UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

APPLE, INC., a California corporation, Plaintiff, v. SAMSUNG ELECTRONICS CO., LTD., a Korean corporation; SAMSUNG ELECTRONICS AMERICA, INC., a New York corporation; and SAMSUNG TELECOMMUNICATIONS AMERICA, LLC, a Delaware limited liability company, Defendants.	Case No.: 12-CV-00630-LHK ORDER GRANTING MOTION FOR PRELIMINARY INJUNCTION

Plaintiff Apple, Inc. ("Apple") brings this motion for a preliminary injunction seeking to enjoin Defendants Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Telecommunications America, LLC (collectively, "Samsung") from "making, using, offering to sell, or selling within the United States, or importing into the United States" Samsung's Galaxy Nexus smartphone. *See* Pl.'s Mot. Prelim. Inj., ECF No. 10 ("Mot."). Although Apple's Complaint asserts a total of eight patents and identifies seventeen accused products, Apple moves to preliminarily enjoin only the Galaxy Nexus smartphone, and moves to do so only on the basis of four patents: (1) U.S. Patent No. 8,086,604 ("the '604 Patent"); (2) U.S. Patent No. 5,946,647 ("the '647 Patent"); (3) U.S. Patent No. 8,046,721 ("the '721 Patent"); and (4) U.S. Patent No. 8,074,172

("the '172 Patent"). The Court held a hearing on this motion on June 7, 2012. Having considered the parties' submissions, argument, and the relevant law, and for the reasons discussed herein, Apple's motion to preliminarily enjoin the Galaxy Nexus is GRANTED.

I. BACKGROUND

Both in the United States and globally, Apple and Samsung have established themselves as fierce competitors in the smartphone market and fierce adversaries in the courtroom. This particular lawsuit, filed by Apple against Samsung on February 8, 2012, is but one action in a worldwide constellation of litigation between the two companies. *See* Compl., ECF No. 1; Joint Case Management Statement 8-10, Apr. 25, 2012, ECF No. 141 at 8-10 (identifying over 40 related cases between the parties); Mot. at 6. Indeed, this Court is presiding over another lawsuit, *Apple v. Samsung* ("*Apple I*"), No. 11-cv-01846 (N.D. Cal. filed Apr. 15, 2011), in which Apple previously moved to preliminarily enjoin three earlier Samsung smartphone models (Samsung's Galaxy S 4G, Infuse 4G, and Droid Charge), as well as the Samsung Galaxy Tab 10.1 tablet, based on alleged infringement of various Apple design and utility patents. In a May 14, 2011 ruling, the Federal Circuit affirmed this Court's denial of Apple's motion to enjoin the three smartphones, but vacated the portion of the Court's decision regarding the Samsung Galaxy Tab 10.1 tablet, and remanded for further proceedings. *See Apple v. Samsung*, 678 F.3d 1314 (Fed. Cir. 2012). Samsung petitioned for rehearing and rehearing en banc, which was denied on June 19, 2012. On remand, the Court granted the motion for a preliminary injunction on June 26, 2012.

The instant preliminary injunction motion, filed alongside the Complaint on February 8, 2012, seeks to enjoin Samsung's Galaxy Nexus smartphone, which was released in the U.S. in December 2011. Def.'s Opp'n to Mot. Prelim. Inj. ("Opp'n") at 2. At the time this motion was briefed, the Galaxy Nexus was the latest in Samsung's Galaxy line of Android-based smartphones, the first of which was released in 2009.[1] Opp'n at 2; Decl. of Christopher Vellturo ("Vellturo

[1] On June 6, 2012, the day before the scheduled hearing on this motion, Apple filed a Motion to Supplement the Record Regarding Samsung's Galaxy S III Product, seeking to expand the scope of the requested injunction to include Samsung's Galaxy S III smartphone, a smartphone that Apple now also accuses of infringing the '604 and '647 patents. ECF No. 201. The Galaxy S III was released in the United Kingdom on May 29, 2012, and had a U.S. release date of June 21, 2012. *See id.* On June 11, 2012, the Court denied Apple's motion to supplement the record for this

Decl.") ¶ 9 & Ex. 19. Android is a free, open-source mobile software platform developed by Google, Inc. ("Google") that any developer can use to create applications for mobile devices, and that any handset manufacturer can install on a device. Opp'n at 2. Galaxy Nexus is the first smartphone to run Android version 4.0, an operating system called "Ice Cream Sandwich," and is the first Android smartphone that will allow the phone to be interoperable with other Android-based devices, including those running the Ice Cream Sandwich operating system. Vellturo Decl. ¶ 9. The version of Ice Cream Sandwich installed on the Galaxy Nexus is designed by Google. Decl. of Sangbong Lee ("Sangbong Lee Decl.") ¶¶ 3-4.

Apple accuses the Galaxy Nexus of infringing four patents: (1) the '604 Patent, titled "Universal Interface for Retrieval of Information in a Computer System," which generally describes a "unified search" feature; (2) the '647 Patent, titled "System and Method for Performing an Action on a Structure in Computer-Generated Data," which generally describes a "links for structures" feature; (3) the '721 Patent, titled "Unlocking a Device by Performing Gestures on an Unlock Image," which generally describes a "slide to unlock" feature; and (4) the '172 Patent, titled "Method, System, and Graphical User Interface for Providing Word Recommendations," which generally describes a "word recommendations" or "auto correct" feature.

II. LEGAL STANDARD

Although the Patent Act authorizes district courts to grant injunctions to prevent the infringement of patent rights, the owner of a valid and infringed patent is not entitled to an injunction as a matter of right. *See* 35 U.S.C. § 283 (2006) (a federal court "*may* grant injunctions *in accordance with the principles of equity* to prevent the violation of any right secured by patent, on such terms as the court deems reasonable" (emphases added)); *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391-92 (2006). Rather, "the decision whether to grant or deny injunctive relief rests within the equitable discretion of the district courts," and "such discretion must be exercised consistent with traditional principles of equity." *eBay*, 547 U.S. at 394. The rule enunciated in *eBay* is as applicable to preliminary injunctions as it is to permanent injunctions. *See*

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preliminary injunction motion with additional briefing or discovery regarding the Galaxy S III. *See* ECF No. 213.

Amoco Prod. Co. v. Vill. of Gambell, Ark., 480 U.S. 531, 546 n.12 (1987) ("The standard for a preliminary injunction is essentially the same as for a permanent injunction with the exception that the plaintiff must show a likelihood of success on the merits rather than actual success."). Therefore, "[t]he grant or denial of a preliminary injunction under 35 U.S.C. § 283 is within the sound discretion of the district court." *Abbott Labs. v. Andrx Pharms., Inc.*, 452 F.3d 1331, 1334 (Fed. Cir. 2006) (citing *Amazon.com, Inc. v. Barnesandnoble.com*, 239 F.3d 1343, 1350 (Fed. Cir. 2001)).

In light of the longstanding principles of equity that govern any request for injunctive relief, a party seeking a preliminary injunction must establish that: (1) it is likely to succeed on the merits of the underlying litigation; (2) it is likely to suffer immediate, irreparable harm in the absence of preliminary relief; (3) the balance of equities weighs in its favor; and (4) an injunction is in the public interest. *Winter v. Natural Res. Def. Council*, 555 U.S. 7, 20 (2008); *Abbott Labs.*, 452 F.3d at 1334 (citing *Polymer Techs., Inc. v. Bridwell*, 103 F.3d 970, 973 (Fed. Cir. 1996)). "[N]o one factor, taken individually, is necessarily dispositive." *Chrysler Motors Corp. v. Auto Body Panels of Ohio, Inc.*, 908 F.2d 951, 953 (Fed. Cir. 1990). Rather, "the district court must weigh and measure each factor against the other factors and against the form and magnitude of the relief requested." *Hybritech Inc. v. Abbott Labs.*, 849 F.2d 1446, 1451 (Fed. Cir. 1988). Both the Supreme Court and the Federal Circuit have cautioned that because a preliminary injunction is granted before the defendant has had an opportunity to fully defend itself at trial, "a preliminary injunction is a drastic and extraordinary remedy that is not to be routinely granted." *Intel Corp. v. ULSI Sys. Tech., Inc.*, 995 F.2d 1566, 1568 (Fed. Cir. 1993) (citing *Nutrition 21 v. United States*, 930 F.2d 867, 869 (Fed. Cir. 1991); *Ill. Tool Works, Inc. v. Grip-Pak*, 906 F.2d 679, 683 (Fed. Cir. 1990)); *see Munaf v. Geren*, 553 U.S. 674, 689-90 (2008) ("A preliminary injunction is an 'extraordinary and drastic remedy'" that "is never awarded as of right.") (quoting 11A Charles Alan Wright, Arthur R. Miller & Mary Kay Kane, *Federal Practice and Procedure* § 2948, at 129 (2d ed. 1995)). Indeed, "a preliminary injunction . . . should not be granted unless the movant, *by a clear showing*, carries the burden of persuasion." *Mazurek v. Armstrong*, 520 U.S. 968, 972 (1997) (emphasis in original) (internal quotation marks and citation omitted); *see Winter*, 555 U.S. at 22.

To establish a likelihood of success on the merits of its patent infringement claims, Apple must show that it will likely prove at trial that the Galaxy Nexus infringes "one or more claims of the patents-in-suit," and must furthermore show that "at least one of those same allegedly infringed claims will also likely withstand the validity challenges presented" by Samsung. *Amazon.com*, 239 F.3d at 1351; *accord Titan Tire Corp. v. Case New Holland, Inc.*, 566 F.3d 1372, 1376 (Fed. Cir. 2009). In assessing whether Apple has shown a likelihood of success on the merits, the Court views the evidence "in light of the burdens and presumptions that will inhere at trial." *Titan Tire*, 566 F.3d at 1376 (citing *Gonzales v. O Centro Espirita Beneficente Uniao do Vegetal*, 546 U.S. 418, 429 (2006)). Thus, with respect to infringement, Apple bears the burden of showing that it will likely prove at trial "by a preponderance of the evidence that one or more claims of the patent[s] read on the accused device literally or under the doctrine of equivalents." *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1310 (Fed Cir. 2005); *see also SRI Int'l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1123 (Fed. Cir. 1985) (en banc). The parties' burdens with respect to validity are somewhat different. Because a patent enjoys the same presumption of validity during preliminary injunction proceedings as it does at other stages of litigation, the initial burden of production is on Samsung, the alleged infringer, to come forward with evidence of invalidity. *Titan Tire*, 566 F.3d at 1377. If Samsung successfully does so, then Apple "has the burden of responding with contrary evidence, which of course may include analysis and argument," and "persuad[ing] the court that, despite the challenge presented to validity, [Apple] nevertheless is likely to succeed at trial on the validity issue." *Id.* If, "after weigh[ing] the evidence both for and against validity that is available at this preliminary stage in the proceedings . . . the trial court concludes there is a 'substantial question' concerning the validity of the patent, . . . it necessarily follows that the patentee has not succeeded in showing it is likely to succeed at trial on the merits of the validity issue." *Id.* at 1379. In other words, "[a] preliminary injunction should not issue if an alleged infringer raises a substantial question regarding either infringement or validity, i.e., the alleged infringer asserts an infringement or invalidity defense that the patentee has not shown lacks substantial merit." *AstraZeneca LP v. Apotex, Inc.*, 633 F.3d 1042, 1050 (Fed. Cir. 2010).

