong of the domestic industry requirement is met for the '501 patent. (*See generally*, RIB at 219-264.)

Accordingly, I find based on the evidence presented by Apple that Apple's Domestic Industry Products practice at least one claim of the '501 patent and thus satisfies the technical prong of the domestic industry requirement with regard to the '501 patent.

G. Validity

1. Anticipation

a. U.S. Patent No. 7,836,216 (Kashi)

The Parties' Positions

Apple argues Kashi does not anticipate the '501 patent because Kashi does not disclose the ordering of the connectors in the jack's receptacle while the asserted claims do require left-right-ground-microphone sequencing. (CIB at 198.) Even though Samsung admits Kashi does not disclose ordering of connectors, Samsung still erroneously contends that Kashi anticipates the imitation because Kashi has a "'self-configurable jack' that teaches positioning the connectors in any order to accommodate a variety of plugs." (*Id.*)

Apple admits Kashi discloses dynamically reconfiguring certain connectors within a jack, but it never discloses reconfiguring the connectors as shown in the ‘501 patent. (*Id.*) But, the asserted ‘501 claims require the “ground connector is positioned between the microphone connector and either the left or the right connector”, which was a limitation cited by the patent examiner in allowing claim 1. (*Id.*) Thus, because Kashi only discloses a receptacle with a ground connector at the sleeve position, there is no way Kashi can anticipate the location shown in the ‘501 patent.

Apple also points out that every figure in Kashi (13 in all) shows a ground connector at the sleeve position. (CIB at 199.) Nor does Kashi disclose moving the ground signal to any other position or hint at reconfiguring ground connector 701 while it does disclose moving other connectors.²⁰ (*Id.*) Thus, a fair reading of Kashi is that it suggests everything but moving the ground from the sleeve position.

Apple also disputes that Kashi has the same connector disclosure as the iPad 2 as alleged by Samsung. (*Id.*) Apple alleges Kashi and the iPad 2 do not have the same connector configuration. Instead, Apple alleges:

The iPad 2 practices the ‘501 patent without any reconfiguration of signals assigned to connectors, because the iPad 2’s default mode when powered on is to have the ground signal assigned to the connector positioned third from the tip, as required by claim 1 of the ‘501 patent. (CX-2599C (Phinney) at 30, Q102.) In contrast, Kashi’s default mode, and every mode, has the ground signal assigned to the sleeve position, which does not meet claim 1 of the ‘501 patent, and in Kashi ground is *never* reconfigured.

(CIB at 200.)

²⁰ This is essentially the static argument made by the Staff. (SIB at 114.)

In closing this part of its argument, Apple argues Kashi does not meet the limitation of a “ground connector . . . positioned between the microphone connector and either the left or right connector” and does not anticipate the ‘501 patent. (*Id.*)

Next, Apple alleges Kashi does not anticipate the ‘501 patent because Kashi does not disclose the electrical coupling of the microphone connector to circuitry that is required by each of the asserted claims. (CIB at 201.) Apple notes that while Samsung asserts that the A/D (analog-digital) converter, labeled 1460 in Figure 14 of Kashi, is the CODEC circuitry required by the asserted claims of the ‘501 patent, Samsung did not prove the A/D converter is electrically coupled to the microphone connector. (*Id.*) This is important, for:

One of ordinary skill in the art would understand “electrically coupled” to mean “arranged in a manner so that electrical signals may be passed from one component to another without intervention.” (CX-2599C (Phinney) at 28-29, Q97.) Two components are not “electrically coupled” if a signal from one component must be passed through an application processor to reach the second component. (*Id.*) An application processor is a sophisticated part of circuitry that processes, changes, reprocesses, and conditions a multitude of signals. Components are not electrically coupled within the meaning of the ‘501 patent if an application processor is in between the two components. (*Id.*)

(*Id.*)

Apple then explains that Kashi’s microphone connector is part of a multi-plug jack, labeled 1410 in Figure 14, which is connected to hardware (1420). (*Id.*) 1420 is connected to a processor (1430). (*Id.*) Finally, 1430 is connected to the A/D converter. (*Id.*) As explained by Dr. Phinney, person of ordinary skill in the art would understand this connection arrangement does not disclose “a microphone connector electrically coupled to CODEC circuitry,” because the processor is positioned between the multi-plug jack and the A/D converter. (*Id.*) Then Apple alleges:

The '501 patent confirms Dr. Phinney's opinion that components cannot be "electrically coupled" through a processor. Figure 1 shows that a processor functions as a central hub for components and hardware of the claimed device, and that the jack, labeled 130, which contains the microphone connector, is electrically coupled to the CODEC, labeled 112, without the interposition of the processor, labeled 102. (JX-6, at Fig.1, col. 3:32-33.) Interpreting "electrically coupled" as Samsung does, by including connections through a processor, would render that limitation meaningless—a jack and CODEC circuitry would be "electrically coupled" in almost any electronic device containing both. (CX-2599C (Phinney) at 28-29, Q97.) This is simply not the case.