III. EVIDENTIARY ISSUES

Samsung moves to strike the Reply Declaration of Dr. Christopher Vellturo ("Vellturo Reply Decl."). *See* ECF No. 196. Samsung argues that this is new evidence that exceeds the scope of permissible rebuttal of Samsung's opposition, and furthermore that Apple failed to timely produce Dr. Vellturo for deposition. *Id.* at 2-3. Apple responds that: (1) Samsung's objection is untimely under Civil Local Rule 7-3(d)(1); (2) Dr. Vellturo's Reply Declaration is responsive to Samsung's arguments in opposition, and the attached exhibits are largely Samsung documents produced during discovery; and (3) Samsung could have sought an earlier deposition date for Dr. Vellturo but instead delayed, and in any event Samsung has been at least equally uncooperative in producing its witnesses for deposition. *See* ECF No. 200 at 1-3.

As a general rule, new evidence presented in reply should not be considered without giving the non-movant an opportunity to respond. *See Provenz v. Miller*, 102 F.3d 1478, 1483 (9th Cir. 1996) ("[W]here new evidence is presented in a reply to a motion for summary judgment, the district court should not consider the new evidence without giving the non-movant an opportunity to respond." (alteration and citation omitted)). After reviewing the declarations, evidence, and arguments at issue in Samsung's objections, however, the Court finds that the evidence presented by Apple in Dr. Vellturo's Reply Declaration is not "new," but rather appropriately responsive to arguments and evidence raised by Samsung in its opposition papers, in particular. In particular, the evidence is offered in rebuttal to Samsung's argument that Apple is unlikely to be irreparably harmed absent an injunction. Moreover, the vast majority of exhibits attached to the Vellturo Reply Declaration are Samsung's own documents, which were produced during discovery. Accordingly, Samsung's objection is OVERRULED.

On June 1, 2012, and June 4, 2012, without seeking leave of the Court, Samsung filed two additional declarations in support of its opposition to Apple's motion for a preliminary injunction. *See* ECF Nos. 195, 198. Apple objects to these two submissions as untimely and in violation of Civil Local Rule 7-3(d), which prohibits the filing of "additional memoranda, papers or letters" after a reply is filed, absent leave of the Court. *See* ECF No. 206 at 1. Because Samsung filed these two untimely declarations without leave of the Court, Apple's objection is SUSTAINED.

IV. DISCUSSION

A. Likelihood of Success on the Merits

To establish a likelihood of success on the merits, "a patentee . . . 'must demonstrate that it will likely prove infringement of one or more claims of the patents-in-suit, and that at least one of those same allegedly infringed claims will also likely withstand the validity challenges presented by the accused infringer.'" *AstraZeneca*, 633 F.3d at 1050 (quoting *Amazon.com*, 239 F.3d at 1351). For the reasons discussed below, the Court concludes that Apple has shown that the '604 Patent, '647 Patent, '721 Patent, and '172 Patent are likely valid and infringed.

1. U.S. Patent No. 8,086,604 (Unified Search)

U.S. Patent No. 8,086,604 ("the '604 Patent"), entitled "Universal Interface for Retrieval of Information in a Computer System," was filed on December 1, 2004, and issued to Apple on December 27, 2011, as a continuation of U.S. Patent No. 6,847,959, which was filed on January 5, 2000. '604 Patent; Decl. of Dr. Nathaniel Polish Concerning U.S. Patent No. 8,086,604 ("Polish Decl.") ¶ 38.

The '604 Patent is directed to a universal computer interface that allows a user quickly to retrieve different types of desired information located on any of the various storage media accessible to the user's computer system, including both the computer's hard drive and the Internet, using a single, unified search interface. More specifically, the '604 Patent is directed to "a universal interface which uses a plurality of heuristic algorithms to identify an item of information (e.g., document, application or Internet web page) in response to at least one information descriptor." '604 Patent 1:18-21.

The invention disclosed in the '604 Patent overcomes two different problems in the prior art, both relating to a computer user's need to quickly search for desired information. First, prior art did not provide for a single interface allowing a computer user to search for desired information across different types of information storage systems. *Id.* at 2:9-13. For example, some computer operating systems provided interfaces for searching for files stored locally on a computer. Meanwhile, web browser applications enabled a user to utilize search engines provided by various websites. However, there had been no combination of desktop find routines that presented a single

interface allowing a user to search simultaneously across different types of information storage systems. *See id.* Thus, a user had to access a different interface to search for different types of information depending on that information's stored location.

Second, the prior art lacked sufficient search criteria to effectively filter information available, often yielding long and cumbersome keyword-based search results. *Id.* at 1:40-45; *id.* at 1:60-2:4. The inventors of the '604 Patent identified a need for technology that "allows the computer to help the user determine such additional criteria or to automatically provide additional criteria, so that search results have a higher percentage of items that are of interest to the user." *Id.* at 2:1-4. Prior to the '604 Patent, "there [had been] no program which [was] able to process the user's input and then determine, using many different factors, including use of the Internet, the intent of the user as to the file to be retrieved." *Id.* at 2:14-17. To that end, the '604 Patent is directed to a universal computer interface that employs a plurality of "heuristic algorithms" to help filter the user's searches across multiple information storage systems and to display only the most relevant search results, thereby making a user's search more efficient and personalized.

In one preferred embodiment, the '604 system relies on a "retrieval manager" component that receives search terms from the user, either in the form of text or speech, and dispatches that input to a plurality of "plug-in modules." *See id.* at 4:1-12 & Fig. 2. Each of these modules has an associated heuristic search algorithm, which the module employs to locate information within the module's respective area of search that is responsive to the user's input. *See id.* at 4:24-25. For instance, one module may be configured to search the titles of local documents that pertain to the search terms. Another module may be configured to index and search the contents of locally stored files for relevant matches. A third module may search a list of the most recently accessed files, applications, and web sites. A fourth module may employ a search engine to locate Internet web pages whose content matches the user's search terms. *See id.* at 4:15-23. The results from the modules are returned to the retrieval manager, which in turn presents the results to the user, potentially after employing an additional heuristic to determine which results are most relevant. *See id.* at 4:26-30. The '604 system enables searching to occur on portions of the user's input as

they are received, potentially returning relevant results before the user has entered the complete search terms. *See id.* at 6:55-7:5; *id.* at 10:17-22.

Apple accuses Samsung's Galaxy Nexus phones of infringing claims 6 and 19 of the '604 Patent by enabling a user to perform searches across multiple information sources, using a variety of heuristic algorithms, with a single interface. The accused feature in the Galaxy Nexus is the Google Quick Search Box ("QSB"). Polish Decl. ¶¶ 13, 49-76; *id.* Ex. 3. Claim 6 of the '604 Patent recites:

> An apparatus for locating information in a network, comprising:
> an interface module configured to receive an inputted information descriptor from a user-input device;
> a plurality of heuristic modules configured to search for information that corresponds to the received information descriptor, wherein:
> each heuristic module corresponds to a respective area of search and employs a different, predetermined heuristic algorithm corresponding to said respective area, and
> the search areas include storage media accessible by the apparatus; and
> a display module configured to display one or more candidate items of information located by the plurality of heuristic modules on a display device.

'604 Patent 8:26-41. Claim 19 of the '604 Patent recites:

> The apparatus of claim 6, wherein the interface module is configured to receive portions of the information descriptor as the portions are being inputted, and
> wherein the heuristic modules are configured to search for information that corresponds to the portions of the information descriptor as the portions are being received.

Id. at 10:17-22. The '604 Patent has not previously been asserted in any litigation, nor has it been previously construed by any court or adjudicator. Polish Decl. ¶ 48.

a. Infringement

Determining patent infringement involves a two-step process. Claim construction is the first step, wherein the court resolves any disputes regarding the meaning and scope of the claim terms, "and when necessary [explains] what the patentee covered by the claims, for use in the determination of infringement." *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997). Claim construction is a question of law to be determined by the court. *Markman v.*

Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). In the second step, the trier of fact must "determine[] whether every claim limitation, or its equivalent, is found in the accused device." *Roche Palo Alto LLC v. Apotex, Inc.*, 531 F.3d 1372, 1377 (Fed. Cir. 2008) (citation omitted).

i. Claim Construction

Here, the parties disagree as to the meaning of two claim terms that appear in claims 6 and 19: (1) "each" of a plurality of heuristic modules; and (2) "heuristic algorithm." Where the parties dispute the scope of a claim term, the court has a duty to construe the term. *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1361-62 (Fed. Cir. 2008). A claim term is generally given its "ordinary and customary meaning," that is, "the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc). In construing disputed terms, the court looks first to the claims themselves, read in context, for "[i]t is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Id*. at 1312 (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). Importantly, however, "the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.* at 1313; *see also Markman*, 52 F.3d at 979 (claims must be read "in view of the specification, of which they are a part"). Because the specification must contain a description of the invention sufficiently clear "to teach and enable those of skill in the art to make and use the invention," *Phillips*, 415 F.3d at 1323, the specification is "'always highly relevant'" and "'[u]sually [] dispositive; it is the single best guide to the meaning of a disputed term,'" *id.* at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *accord Eon-Net LP v. Flagstar Bancorp*, 653 F.3d 1314, 1320 (Fed. Cir. 2011).

The court should also consider, if it is in evidence, the patent's prosecution history, which consists of the complete record of proceedings before the United States Patent and Trademark Office ("PTO") and includes the prior art references cited during the examination. *Phillips*, 415

F.3d at 1317. Although the prosecution history is generally less useful than the specification for claim construction, the prosecution history nevertheless "can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it otherwise would be." *Id.* (internal citations omitted). For example, "where the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender." *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003).

Finally, the court is also authorized to consider extrinsic evidence in construing claims, such as "expert and inventor testimony, dictionaries, and learned treatises." *Markman*, 52 F.3d at 980. While the court may look to sources extrinsic to the patent and prosecution history, such evidence is considered "less significant than the intrinsic record" and "less reliable than the patent and its prosecution history in determining how to read claim terms." *Phillips*, 415 F.3d at 1317-18 (internal quotation marks and citation omitted). Thus, while extrinsic evidence may be useful in claim construction, ultimately "it is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence." *Id.* at 1319. Any expert testimony "'that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history'" will be significantly discounted. *Id.* at 1318 (quoting *Key Pharms. v. Hercon Labs. Corp.*, 161 F.3d 709, 716 (Fed. Cir. 1998)).

(a) "each" of a plurality of heuristic modules

The parties disagree as to the scope of the limitation that the apparatus must comprise "a plurality of heuristic modules . . . wherein: each heuristic module corresponds to a respective area of search and employs a different, predetermined heuristic algorithm," which appears in independent claim 6 and, by incorporation, dependent claim 19 of the '604 Patent. '604 Patent 8:30-35; *see id.* at 10:17-22. Samsung argues that this claim limitation should be construed as requiring that, "however many heuristic modules there are, each one must use a different algorithm," i.e., "every algorithm must be different." Opp'n at 9 (citing Decl. of Dr. Jaime Carbonell ("Carbonell Decl.") ¶ 98); *id.* at 10. Under Samsung's proposed construction, the

limitation is satisfied only if *every* heuristic module employs a different heuristic search algorithm from the other modules. *Id.*

Apple, by contrast, rejects the notion that "each" in this context means "every." Instead, Apple argues that the term "each" must be read in reference to the preceding phrase, "a plurality of heuristic modules," such that the claim requires only that each of a plurality of heuristic modules (i.e., at least two) uses a different heuristic algorithm. Under Apple's proposed construction, the limitation is satisfied so long as "each of at least two modules (i.e., a plurality) employs a different algorithm, regardless of what additional ones do." Pl.'s Reply Br. in Supp. of Mot. Prelim. Inj. ("Reply") at 2.

Applying the basic principles of claim construction described above to this disputed claim term, the Court concludes that the claim language and specification support Apple's proposed construction, and that Samsung has pointed to no prosecution disclaimer or other evidence that warrants a contrary construction. The claim language recites an apparatus *comprising,* among other things, "a plurality of heuristic modules." '604 Patent 8:26-30. The term "plurality" means "at least two." *ResQNet.com, Inc. v. Lansa, Inc.*, 346 F.3d 1374, 1382 (Fed. Cir. 2003); *see York Prods., Inc. v. Cent. Tractor Farm & Family Ctr.*, 99 F.3d 1568, 1575 (Fed. Cir. 1996) ("The term means, simply 'the state of being plural.'"). Claim 6 imposes a further limitation on the "plurality of heuristic modules," requiring that "each heuristic module . . . employs a different, predetermined heuristic algorithm." *Id.* 8:33-35. Thus, the claim language supports Apple's argument that the "each" requirement modifies "plurality of heuristic modules." Consistent with Federal Circuit precedent, "each" of "a plurality of heuristic modules" means "each of at least two modules," not "each of every module." *See ResQNet*, 346 F.3d at 1382 (construing "each of a plurality of fields" to mean "each of at least two fields," not "every field").

Furthermore, "comprising" indicates an open-ended transition term that "is well understood to mean 'including but not limited to.'" *CIAS Inc. v. Alliance Gaming Corp.*, 504 F.3d 1356, 1360 (Fed. Cir. 2007). The use of the term "comprising" in claim 6 signifies that the claim "'does not exclude additional, unrecited elements or method steps.'" *Id.* (quoting *Georgia-Pacific Corp. v. United States Gypsum Co.*, 195 F.3d 1322, 1327-28 (Fed. Cir. 1999)). Thus, the Court agrees with

Apple that the presence of additional, identical heuristic algorithms, beyond the required two different heuristic algorithms, does not remove an accused device from the scope of the '604 Patent. In light of the plain meaning of "each" as used in claim 6, the Court finds inapposite Samsung's citation to *Kustom Signals, Inc. v. Applied Concepts, Inc.*, 264 F.3d 1326, 1332 (Fed. Cir. 2001), for the proposition that the accused device cannot include additional elements inconsistent with the claim limitations. *See* Opp'n at 12. Here, the presence of additional, non-unique heuristic algorithms beyond the requisite two different ones is not inconsistent with the limitations of claim 6, because claim 6 requires only that "each of at least two" heuristic modules employ different heuristic algorithms, not that "every" heuristic module employ a different heuristic algorithm.

Samsung argues that the specification does, in fact, support its proposed construction, pointing to a disclosed embodiment wherein "[t]he heuristic of each plug-in module is different." '604 Patent 5:13-14. The Court disagrees. It is a well-established principle of claim construction that "[w]hen consulting the specification to clarify the meaning of claim terms, courts must not import limitations into the claims from the specification." *Trading Techs. Int'l, Inc. v. eSpeed, Inc.*, 595 F.3d 1340, 1352 (Fed. Cir. 2010) (citing *Abbotts Labs. v. Sandoz, Inc.*, 566 F.3d 1282, 1288 (Fed. Cir. 2009)). Courts must not limit the broader claim language to a disclosed preferred embodiment "unless the patentee has demonstrated a clear intention to limit the claim scope using 'words or expressions of manifest exclusion or restriction.'" *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) (quoting *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1327 (Fed. Cir. 2002)). Here, Apple has manifested no clear intention to limit the claim scope to the second embodiment disclosed in the specification. To the contrary, the specification elsewhere describes an embodiment comprised of "a plurality of plug-in modules 22_1-22_n," wherein "[e]ach plug-in module has *an associated* heuristic which it employs to locate information that corresponds to the user input." '604 Patent 4:12-15 (emphasis added). Had the inventors intended to require not simply an associated heuristic, but a *different* heuristic algorithm for every plug-in module, they knew how to and would have so specified. Indeed, Apple's statements during prosecution of the '604 Patent confirm that the portion of the specification on which Samsung focuses is but "one

embodiment," and not an exhaustive or delimiting description of the claim scope. *See* Carbonell Decl. Ex. EE [Oct. 23, 2007 Remarks] at 11 (Apple describing the invention as disclosing "a plurality of plug-in modules 22_1-22_n, each plug-in module having an associated heuristic algorithm . . . ," and then explaining that "[i]n one embodiment, the heuristic algorithm of each plug-in module is different").

Finally, Samsung has cited nothing from the prosecution history that contradicts the plain and ordinary meaning of the claim term, as analyzed above, or that otherwise supports Samsung's position. Samsung relies on two Federal Circuit cases, *In re Skvorecz*, 580 F.3d 1262 (Fed. Cir. 2009), and *Board of Regents v. BENQ America Corp.*, 533 F.3d 1362 (Fed. Cir. 2008), but both cases are readily distinguishable. In *In re Skvorecz*, the Federal Circuit reversed an anticipation rejection by the PTO upon finding that the applicant had argued for a narrow claim scope, requiring "each wire leg" of a wire chafing stand to have a laterally displacing offset. 580 F.3d at 1267-68. In *Board of Regents*, the prosecution history narrowly defined the claim term "each pre-programmed code" in order to overcome anticipation by the prior art. 533 F.3d at 1373. The Federal Circuit held that the Board could not then "rely on the word 'comprising' to broaden the scope of a claim phrase that was limited during prosecution so as to gain allowance of the patent." *Id.*

Here, by contrast, Samsung has adduced no evidence that Apple argued for a narrow claim scope during prosecution that would preclude the broad construction apparent on the face of the patent. Samsung argued at the June 7, 2012 hearing that Apple distinguished U.S. Patent No. 7,020,670 to Andreoli, et al. ("Andreoli") during prosecution on the basis of the "each" limitation. June 7, 2012 Hr'g Tr. ("Tr.") at 27:12-28:2. Samsung points to an excerpt from Apple's response to an Office Action dated July 23, 2007, in which Apple argued to the PTO that "Andreoli does not describe, however, that *each* of the local and remote search operations employ a different heuristic algorithm to search an associated relevant area of search for information that corresponds to the search request, in accordance with amended claim 1." Carbonell Decl. Ex. EE [Oct. 23, 2007 Remarks] at 13. The following sentence, however, provides the context for Apple's prosecution statement: "That is, the algorithms described in Andreoli and referenced by the Office go to the

formation of the search request and not to how the local and remote search operations employed by the processor perform a search of the repositories on the network." *Id.* This contextual sentence, as well as the context provided by Apple's other comments in response to various Office Actions, in which Apple discusses at length Andreoli's failure to disclose a plurality of *heuristic* as opposed to merely *logical* algorithms, makes clear that Apple was not distinguishing Andreoli based on the narrow construction of "each" that Samsung advocates. *See generally* Carbonell Decl. Ex. EE. Thus, as in *ResQNet*, "[the] prosecution record evinces no 'clear and unmistakable' disavowal of claim scope that would compel a result different than the claim language." *ResQNet*, 346 F.3d at 1383 (citing *Omega Eng'g*, 334 F.3d at 1326).

Accordingly, this Court construes "a plurality of heuristic modules . . . wherein: each" in claim 6 and dependent claim 19 of the '604 Patent to mean "each of at least two heuristic modules" and not "each of every heuristic module."

(b) "heuristic algorithm"

Although the parties do not specifically brief claim construction of the terms "heuristic" or "heuristic algorithm," which appear in claim 6 and, by incorporation, dependent claim 19, Samsung insists that the parties' understanding of this important claim term diverges and that construction is therefore necessary. Samsung argues that a "heuristic" "has to be based on some human judgment or human knowledge." Tr. at 30:14-15. Thus, under Samsung's proposed construction, a "heuristic algorithm" is "limited to algorithms that employ a 'rule of thumb' or some prior specific human knowledge, or one of several items of human judgment embedded in the algorithm." Carbonell Decl. ¶ 84. Apple has been less than clear as to how, exactly, it defines "heuristic." Apple's expert Dr. Nathaniel Polish ("Dr. Polish") does not set forth a claim construction analysis, but he at times appears to use the term as meaning something that "attempt[s] to get the searcher what she is looking for within [its] particular area of search." Reply Decl. of Dr. Nathaniel Polish ("Polish Reply Decl.") ¶ 43; *but see* Decl. of Daniel C. Posner ("Posner Decl.") Ex. 3 [Polish Dep.] at 50:7-24 (explaining that he applied an understanding of "heuristic algorithm" as "a rule of thumb or an algorithm that would give you a result that would help you towards your answer"). When pressed at the hearing for its proposed construction of

"heuristic," Apple responded that it is "a rule of thumb . . . it's a best guess of what the result is." Tr. at 32:4-8; *see also id.* at 35:3-5 (defining a "heuristic algorithm" as "an algorithm that is designed to provide the best guess, based on the information, of what the user is looking for"). To the extent the parties appear to disagree as to the scope of this claim term, the Court has a duty to construe it. *See O2 Micro*, 521 F.3d at 1361-62.

The term "heuristic algorithm" appears frequently throughout the claim terms and the remainder of the specification. Claim 6 recites: "a plurality of heuristic modules configured to search for information that corresponds to the received information descriptor, wherein: each heuristic module corresponds to a respective area of search and employs a different, predetermined heuristic algorithm corresponding to said respective area." '604 Patent 8:30-35. It is a bedrock principle of claim construction that "'[c]laims must be 'interpreted with an eye toward giving effect to all terms in the claim.'" *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1257 (Fed. Cir. 2010) (quoting *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006)). Applying that principle to claim 6, it is apparent that "heuristic module" and "heuristic algorithm" correspond to different requirements. Thus, to the extent Apple implies that any search algorithm employed within a respective area of search is heuristic simply by virtue of its association with a corresponding "heuristic module," the Court declines to adopt a construction of "heuristic algorithm" that would render the "heuristic" modifier superfluous. *See id.*; *Elekta Instrument S.A. v. O.U.R. Scientific Int'l, Inc.*, 214 F.3d 1302, 1305-07 (Fed. Cir. 2000) (refusing to adopt a claim construction that would render claim language superfluous). In other words, a module is not "heuristic" simply because it employs a "heuristic algorithm," nor is an algorithm "heuristic" simply because it is employed by a "heuristic module."

However, the Court is still left with the task of construing "heuristic algorithm." The specification is not particularly illuminating in this regard. In the Detailed Description of the Invention, the inventors describe their invention as "a universal interface in which user inputs are received and provided to a plurality of separate heuristic algorithms to locate at least one item of information." '604 Patent 3:26-29. The specification goes on to explain that an information retrieval manager dispatches the user input to a plurality of plug-in modules, each of which has an

associated heuristic for searching within its respective search area. *Id.* at 4:11-15, 4:24-25. Once the modules have obtained search results responsive to the user input, the modules send the results back to the retrieval manager, which may then employ additional global heuristics to determine what results to provide to the user. *See id.* at 3:26-30, 5:54-56. Although the specification refers frequently to the use of "heuristics" to conduct the searches within each module's search area, the specification does not provide further explanation as to how "heuristics" is defined.