(CIB at 202.)

Accordingly, Apple alleges Samsung has not met its burden of proof to show that Kashi anticipates claim 1 of the '501 patent by clear and convincing evidence, especially because of the heavier burden due to the examiner's consideration of the Kashi reference during prosecution.

Samsung argues that all asserted claims of the '501 patent are anticipated by Kashi. Generally, Samsung alleges Apple erroneously asserts that Kashi does not disclose two elements of claim 1: "a microphone connector electrically coupled to CODEC circuitry and microphone detection circuitry" and "the ground connector positioned between the microphone connector and either the left or right connector." (RIB at 235.)

Samsung alleges Kashi teaches the claimed coupling limitations because:

Kashi has CODEC circuitry because it has an "analog-digital converter" (A/D 1460 in Figure 14) that is also a digital-analog converter. (RX-0897-14; RX-3450C, Q 436, 439 at 172-74). In fact, "CODEC circuitry" exists in *all* digital electronic devices. (RX-3450C, Q 413 at 166). Apple does not dispute that Kashi discloses a CODEC. (See CX-2599C, Q 97 at 28).

(RIB at 236.) In addition, Kashi discloses microphone detection circuitry as the "Electrical characteristic measurement detection" and because the microphone connector, part of the "multi-plug jack" in Figure 14 of Kashi (also shown in Figures 11C and 12B), is coupled to the A/D and is also coupled to the "Electrical characteristic measurement detection" by the plug

receptacle connector 502 of Figure 5, Kashi meets every aspect of this element. (*Id.*)

Samsung alleges that Apple's claim that Kashi does not teach the claimed coupling limitation is based on a new and unsupportable construction of the term "electrically coupled."

Samsung explains:

Now, Apple asserts that "electrically coupled" means "arranged in a manner so that electrical signals may be passed from one component to another *without intervention*." By reading in the limitation "without intervention," Apple argues there is no coupling to the CODEC in Kashi because of "the interposition of the processor" and no coupling to the microphone detection circuitry due to an intervening analog multiplexer. (CX-2599C, Q 97, 99 at 28).

(*Id.*) Samsung asserts the without intervention language is absent from the claim and inconsistent with the prosecution history, Apple's positions on the '697 patent, the governing law, and Apple's own domestic industry contentions. (RIB at 236.) Samsung also argues Apple's contention is factually incorrect. Even if the claim required "direct coupling," a person of ordinary skill in the art would understand that the Kashi reference discloses the microphone connector coupled to the CODEC directly from the jack without going through the processor. (RIB at 236-237.)

Samsung next addresses the issue of Kashi's "self-configurable jack," which Samsung argues teaches positioning the connectors in *any* order to accommodate a variety of plugs. (RIB at 238.) Samsung argues that Kashi's universal connector system presupposes that there can be no limit on the positioning of connectors, including not having a ground at the sleeve. (RIB at 238 and RRB at 94.) Moreover, given the limited number of pins available, the choice of a ground at a position other than at the sleeve is possible. (*Id.*) this means Kashi includes a pin order as in the '501.

Samsung also disputes Apple's argument that Kashi "does not disclose dynamically

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assigning a signal to the connector at [the sleeve] position.” (*Id.*) Samsung argues that because Kashi teaches using the configuration data on *each and every* signal line, even if they carry “nothing,” such as the ground, Apple’s argument fails. (*Id.*) Samsung argues also that because Kashi further claims the behavior of “assigning one of a plurality of signal lines to *each* of a plurality of pins of the plug....” it explicitly teaches putting the ground in a position other than the first or last one. (*Id.*)

Samsung argues Apple’s positions with respect to iPad 2 show that the teachings of Kashi practice the claim. Samsung alleges the iPad 2 has a self-configurable plug that is just like Kashi’s self-configurable plug and thus the iPad 2 practices the connector order limitation of the ‘501 patent. (*Id.*)

Although the Staff does see a few issues differently than Apple, the Staff agrees with Apple that Kashi does not anticipate the ‘501 patent. (SIB at 114.) For example, the Staff disagreed with Apple’s disclaimer argument concerning Kashi. (SIB at 113-114.) Concerning disclaimer, the Staff argued the evidence does not show that the Kashi applicants made comments distinguishing the prior art from their claimed invention based upon the alleged reconfiguration of signal pathways.

Consistent with Apple’s arguments, the Staff agrees with Apple that Kashi does explicitly disclose that its connector 701 statically connects to a ground source and is not dynamically ordered or reconfigured. (*Id.*) The Staff also points out that even though Dr. Russ “specifically acknowledges Kashi does not “explicitly disclose the ground pin located between the microphone pin and either of the audio pins” he still incorrectly relies upon the doctrine of inherency. (SIB at 114-115 and *see* RRB at 94.) the Staff asserts that although Dr. Russ testified