The Court therefore turns next to the file history. During prosecution of the '604 Patent, there were five sets of amendments to claim 6. *See* Carbonell Decl. Ex. EE. Of particular importance are Apple's arguments to the Examiner that prior art U.S. Patent No. 7,020,670 to Andreoli et al. ("Andreoli") does not anticipate because Andreoli fails to disclose a plurality of modules, each of which employs a "different heuristic algorithm." *See generally* Carbonell Decl. Ex. EE. In response to the Office Action dated July 23, 2007 rejecting all then-pending claims, Apple distinguished Andreoli based on Andreoli's use of logical, "constraint satisfaction algorithm[s]," rather than heuristic algorithms. Carbonell Decl. Ex. EE [Oct. 23, 2007 Remarks] at 13. Apple clearly disavowed Andreoli's way of processing search requests, namely "formulating the requests using logic as a common language. In particular, Andreoli describes using logic fragments, called 'feature constraints,' and efficient constraint solving algorithms." *Id.* Ex. EE [Oct. 23, 2007 Remarks] at 12-13 (citation omitted). In response to an Office Action dated January 25, 2008, rejecting all then-pending claims, Apple again emphasized the use of different heuristic algorithms and argued that the algorithms disclosed in Andreoli differed only logically, not heuristically:

> [C]onstraint satisfaction algorithms used by the brokers are based on the same search request and feature constraints. But these algorithms only logically differ from one another – not heuristically. As such, each broker does not employ "a different heuristic algorithm" for each repository searched. Therefore, Andreoli does not teach or suggest Applicant's claimed "plurality of heuristic modules . . . employ[ing] a different heuristic algorithm corresponding to said respective area to search."

Carbonell Decl. Ex. EE [Apr. 23, 2008 Remarks] at 8 (second alteration in original) (emphases omitted). In light of Apple's assertion that Andreoli does not anticipate because its method is

based on "'classical logic' in which constraints are 'algorithmically decidable,'" the Court cannot adopt a construction of "heuristic algorithm" that would encompass purely constraint satisfaction algorithms. *See* Carbonell Decl. Ex. EE [December 11, 2008 Remarks] at 10-11.

Beyond that narrow distinction, however, it appears that Apple advocated for, and the Examiner accepted, a broad construction of the term "heuristic algorithm." In support of a broad meaning, Apple offered a variety of dictionary definitions of "heuristic," which "include, for example, 'using or arrived at by a process of trial and error rather than set rules,' 'used to describe a computer program that can modify itself in response to the user,' and 'a helpful procedure for arriving at a solution *but not necessarily a proof.*'" *Id.* (citing Microsoft Corporation, *Encarta World English Dictionary* (1999)) (emphasis in original). Apple also argued to the examiner that:

> a "heuristic" is [a] "'rule of thumb,' based on domain knowledge from a particular application, that gives guidance in the solution of a problem. Unlike algorithms, heuristics cannot have proven performance bounds owing to their open-ended dependence on specific application knowledge; an example is 'if the sky is cloudy then carry an umbrella.' Heuristics may thus be very valuable most of the time but their results or performance cannot be guaranteed."

Id. (citing John Dantith, *A Dictionary of Computing* (2004)). Ordinarily, "the rule that a court will give a claim term the full range of its ordinary meaning does not mean that the term will presumptively receive its broadest dictionary definition or the aggregate of multiple dictionary definitions." *Free Motion Fitness, Inc. v. Cybex Int'l, Inc.*, 423 F.3d 1343, 1348-49 (Fed. Cir. 2005) (internal citations omitted). Nonetheless, the dictionary definitions offered here are not extrinsic evidence but rather are part of the intrinsic record. Thus, Apple's reliance on broad dictionary definitions, even while distinguishing the '604 Patented invention from Andreoli, carries considerable weight.

Although Samsung argues that a heuristic algorithm may require "some prior specific human knowledge, or one of several items of human judgment embedded in the algorithm," Carbonell Decl. ¶ 84, the Court finds no support for this construction in the intrinsic record or otherwise. Given that both parties appear to agree that a heuristic algorithm is one that employs a "rule of thumb," for purposes of ruling on the pending motion, the Court construes "heuristic

algorithm" to mean "a search algorithm that employs some 'rule of thumb' and does not consist solely of constraint satisfaction parameters."

ii. Literal Infringement

Having determined the scope of the asserted patent claims, the Court must next determine whether the claims read on the accused product. To prove infringement, Apple points to a screen capture of the Google Quick Search Box on the Galaxy Nexus where, upon entry of a search term, the user is presented with search results from a number of different search areas, including the Internet, contacts stored on the phone, and recently visited websites. Mot. at 13. In support of its claim of infringement, Apple produces the declaration of its expert, Dr. Polish, who opines that the Quick Search Box satisfies every limitation of and thus infringes claims 6 and 19 of the '604 Patent. Polish Decl. ¶¶ 13, 49-76; *id.* Ex. 3; *see* Polish Reply Decl. ¶¶ 30-57. The parties dispute only whether the Quick Search Box satisfies the following limitation: that the apparatus contain "a plurality of heuristic modules . . . wherein: each heuristic module corresponds to a respective area of search and employs a different, predetermined heuristic algorithm corresponding to said respective area." '604 Patent 8:30-35; *see* Opp'n at 11-12.

Because the Court adopts Apple's construction of the claim term "each," the Court rejects Samsung's argument that the Quick Search Box does not infringe because Apple failed to analyze five of the eight search modules. *See* Opp'n at 12. For the same reason, Samsung's argument that five of the eight search modules on the Quick Search Box (ApplicationsProvider, Books, Browser, Music, and Videos) [redacted], and therefore all use the same algorithm, is unavailing. *See* Opp'n at 13 (citing Decl. of Bjorn Bringert ("Bringert Decl.") ¶ 7). Under the Court's construction of "each," the Quick Search Box feature can infringe claims 6 and 19 of the '604 Patent so long as at least two heuristic modules each employ a different heuristic algorithm, even if other heuristic modules employ non-unique heuristic algorithms. Thus, Samsung's only remaining non-infringement argument is that Apple has failed to identify even two different "heuristic algorithms" corresponding to two different heuristic modules.

Apple's expert Dr. Nathaniel Polish identifies eight different default search areas of the Quick Search Box that he asserts are the requisite "heuristic modules": (1) Google: Google Search suggestions; (2) Apps: Names of installed applications; (3) Books: Books in your library; (4) Browser: Bookmarks and web history; (5) Messaging: Text in your message; (6) Music: Artists, albums and tracks; (7) People: Names of your contacts; and (8) Videos: Rented movies. *See* Polish Decl. ¶ 61. Dr. Polish's infringement analysis focuses on only three of these eight modules: (1) Google search; (2) People; and (3) Browser history. Dr. Polish asserts that these three search modules satisfy the disputed limitation of claim 6 because they "map exactly to the examples in the patent specification." Polish Reply Decl. ¶ 21; *see also* Polish Decl. ¶ 66. Specifically, Apple asserts that "the Browser module . . . implements the heuristic module described in the patent specification as '[a] third module 22_3 [that] can maintain a list of the files, applications and web sites which were most recently accessed, and search this list for a match.' The People module . . . implements the heuristic module described in the patent specification as '[a] second module 22_2 [that] may index and search the contents of files on the local and/or network storage volumes.' Lastly, the Google module . . . implements the heuristic module described in the patent specification as, [y]et another module [that] might employ a search engine to locate Internet web pages which match the user input.'" Polish Reply Decl. ¶ 22 (alterations in original) (quoting '604 Patent 4:17-23). Apple further asserts that the Galaxy Nexus infringes every element of claim 19 of the '604 Patent because the Quick Search Box begins to provide search results as the user's information descriptor is incrementally inputted. *See* Polish Decl. ¶ 76.

The Court agrees with Samsung that Apple cannot rely on the mere fact that, for example, the Browser module "can maintain a list of the files, applications and web sites which were most recently accessed, and search this list for a match." Polish Reply Decl. ¶ 22. As discussed above in the Court's claim construction analysis, the sheer fact that the Browser module "search[es] this list for a match" reveals nothing about *how* it searches, i.e., whether it searches heuristically or not. As Apple's own expert admits, it is possible to search a "heuristic module" in a non-heuristic manner. *See* Posner Decl. Ex. E [Polish Dep.] at 106:19-25. Samsung argues that, even as to the three modules Dr. Polish analyzed, Dr. Polish failed to identify that any of them employed

heuristic algorithms, and he failed to identify any differences between the algorithms employed. *See* Carbonell Decl. ¶¶ 99-108. The Court therefore considers the infringement evidence presented by both parties with respect to each of the three modules in dispute.

With respect to the "Google" search module, Apple's expert Dr. Polish asserts that the Google Search Suggestions module utilizes the Google search engine to generate results, and that the Google search module employs a different, predetermined heuristic algorithm than the one employed by the People or Browser modules. Polish Decl. ¶¶ 65-66. Samsung's expert Dr. Carbonell effectively conceded during his deposition that the Google and People modules use different algorithms. Dr. Carbonell explained that, although he had not seen the algorithm internal to the Google search module because such code is proprietary to Google, he "believe[d]" that the Google and People modules employed different algorithms "because the people list of contacts is much smaller and more restricted [than the Google module]." Polish Reply Decl. Ex. 2 [Carbonell Dep.] at 138:20-139:8.

Apple's burden, however, is to establish that the Google and People search algorithms are not only different, but different and heuristic. In support of its assertion that the Google module employs a heuristic algorithm, Apple points to various excerpts from Dr. Carbonell's deposition that Apple views as conceding as much, claiming that "Dr. Carbonell testified that Internet search engine results are heuristic." Polish Reply Decl. ¶ 52. While Apple's characterization of Dr. Carbonell's testimony appears compelling on its face, it misconstrues the factual record. The relevant portion of Dr. Carbonell's testimony concerns only the algorithms employed by AltaVista, Lycos, and Yahoo! in the 1990s. Polish Reply Decl. Ex. 2 at 251:10-22. Moreover, Samsung's expert does not opine on whether the Google search module employs a heuristic algorithm, and during his deposition, he refused to comment on the algorithm employed by Google due to his lack of personal knowledge. *See* Carbonell Decl. ¶ 106; Polish Reply Decl. Ex. 2 [Carbonell Dep.] at 136:10-137:1. The source code used by the remote Google servers to generate responses is "proprietary to Google and kept confidential; it is not part of Ice Cream Sandwich and it is not available in the Android Open Source Project," which perhaps explains why neither party's expert

was able to analyze the Google search engine source code for purposes of this motion. Bringert Decl. ¶ 6.

While one could perhaps infer that the Google search engine likewise employs heuristics from Dr. Carbonell's testimony about the heuristic mechanisms of other Internet search engines in the 1990s, Apple has offered no corroborating evidence that would raise such an inference above the level of mere speculation. Neither Samsung's expert nor Apple has established any relationship between the search algorithms used in AltaVista, Lycos, and Yahoo! in the 1990s, and the search algorithm used in the Google search engine today. Apple's own expert offers no testimony based on personal knowledge of Google's search engine, nor does he even offer testimony on search engines generally from which an inference about Google's search algorithms could be drawn. *See* Posner Decl. Ex. E at 111:15-20 (Q: Do you know what the algorithm is that corresponds to the search area of Google Search suggestions? A: I'd have to look at the code. Sitting here, I can't – I can't lay out for you what it is."). "[I]t is well settled that an expert's unsupported conclusion on the ultimate issue of infringement is insufficient to raise a genuine issue of material fact." *Arthur A. Collins, Inc. v. N. Telecom Ltd.*, 216 F.3d 1042, 1046 (Fed. Cir. 2000) (citation omitted). "A party may not avoid that rule by simply framing the expert's conclusion as an assertion that a particular critical claim limitation is found in the accused device." *Id.* (citing *Phillips Petroleum Co. v. Huntsman Polymers Corp.*, 157 F.3d 866, 876 (Fed. Cir. 1998)). Applying the burdens that would inhere at trial, the Court cannot say that Apple has shown a likelihood of proving by a preponderance of the evidence that the Google module on the Quick Search Box employs a heuristic algorithm.

With respect to the "People" search module, Samsung submits a declaration from Google software engineer Bjorn Bringert, who explains that the People [redacted]. Bringert Decl. ¶ 7. Dr. Carbonell examined portions of the publicly available Android 4.0 source code associated with the People search module, and stated his opinion that the [redacted], "do[es] not incorporate a rule of thumb or any particular human knowledge specific to the problem or the data or to the user," and thus is not heuristic. Carbonell Decl. ¶¶ 105-07.

Relying on Dr. Carbonell's analysis, Samsung argues that the People module does not employ a heuristic algorithm, and thus Apple cannot prove infringement.

Apple provides compelling rebuttal evidence and argument. Samsung's expert admitted that he limited his review of the code simply to the use of [redacted] and did not look at the specific code internal to the [redacted] algorithm in order to determine its actual implementation on the Galaxy Nexus. Polish Reply Decl. ¶ 46; *id.* Ex. 2 [Carbonell Dep.] at 140:18-141:13. Samsung's expert further conceded that a logical algorithm, such [redacted], "could be used as part of a heuristic algorithm" if a heuristic were added to it. *Id.* Ex. 2 at 142:12-143:10. Meanwhile, Apple's expert Dr. Polish reviewed the source code for the People module and found that, as implemented with the SuggestionProvider Java interface required for all applications on the Galaxy Nexus, the People module does perform a heuristic search. Polish Reply Decl. ¶ 47. Specifically, the People module heuristically ranks search results based on the user's past interactions, ranking contacts that the user has selected in the past three days, followed by contacts that the user has selected in the past thirty days, above all other contacts that might respond to the user's search query. Polish Reply Decl. ¶¶ 47-51; *id.* Ex. 7 at 1-3. Samsung's own expert agreed that a search that ranked results based on past user selection would be heuristic. *See* Polish Reply Decl. Ex. 2 at 86:20-87:4. Thus, the Court finds Apple has shown that the People module searches heuristically.

Finally, with respect to the "Browser" search module, Mr. Bringert explains that the Browser application performs [redacted]. Bringert Decl. ¶ 7. The algorithm used in the Browser application is therefore different from the algorithm used in the People module. Nonetheless, Dr. Carbonell examined portions of the publicly available Android 4.0 source code associated with the Browser search module, and stated his opinion that the [redacted] employed by the Browser search module "do[es] not incorporate a rule of thumb or any particular human knowledge specific to the problem or the data or to the user," and thus is not heuristic. Carbonell Decl. ¶¶ 105-07.

Apple's rebuttal evidence and argument with regard to the Browser module is not as strong as it is with regard to the People module. Nonetheless, Apple does present the relevant portion of the Browser module source code and explains that the operative SQLiteDatabase.query() method "builds the SQL query using a particular set of heuristics," and then orders the query results based on date last visited. *See* Polish Reply Decl. Ex. 7 at 4-5. The Court finds that, based on its broad construction of the term "heuristic algorithm," the [redacted] as employed by the Browser module satisfies the "heuristic algorithm" limitation. Returning results based on date last visited is not strictly a "constraint satisfaction" parameter. Rather, by ordering results based on the user's most recently visited sites, the Browser search algorithm employs a rule of thumb that the user is more likely searching for a recently visited site than a site bookmarked long ago. Furthermore, the Browser search algorithm employs this sorting heuristic based solely on the user's past conduct, i.e., sites that the user has most recently chosen to visit. Samsung's expert agreed that "[i]f the system were to store information about prior user preferences, such as the user having selected some results and having not selected other results, . . . [and] that precedent – that information was then compiled into the future selection process, [then] [t]hat would use human judgment" and would be heuristic. Polish Reply Decl. Ex. 2 [Carbonell Dep.] at 86:20-87:4. Thus, even under Samsung's narrower construction requiring "human judgment" – which the Court has rejected – the Browser search algorithm is arguably heuristic. Based on the evidence available at this time, the Court concludes that the Browser search algorithm is not purely a constraint satisfaction algorithm but rather employs a rule of thumb to find the results most likely of interest to the user.

In sum, the Court finds that Apple has shown that the People and Browser modules likely employ different heuristic algorithms. Thus, even though Apple has not shown that the Google module also employs a heuristic algorithm, Apple has shown that the Quick Search Box on the Galaxy Nexus likely has at least two heuristic modules employing two different, predetermined heuristic algorithms. The sole disputed limitation is therefore satisfied. Accordingly, the Court finds that Apple has shown that the Galaxy Nexus likely infringes the '604 Patent.

b. Invalidity Based on Anticipation and Obviousness

The presumptive validity of the '604 Patent can be rebutted only by clear and convincing evidence to the contrary. *See* 35 U.S.C. § 282; *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 424 F.3d 1276, 1281 (Fed. Cir. 2005) (citation omitted). A patent claim is invalid by reason of anticipation if "the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent." 35 U.S.C. § 102(a). A claim is anticipated under 35 U.S.C. § 102, and thus invalid, "if each and every limitation is found either expressly or inherently in a single prior art reference." *Bristol-Myers Squibb Co. v Ben Venue Labs., Inc.*, 246 F.3d 1368, 1374 (Fed. Cir. 2001) (internal quotation marks and citation omitted); *accord Eli Lilly & Co. v. Zenith Goldline Pharm., Inc.*, 471 F.3d 1369, 1375 (Fed. Cir. 2006). To anticipate, the prior art reference must also "enable one of ordinary skill in the art to make the invention without undue experimentation." *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs.*, 670 F.3d 1171, 1184 (Fed. Cir. 2012) (citation omitted).

Samsung argues that claims 6 and 19 of the '604 Patent are invalid as anticipated by two different prior art references: (1) the Wide Area Information Server ("WAIS") system, published no later than 1994; and (2) U.S. Patent No. 6,005,565 to Legall ("Legall" or "the '565 Patent"), titled "Integrated Search of Electronic Program Guide, Internet and Other Information Resources." Having considered the WAIS and Legall reference and the parties' arguments, and for the reasons discussed below, the Court concludes that Apple has met its burden regarding the validity of the '604 patent. *See Titan Tire*, 566 F.3d at 1379-80.

i. WAIS

The WAIS system was a client-server search system in existence by the early 1990s. WAIS allowed users to search and access information across a number of databases with a single interface. *See* Carbonell Decl. ¶ 111 & Ex. GG. Two descriptions of WAIS, *Overview of Wide Area Information Servers* ("*WAIS Overview*") and *WAIS, A Sketch of an Overview* ("*WAIS Sketch*"), were published in April 1991 and September 1991, respectively. Carbonell Decl. ¶ 112; *id.* Exs. GG ["WAIS Overview"], HH ["WAIS Sketch"]. *WAIS Overview* explains how WAIS works as follows: "The servers take a users [sic] question and do their best to find relevant documents. The servers, at this point, do not 'understand' the users [sic] [E]nglish language

question, rather they try to find documents that contain those words and phrases and ranks then [sic] based on heuristics." Carbonell Decl. Ex. GG. The *WAIS Sketch* discloses a public protocol that allows user clients to communicate with database servers containing a wide variety of information.[2] Through a single interface, that user is able to search multiple databases, with each server performing its own underlying search algorithm. As *WAIS Sketch* makes clear, "since WAIS really just specifies the protocol for the client and server to use for communication, the underlying search on the server could just as well use various natural language queries upon its information." Carbonell Decl. Ex. HH at 1. A third document, *freeWAIS-sf*, published in 1995, appears to be targeted at server developers, and discusses use of synonym matching heuristics in a manner that suggests widespread, but optional, use of synonym matching in servers' search algorithms. Carbonell Decl. ¶ 125 & Ex. JJ at 19. Samsung argues that because some of these search algorithms could be heuristic, the WAIS system discloses every element of claim 6 of the '604 Patent. To illustrate this, Samsung's expert viewed a reconstructed operational system assembled by Lyle Bickley, a technical consultant, which demonstrated how a server administrator could construct synonym files that search for either synonyms or homonyms to the input query, thus importing human knowledge into the search mechanism. Carbonell Decl. ¶¶ 114, 124-30; *see generally* Decl. of Lyle Bickley ("Bickley Decl.").

The Court is not convinced that WAIS discloses every limitation of claim 6 of the '604 Patent, namely the "plurality of heuristic modules" limitation. According to Apple's expert, "[m]odules are small software programs that are parts of a larger application," meaning they "must be part of the application and not some service or server to which the application connects." Polish Reply Decl. ¶ 73. This understanding of "module" is supported by the patent specification, and Samsung does not contend otherwise. *See* '604 Patent 7:31-35 ("Thus, if a search engine is designed for use on the Internet to locate particular types of web pages, a plug-in module can also be designed to access that search engine and return results to the information retrieval manager."); *id.* at 4:22-23 ("Yet another module might employ a search engine to locate Internet web pages

[2] Some information freely accessible with the WAIS protocol included a patent archive, a collection of molecular biology abstracts, a cookbook, and the CIA World Factbook.

which match the user input."). That is, a module accesses or employs a search engine, but is not itself a search engine. As Apple's expert explains, in a WAIS system, when a user inputs a search string, the software component on the client side sends an identical query to all servers, but there are no modules on the client side for sending queries that are tailored to each server. Polish Reply Decl. ¶ 74. Thus, WAIS fails to disclose at least the limitation of a "plurality of heuristic modules" that employ different heuristic algorithms, and therefore does not anticipate claims 6 and 19 of the '604 Patent.

ii. Legall

Legall was issued December 21, 1999, based on an application filed March 25, 1997. It discloses a system for searching "an electronic program guide and other information resources with one search." Carbonell Decl. Ex. FF ['565 Patent], Abstract. Legall teaches, for example, using this search tool on a TV to search for information on the TV's electronic program guide ("EPG") and on a variety of Internet search engines with a single search. Carbonell Decl. ¶¶ 145-59. Samsung argues that Legall discloses every limitation of claim 6 of the '604 Patent. Apple responds that Legall is not anticipatory because it discloses only one component that is used for searching, and therefore does not disclose "a plurality of heuristic modules." Polish Reply Decl. ¶¶ 27, 76-83. Apple further argues that even if Legall discloses a plurality of modules, Samsung's expert admitted Legall did not necessarily disclose that each of a plurality of modules employs a different heuristic algorithm. *Id.*

The Court agrees with Apple that the Legall reference fails to anticipate the '604 Patent. Although Legall is directed to addressing a similar problem as is the '604 Patent – that is, being able to perform searches across a variety of information platforms – Legall does not disclose a "plurality of heuristic modules," nor does it disclose the use of at least two different *heuristic* algorithms. The specification of Legall explains that "[a]fter a search is initiated using the active filter specified [], the search mechanism conducts a search of the World Wide Web 506, and the EPG 508. . . . Using the filter specified, the system automatically generates the query to perform the search on the web and/or on the EPG." '565 Patent 4:19-26. Thus, contrary to Samsung's expert's assertion that Legall discloses a plurality of heuristic modules, the specification reveals

only a single "search mechanism." Furthermore, Dr. Carbonell admitted at his deposition that, according to the description in Legall, the search tool for the EPG may, but need not be, heuristic. The specification of Legall explains that "the search is performed on the EPG using a search tool. The search tool may be a simple text search tool or database search tool, or a tool specifically written for searching the EPG." '565 Patent 4:31-34. As Samsung's expert concedes, a simple string match text search, as described in the Legall specification, would not be a heuristic algorithm. Polish Reply Decl.¶ 81 & Ex. 2 at 236:1-7.

Accordingly, because Legall does not disclose the limitation of claim 6 that the apparatus comprise a plurality of heuristic modules wherein each module employs a different, predetermined *heuristic* algorithm, it fails to anticipate claim 6 of the '604 Patent.

iii. Obviousness of Claim 19

Finally, Samsung argues that claim 19, which adds the further limitation of incremental search functionality (i.e., the system begins searching while the user is still typing), is invalid for obviousness, because incremental search functionality was well known in the art by the priority date of January 5, 2000, and it would have been obvious to a person of ordinary skill in the art to use any of the known techniques for incremental search functionality in combination with either WAIS or Legall. Carbonell Decl. ¶¶ 140-44, 159-62. According to Samsung's expert, this incremental search functionality was documented as early as 1978 by researchers at MIT. Carbonell Decl. ¶ 140 & Ex. MM. This search function was used, for example, in Microsoft's WordPerfect 5.2, which was released on November 30, 1992. Carbonell Decl. ¶ 142 & Ex. PP.

A patent is invalid for obviousness "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103(a). "Obviousness is a question of law based on underlying findings of fact." *In re Kubin*, 561 F.3d 1351, 1355 (Fed. Cir. 2009). The underlying factual inquiries include: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; (3) the level of ordinary skill in the art; and (4) any relevant secondary considerations, such as commercial success, long felt but unsolved needs, and the failure of others.

KSR Int'l Co. v. Teleflex, Inc., 550 U.S. 398, 406 (2007) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966)); *Aventis Pharma S.A. v. Hospira, Inc.*, 675 F.3d 1324, 1332 (Fed. Cir. 2012).

Because the Court concludes that neither WAIS nor Legall anticipates independent claim 6, and Samsung's obviousness argument for invalidation of claim 19 relies on either WAIS or Legall in combination with other secondary references, the Court determines that neither WAIS nor Legall renders claim 19 obvious. In any event, although Samsung argues that the incremental search function could have been combined with WAIS or Legall, Samsung's expert offers no evidence that a person of ordinary skill in the art would have found this combination to be obvious. Dr. Carbonell cites three different references that allegedly demonstrate the prior existence of incremental search functionality: (1) EMACS text-editors, used by MIT researchers as early as 1978 ("EMACS"); (2) WordPerfect 5.2 for Windows, released November 30, 1992 ("WordPerfect 5.2"); and (3) U.S. Patent No. 6,049,796 to Siitonen, filed February 24, 1997, and issued April 11, 2000 ("Siitonen"). *See* Carbonell Decl. ¶¶ 140-43 & Exs. MM, NN, OO, PP. However, even assuming that these three secondary references disclose the incremental search functionality of claim 19, Samsung offers no evidence that one of ordinary skill in the art would have found it obvious to combine the incremental search functionality of these secondary references with WAIS or Legall. *See* Carbonell Decl. ¶¶ 140-44, 159-62. "[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR*, 550 U.S. at 418. Rather, the party challenging the patent's validity must "identify 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." *Id.*

As Apple's expert Dr. Polish explains, WAIS is a client-server search system, and Legall is a power search tool that enables a user to search an electronic program guide and other information resources with a single search. Polish Reply Decl. ¶ 100. Meanwhile, EMACS is a text editor, WordPerfect 5.2 is a spell checker memory, and Siitonen is a personal digital assistant ("PDA") contacts database. *Id.* ¶ 101. Samsung's expert Dr. Carbonell offers no more than a conclusory assertion that "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to include in WAIS a method of displaying incremental search results or real-time search

results as the user types his or her query," because "[b]y the time of the invention, consumer access to broadband Internet connections was widespread." Carbonell Decl. ¶ 144. Dr. Carbonell's explanation for the supposed obviousness is a non sequitur, and furthermore does not even attempt to address any of the relevant secondary considerations identified in *KSR*. *See* Polish Reply Decl. ¶¶ 99-101 (pointing out deficiencies in Dr. Carbonell's declaration). Samsung's evidence in support of its obviousness defense thus falls far short of raising a substantial question of invalidity sufficient to overcome the presumption of validity.

In sum, Apple has shown that claims 6 and 19 of the '604 Patent are likely both valid and infringed. Apple has therefore shown a likelihood of prevailing on the merits of the '604 Patent.

2. U.S. Patent No. 5,946,647 (Links for Structures)

U.S. Patent No. 5,946,647 ("the '647 Patent"), entitled "System and Method for Performing an Action on a Structure in Computer-Generated Data," was filed on February 1, 1996, and issued on August 31, 1999. The '647 Patent is directed to a computer-based system and method for detecting structures, such as phone numbers, post-office addresses, and dates, and performing actions on the detected structures. *See* '647 Patent Abstract, 1:8-16. The '647 Patent sought to overcome certain deficiencies in the prior art that inhibited a user's ability to easily perform different desired actions on information encountered in a given application. Conventional systems existed to help search a file or document for information using pattern analysis, but upon identifying such information, the user would have to copy-and-paste that information into whatever field or application the user wished in order to use the information. '647 Patent 1:42-50.

The '647 system relies on an "analyzer server" component that is programmed to recognize a wide range of data patterns (called "structures" in the patent) in data from a wide range of files, such as text messages, emails, and web pages. Client applications (e.g., word processors) submit documents to the analyzer server for detection of structures. After the analyzer server recognizes structures in a document, it links each structure to operations (called "actions") commonly performed on data of that type (such as linking phone numbers to the functions for calling or storing phone numbers in the address book). It then returns the list of detected structures and links to the client application.

Apple accuses Galaxy Nexus phones of infringing claims 1 and 8 of the '647 Patent. Apple alleges that the web browser application in Ice Cream Sandwich on the Galaxy Nexus infringes claims 1 and 8 by enabling a user to perform actions on detected structures, such as storing information from a web page in the user's contacts, dialing a telephone number, or sending an email, simply by selecting the information on a web page. Decl. of Dr. Todd Mowry ("Mowry Decl.") ¶¶ 53-83 & Ex. 17 [Infringement Chart]. Claim 1 of the '647 Patent recites:

> A computer-based system for detecting structures in data and performing actions on detected structures, comprising:
>
> an input device for receiving data;
>
> an output device for presenting the data;
>
> a memory storing information including program routines including
>
> an analyzer server for detecting structures in the data, and for linking actions to the detected structures;
>
> a user interface enabling the selection of a detected structure and a linked action; and
>
> an action processor for performing the selected action linked to the selected structure; and
>
> a processing unit coupled to the input device, the output device, and the memory for controlling the execution of the program routines.

'647 Patent, 7:9-24. Claim 8 of the '647 Patent recites:

> The system recited in claim 1, wherein the user interface highlights detected structures.

'647 Patent, 7:51-52. This is not the first time that Apple has asserted these two claims against accused infringers. The '647 Patent was the subject of an investigation by the International Trade Commission ("ITC"), *Certain Personal Data and Mobile Communications Devices and Related Software*, Inv. No. 337-TA-710, (July 15, 2011) (Final) ("the 710 Investigation). The '647 Patent is also at issue in the case *Apple Inc. v. Motorola, Inc.*, No. 1:11-cv-08540 (N.D. Ill. filed Dec. 1, 2011), before Judge Richard A. Posner, sitting by designation in the U.S. District Court for the Northern District of Illinois ("*Apple v. Motorola*").

a. Infringement

As previously stated, determining infringement involves a two-step process: first the disputed claim terms must be construed, and second it must be determined whether the claims read on the accused device. *See Roche Palo Alto*, 531 F.3d at 1377.

i. Claim Construction

Claims 1 and 8 each require "an analyzer server for detecting structures in the data, and for linking actions to the detected structures." '647 Patent 7:16-17. Samsung argues that claim construction is needed for two terms: "analyzer server" and "linking actions to the detected structures." These two terms were previously construed by both Judge Posner in *Apple v. Motorola* and by the ITC in the 710 Investigation. Samsung urges the Court to adopt the constructions for these two terms adopted by Judge Posner in *Apple v. Motorola* on March 19, 2012. *See* Decl. of Dr. Geoff Cohen Re: '647 Patent ("Cohen '647 Decl.") Ex. K at 10. For purposes of this motion only, Apple does not oppose Samsung's proposed constructions, as Apple maintains that the Galaxy Nexus infringes claims 1 and 8 of the '647 Patent even under Samsung's proposed constructions. Accordingly, for purposes of this motion only, the Court construes "analyzer server" to mean "a server routine separate from a client that receives data having structures from the client," and construes "linking actions to the detected structures" to mean "creating a specified connection between each detected structure and at least one computer subroutine that causes the CPU to perform a sequence of operations on the detected structure." Opp'n at 5-6 (citing Cohen '647 Decl. Ex. K at 10).

ii. Literal Infringement

To establish infringement, Apple must show that every limitation set forth in a claim is found in the accused product. *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1535 (Fed. Cir. 1991). To show that the Ice Cream Sandwich web browser application on Galaxy Nexus phones infringes claims 1 and 8 of the '647 Patent, Apple points to a screen capture of the web browser ("Browser") on the Galaxy Nexus where, upon selection of a phone number found in a web page, a user is presented with actions to dial the number or add the number as a contact. Mot. at 11-12; *see* Mowry Decl. ¶¶ 53-83. Upon examining portions of the publicly available Android 4.0 source code and related documents, Apple's expert Dr. Todd Mowry confirmed his opinion that the Galaxy Nexus Browser satisfies every limitation of claims 1 and 8 of the '647 Patent, including having an "analyzer server" that "link[s] actions to the detected structures." '647 Patent 7:16-17. *See* Mowry Decl. ¶¶ 58-83; Reply Decl. of Dr. Todd Mowry ("Mowry Reply Decl.") ¶¶ 77-110.

As further support for its infringement claim, Apple notes that in the 710 Investigation, the ITC found that HTC devices infringe claims 1 and 8 of the '647 Patent. According to Apple's expert, the infringing Android code at issue in the 710 Investigation and the Android code used in the Galaxy Nexus are "identical in all relevant aspects."[3] Mowry Decl. ¶¶ 53-56; Mowry Reply Decl. ¶¶ 54-56.

Samsung contests only the following claim limitation: that the system include "an analyzer server for detecting structures in the data, and for linking actions to the detected structures." '647 Patent 7:16-17; *see* Opp'n at 8. Because the parties address "analyzer server" and "linking actions to the detected structures" separately, the Court does as well.

(a) "analyzer server"

It appears that the Android system stores code to perform the accused functionality in various external shared libraries on the Android platform, such as CacheBuilder, WebView, and MenuItemImpl. *See* Mowry Decl. ¶¶ 67, 70; Mowry Reply Decl. ¶¶ 62-70; Cohen '647 Decl. ¶ 93. Various client applications, such as the Browser application, can call on relevant code from these libraries to perform the claimed structure detection and linking. *See* Mowry Reply Decl. ¶ 65. Apple's expert opines that these external libraries are thus part of the "routine" of the code, separate from the client, that perform the "analyzer server" function of detecting and linking to structures. Mowry Reply Decl. ¶¶ 62-65, 74-76.

Samsung argues that the Galaxy Nexus does not satisfy the "analyzer server" element for two reasons. First, Samsung argues that Apple fails to identify any single subroutine that performs both detecting structures and linking actions. Opp'n at 8. Samsung complains that, although Apple's expert Dr. Mowry points to a number of methods in the Galaxy Nexus that detect structures, and to a number of other methods that allegedly create links to actions, Dr. Mowry fails to identify a single program subroutine that performs both actions. *See* Cohen '647 Decl. ¶¶ 89-90. The Court is not persuaded that the patent requires a *single* routine that performs both actions. As Judge Posner noted, the inventors of the '647 Patent had a broad conception of the word "routine."

[3] The ITC adopted different constructions of the two claim terms at issue, and thus its conclusions regarding infringement are of only limited relevance here.

See Cohen '647 Decl. Ex. K at 10. Judge Posner equated "routine" with the terms "module" and "component," defining it as "a piece of programming necessary to perform a specific function." *Id.* Apple's expert asserts that one of skill in the art would understand "a piece of programming necessary to perform a specific function" to include all of the code needed to execute that function, regardless of how the code is organized. Mowry Reply Decl. ¶ 60. Thus, the collection of assorted subroutines that comprise the analyzer server functions may fairly be said to constitute the analyzer server "routine" within the meaning of Samsung's proposed construction. Indeed, this is consistent with Judge Posner's understanding that "[r]outines often consist of subroutines." Cohen '647 Decl. Ex. K at 10.

Second, Samsung argues that the Galaxy Nexus lacks an "analyzer server" because there is no server routine in Ice Cream Sandwich that is "separate from a client;" rather, the accused functionality is an integral part of the Browser (i.e., the client) itself. Opp'n at 8 (citing Decl. of Cary Clark ("Clark Decl.") ¶¶ 4-17); *see* Cohen '647 Decl. ¶¶ 91-96. Samsung argues that a person of ordinary skill would understand "server" to mean "a program separate from the application in question, running as a separate process, that provides services to client applications." Cohen '647 Decl. ¶ 92. Because CacheBuilder, WebView, and MenuItemImpl are all executed as part of the client application, Samsung argues they are not "separate" from the client and thus cannot satisfy the "analyzer server" limitations.

The requirement that the analyzer server be "separate" from the client is supported by the patent's specification, which discloses in Figure 1 a "program" separate from the "application" (i.e., the client), wherein the program contains the analyzer server. *See* '647 Patent Fig. 1. Nonetheless, Judge Posner explained, and this Court agrees, that the term "analyzer server" means "a *code module* that is separate from client applications and provides structure detection and linking services to the client applications." Mowry Reply Decl. Ex. 3 [Posner Summ. J. Order] at 4 (emphasis added). Judge Posner specifically "rejected Apple's argument that the terms ['server' and 'client'] describe separate machines," clarifying that "'server' and 'client' denote pieces of code in a computer." *Id.* To the extent that there may be relevant code intertwined with the client applications, Dr. Mowry explains that in any client-server relationship, there must be code in the

client that calls to the server. This "glue code," however, simply allows the communication between the client and the server. Mowry Reply Decl. ¶¶ 67-70. The Court agrees that the presence of this "glue code" does not remove the accused device from the scope of the '647 Patent. *Cf.* Mowry Reply Decl. Ex. 3 at 4-5 (rejecting a similar non-infringement argument made by Motorola upon finding evidence that "much [of the code] appears separate from and reused across the client applications"). Accordingly, even under Samsung's proposed construction, the Ice Cream Sandwich browser on the Galaxy Nexus contains an "analyzer server."

(b) "linking actions to the detected structures"

Samsung also argues that the Galaxy Nexus lacks an analyzer server that "link[s] actions to the detected structures." '647 Patent 7:16-17. For purposes of this motion, the Court has adopted Samsung's proposed construction of this term, which requires "creating a specified connection between each detected structure and at least one computer subroutine that causes the CPU to perform a sequence of operations on the detected structure." The central dispute here is over whether the claim term requires that the "specified connection" be accomplished through "pointers." A pointer is a type of data that "points to" another value stored elsewhere in the computer memory using its address. Linking through pointers means storing the memory address of the code that performs the action relevant to the detected structure. *See* Cohen '647 Decl. ¶ 242. Samsung asserts the Galaxy Nexus does not infringe the '647 patent because the Ice Cream Sandwich Browser does not create pointers to any particular actions when it detects a structure. Opp'n at 8; *see* Clark Decl. ¶¶ 6-17. Instead, when a structure is detected, the Browser merely identifies it and enables it to be selected by the user. Opp'n at 8. That is, at the time of structure detection, no pointers to specific subroutines are created, and therefore, Samsung argues, no "linking" is performed.

The Court is not persuaded. While it is clear that linking for purposes of the '647 Patent *may* be accomplished by pointers, the Court finds nothing in the '647 Patent that *requires* the use of pointers. In construing "linking . . ." to require the creation of a "specified connection," Judge Posner looked to the specification, which states that "upon detection of a structure, analyzer server links actions associated with the responsible pattern to the detected structure, using conventional

pointers." Cohen '647 Decl. Ex. K at 10; '647 Patent 3:65-67. Nevertheless, the claim language itself does not require linking actions to structures through pointers. Experts for both Samsung and Apple agree that a "specified connection" may be formed by some mechanism other than pointers. *See* Mowry Reply Decl. ¶¶ 77-110; *id.* Ex. 10 [Cohen Dep.] at 140:17-142:9 (explaining that, while a conventional pointer is "a very strong example of a specified connection," he could not say that a specified connection is "restricted to conventional pointers"). As the parties well know, it would be improper to import limitations from the specification into the claim. *See Trading Techs.*, 595 F.3d at 1352 (citing *Abbott Labs. v. Sandoz, Inc.* ("*Sandoz*"), 566 F.3d 1282, 1288 (Fed. Cir. 2009)). Accordingly, the Court concludes that the disclosure of linking through conventional pointers in the specification's description of the preferred embodiment does not limit the broader claim language. *See Liebel-Flarsheim*, 358 F.3d at 905.

The Court finds that the Ice Cream Sandwich Browser does create a uniquely defined association between the detected structure and one or more actions, and thus satisfies the "linking" limitation. That a "specified connection" is formed is clear from the functionality of the Galaxy Nexus itself: clicking on a detected structure presents the user with a menu of options, any of which, if clicked on by the user, will perform the specified action. Accordingly, even under Samsung's proposed construction of "linking," Apple has shown a likelihood of establishing at trial by a preponderance of the evidence that the Ice Cream Sandwich Browser on Galaxy Nexus phones infringes claims 1 and 8 of the '647 Patent.

b. Invalidity Due to Anticipation

As explained above, a claim is anticipated under 35 U.S.C. § 102, and thus invalid, "if each and every limitation is found either expressly or inherently in a single prior art reference." *Bristol-Myers Squibb*, 246 F.3d at 1374 (internal quotation marks and citation omitted). To anticipate, the prior art reference must also "enable one of ordinary skill in the art to make the invention without undue experimentation." *Bard Peripheral Vascular*, 670 F.3d at 1184 (citation omitted). Samsung argues that claims 1 and 8 of the '647 Patent are invalid as anticipated by three different prior art references: (1) the Newton Programmer's Guide, published no later than 1994; (2) the Sidekick,

sold in the United States beginning in 1983; and (3) Pandit, a U.S. Patent titled "Recognition of and Operation of Text Data." The Court considers each reference in turn.

i. Newton Programmer's Guide

Newton devices were handheld products designed by Apple to operate as personal digital assistants ("PDAs"), and the *Newton Programmer's Guide* was published no later than 1994. *See* Cohen '647 Decl. ¶¶ 135-36 & Ex. PP [Newton Programmer's Guide]. The *Newton Programmer's Guide* discloses an Intelligent Assistant system service "that attempts to complete actions for the user according to deductions it makes about the task that the user is currently performing." Cohen '647 Decl. Ex. PP at 1-9. For example, when a user entered "Call Bob" and then pressed the Assist button, Newton detected and parsed that phrase, and the Intelligent Assistant presented a menu of actions that included the option to dial a phone number associated with "Bob." Cohen '647 Decl. ¶ 144; Mowry Reply Decl. ¶ 154. If a user typed a phone number and then pressed an Assist button, the Intelligent Assistant would present a menu of options, including "call" or "fax." Cohen '647 Decl. ¶ 146.

Samsung asserts that the *Newton Programmer's Guide* discloses every limitation of claims 1 and 8 of the '647 Patent. *See* Cohen '647 Decl. ¶¶ 135-54. However, Apple's expert proffers a different opinion, explaining that the *Newton Programmer's Guide* fails to anticipate claims 1 and 8 of the '647 Patent at least because the *Newton Programmer's Guide* does not disclose "a user interface *enabling selection of a detected structure* and a linked action." '647 Patent 7:18-19 (emphasis added); *see* Mowry Reply Decl. ¶¶ 161-62. Samsung's expert contends that the *Newton Programmer's Guide* discloses a user interface enabling the selection of a detected structure and a linked action because pressing the "Assist" button causes the Assistant to resolve the phrase entered by the user, resulting in an action. Cohen '647 Decl. ¶ 151. The Court, however, is more persuaded by Apple's expert's explanation that the Assistant does not allow the user to "select" a detected structure. *Cf. Celsis In Vitro, Inc. v. CellzDirect, Inc.*, 664 F.3d 922, 929 (Fed. Cir. 2012) (district courts have "wide discretion to weigh expert credibility"); *Conoco, Inc. v. Energy & Envtl. Int'l, L.C.*, 460 F.3d 1349, 1362-63 (Fed. Cir. 2006) ("As for the relative weight given to the testimony of both sides' expert witnesses, we accord the trial court broad discretion in determining

credibility . . . ."). Rather than allow a user to select a detected structure, the Newton recognizes commands typed into a text box, such as "Call Bob," and when the user presses the Assist button, the Newton then allows the user to select the linked action. In other words, the user must press the Assist button to tell the device to detect the structure; the structure is not already detected at the time the user selects it. *See* Mowry Reply Decl. ¶¶ 161-62. Accordingly, it appears that Newton does not disclose every limitation of claims 1 and 8 of the '647 Patent and is not anticipatory. The Court therefore finds that Apple has shown it is likely to withstand a validity challenge based on the Newton reference.

ii. Sidekick

Sidekick was a software utility sold in the United States by Borland International beginning in 1983. *See* Cohen '647 Decl. ¶ 118 & Ex. GG [Sidekick]. Sidekick's Dialer feature detected phone numbers in computer data and linked those numbers to a subroutine that allowed the user to select the number and dial it using a modem. *See id.* ¶¶ 127-28. Samsung argues that Sidekick discloses every limitation of claims 1 and 8 of the '647 Patent. *See id.* ¶¶ 118-34.

Apple replies that Sidekick fails to disclose, in particular, the limitation "linking actions to detected structures." Mowry Reply Decl. ¶¶ 118-145. The Court agrees with Apple. Both Judge Posner and the ITC correctly recognized that the "linking" limitation refers to plural "actions" and plural "structures." *Id.* ¶¶ 133-35; *see* Cohen '647 Decl. Ex. K at 10-11 ("[T]he ability to link a structure to a single action still comports with the patent's plural reference, so long as other structures are linked to other actions. An analyzer that links dates to the calendar and phone numbers to the phone book still 'links structures to actions.'"). Sidekick only discloses detecting one type of data structure – phone numbers – and only discloses linking these phone numbers to one action – dialing. Mowry Reply Decl. ¶¶ 131-35, 141; *see generally* Cohen '647 Decl. Ex. GG. Because the Sidekick Dialer appears to identify only a single type of structure and allows only a single operation to be performed on that structure, it does not disclose linking plural actions to plural structures. Accordingly, the Court finds that the Sidekick does not disclose every limitation of claims 1 and 8 of the '647 Patent and therefore is not anticipatory.

iii. Pandit

U.S. Patent No. 5,859,636 to Pandit ("Pandit") was issued on January 12, 1999, based on an application filed December 27, 1995. Pandit discloses a system for recognizing a predetermined class of text, such as a telephone number, fax number, or date, in a document, and then selecting and running operations relevant to that class of text. Cohen '647 Decl. ¶ 205 & Ex. QQ [Pandit]. Samsung argues that Pandit discloses every limitation of claims 1 and 8 of the '647 Patent. Cohen '647 Decl. ¶¶ 200-21.

Pandit was considered both by the ITC and by the PTO during reexamination of the '647 Patent. Mowry Reply Decl. ¶ 25. Although the PTO initially found claims 1 and 8 anticipated by Pandit during reexamination of the '647 Patent,[4] it later allowed claims 1 and 8 after the applicants submitted a declaration pursuant to 37 C.F.R. § 1.131 to swear behind the Pandit reference as § 102(a) prior art. *See* Cohen '647 Decl. Ex. M ['647 Patent Reexamination] at 5-6; *see also* 37 C.F.R. § 1.131.[5] The examiner reviewed Apple's § 1.131 declaration and found that the attached exhibits of screen shots and email messages representing a working exhibit of the invention sufficiently supported an earlier date of reduction to practice of the invention that predated Pandit, thus disqualifying the Pandit reference as prior art. *See* Mowry Reply Decl. ¶¶ 202-03 & Ex. 4; *id.* Ex. 5 at 5-6.

Samsung has submitted no evidence that the applicant's § 1.131 declaration was fraudulent or otherwise invalid. The Court therefore credits the patent holder's sworn declaration that the inventors of the '647 Patent conceived and reduced to practice the claimed invention before the

[4] On December 10, 2010, the PTO ordered *ex parte* reexamination for all claims of the '647 Patent, and issued a non-final Office Action rejecting all claims of the '647 Patent as anticipated by U.S. Patent No. 5,859,636 ("Pandit" or "the '636 patent"). The '636 Patent issued to Milind S. Pandit on January 12, 1999 from an application filed on December 27, 1995. *See* Mowry Reply Decl. Ex. 4 at 1-2.

[5] Pursuant to 37 C.F.R. § 1.131, when any claim of an application or a patent under reexamination is rejected, the inventor or owner may submit "an appropriate oath or declaration to establish invention of the subject matter of the rejected claim prior to the effective date of the reference or activity on which the rejection is based." 37 C.F.R. § 1.131(a) (2012). The regulations require that "[t]he showing of facts shall be such, in character and weight, as to establish reduction to practice prior to the effective date of the reference, or conception of the invention prior to the effective date of the reference coupled with due diligence from prior to said date to a subsequent reduction to practice or to the filing of the application." 37 C.F.R. § 1.131(b) (2012).

Pandit's priority date. Accordingly, the Court finds that Pandit does not qualify as a prior art reference and therefore cannot anticipate the '647 Patent.

c. Invalidity Due to Obviousness

Finally, to the extent Newton, Sidekick, and Pandit do not anticipate claims 1 and 8 of the '647 Patent, Samsung argues that these prior art references render claims 1 and 8 of the '647 obvious and thus invalid. Opp'n at 6. As previously stated, a patent may be invalid for obviousness "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103(a). The Court should take into account "secondary considerations" such as "commercial success, long felt but unsolved needs, [and] failure of others" in order to determine whether the subject matter sought to be patented would have been obvious to one of ordinary skill in the art at the time of the invention. *KSR*, 550 U.S. at 406; *see Sud-Chemie, Inc. v. Multisort Techs., Inc.*, 554 F.3d 1001, 1008 (Fed. Cir. 2009).

Samsung argues that, to the extent Sidekick fails to anticipate because it discloses linking only a single action to a single detected structure, rather than linking plural actions to plural structures, "it would have been obvious to a person of ordinary skill in 1996 to detect additional types of structures and/or to link multiple actions to the detected structures." Cohen '647 Decl. ¶ 129. Dr. Cohen's bare assertion that it would have been obvious to one of ordinary skill in the art does not adequately explain *why* it would have been an obvious improvement over the prior art, nor does Dr. Cohen discuss any relevant secondary obviousness considerations. Dr. Cohen's uncorroborated opinion is countered by Dr. Mowry's opinion that it would not have been obvious to one of ordinary skill in the art at the time to provide a system detecting multiple structures and furthermore linking multiple candidate actions to each detected structure. Mowry Reply Decl. ¶ 137. The Court finds that Dr. Mowry's opinion is supported by the fact that the '647 Patent inventors specifically highlighted prior art references similar to Sidekick as prior art which the patent overcame. *See* '647 Patent 1:52-65 (describing a system that is only able to detect telephone numbers and only able to allow dialing of those numbers); Mowry Reply Decl. ¶ 138. In light of

the burdens that would inhere at trial, the Court finds that Samsung has failed to raise a substantial question of invalidity based on the Sidekick reference.

Finally, Samsung asserts that even if Pandit does not qualify as prior art, "[a]t a minimum, Pandit is evidence of simultaneous invention that further supports its invalidity of the asserted claims." Opp'n at 7-8 (citing *Geo. M. Martin Co. v. Alliance Mach. Sys. Int'l, LLC*, 634 F. Supp. 2d 1024, 1036 (N.D. Cal. 2008), *aff'd*, 618 F.3d 1294 (Fed. Cir. 2010)). Pandit was filed on December 27, 1995, only five weeks before the '647 Patent. Mowry Reply Decl. ¶ 201. Samsung is correct that secondary considerations of non-obviousness must be considered when present, and that "[i]n some rare instances, the secondary consideration of simultaneous invention might also supply 'indicia of obviousness.'" *Geo. M. Martin*, 618 F.3d at 1304 (internal quotation marks and citations omitted). Evidence of "simultaneous inventions, made 'within a comparatively short space of time,' are persuasive evidence that the claimed apparatus 'was the product only of ordinary mechanical or engineering skill.'" *Geo. M. Martin*, 618 F.3d at 1305 (quoting *Concrete Appliances Co. v. Gomery*, 269 U.S. 177, 184 (1925)); *but see Lindemann Maschinenfabrik GMBH v. Am. Hoist & Derrick Co.*, 730 F.2d 1452, 1460 (Fed. Cir. 1984) ("Because the statute, 35 U.S.C. § 135, (establishing and governing interference practice) recognizes the possibility of near simultaneous invention by two or more equally talented inventors working independently, that occurrence may or may not be an indication of obviousness when considered in light of all the circumstances.").

However, Samsung here proffers no evidence of any secondary considerations other than the Pandit reference itself and the other alleged anticipatory references, which the Court has already discussed above. In *Geo M. Martin*, the Federal Circuit affirmed the trial court's obviousness analysis, notwithstanding the patent owner's swearing behind a concurrent invention, the Tecasa machine. In doing so, however, the Federal Circuit emphasized that the evidence of a near-simultaneous invention was coupled with "strong evidence of obviousness based on [other references]," and observed that the patent holder's swearing behind argument would have been more persuasive had the Tecasa machine "provided the only evidence of simultaneous invention." 618 F.3d at 1305-06. Here, as discussed, Samsung has not made a strong showing of obviousness

based on other references, and thus the Court is not persuaded that the simultaneity of the Pandit invention alone is sufficient to overcome the strong presumption of the '647 Patent's validity.

In sum, Apple has shown a likelihood of establishing both infringement and validity. Accordingly, Apple has shown a likelihood of success on the merits of its '647 Patent claim.

3. U.S. Patent No. 8,046,721 (Slide to Unlock)

U.S. Patent No. 8,046,721 ("the '721 Patent"), entitled "Unlocking A Device By Performing Gestures on an Unlock Image," was filed on June 2, 2009, and issued to Apple on October 25, 2011, as a continuation of a prior application filed on December 23, 2005, now U.S. Patent No. 7,657,849. The '721 Patent discloses an invention that allows a user to unlock a portable electronic device by using a predetermined gesture on a touch sensitive screen. *See generally* '721 Patent, col. 1. The '721 Patent was aimed at addressing a problem in portable devices that employ touch screens, namely "the unintentional activation or deactivation of functions due to unintentional contact with the touch screen." '721 Patent 1:38-40. Prior art disclosed several unlocking procedures, including "pressing a predefined set of buttons (simultaneously or sequentially) or entering a code or password." *Id*. at 1:47-50. In contrast, the '721 Patent disclosed "[t]he performance of the predefined gesture with respect to the unlock image [which] may include moving the unlock image to a predefined location and/or moving the unlock image along a predefined path." '721 Patent Abstract.

Apple claims that the Galaxy Nexus infringes upon two independent claims and two dependent claims of the '721 Patent. *See* Mot. at 14. Specifically, Apple claims that the Galaxy Nexus infringes on independent claim 7, dependent claim 8 (which depends from claim 7), independent claim 12, and dependent claim 15 (which depends from claim 12). Claims 7 and 8 recite the following:

> 7. A portable electronic device, comprising:
> a touch-sensitive display;
> memory;
> one or more processors; and
> one or more modules stored in the memory and configured for execution by the one or more processors, the one or more modules including instructions:

to detect a contact with the touch-sensitive display at a first predefined location corresponding to an unlock image;
to continuously move the unlock image on the touch-sensitive display in accordance with movement of the detected contact while continuous contact with the touch-sensitive display is maintained, wherein the unlock image is a graphical, interactive user-interface object with which a user interacts in order to unlock the device; and
to unlock the hand-held electronic device if the unlock image is moved from the first predefined location on the touch screen to a predefined unlock region on the touch-sensitive display.

8. The device of claim 7, further comprising instructions to display visual cues to communicate a direction of movement of the unlock image required to unlock the device.

'721 Patent 19:50-20:12. Claims 12 and 15 recite the following:

12. A computer readable storage medium storing one or more programs, the one or more programs comprising instructions, which when executed by a portable electronic device with a touch-sensitive display, cause the portable electronic device to perform a method comprising:
detecting a contact with the touch-sensitive display at a first predefined location corresponding to an unlock image;
continuously moving the unlock image on the touch-sensitive display in accordance with movement of the contact while continuous contact with the touch screen is maintained, wherein the unlock image is a graphical, interactive user-interface object with which a user interacts in order to unlock the device; and
unlocking the hand-held electronic device if the [sic] moving the unlock image on the touch-sensitive display results in movement of the unlock image from the first predefined location to a predefined unlock region on the touch-sensitive display.

15. The computer readable storage medium of claim 12, wherein the unlock image is a single image.

'721 Patent 20:36-53; *id.* at 20:58-59.

a. Infringement

Apple alleges that the unlock feature on the Galaxy Nexus infringes claims 7, 8, 12, and 15 of the '721 Patent. For a patentee to establish that it is likely to succeed on the merits, it "must demonstrate that it will likely prove infringement of one or more claims of the patents-in-suit, and that at least one of those same allegedly infringed claims will also likely withstand the validity challenges presented by the accused infringer." *AstraZeneca*, 633 F.3d at 1050 (citation omitted).

The infringement inquiry requires a two-step process: first the patented invention as defined by the claim language must be construed, and second, it must be determined whether the claims cover the accused device. *See Becton Dickinson & Co. v. C.R. Bard, Inc.*, 922 F.2d 792 (Fed. Cir. 1990). To establish infringement, Apple must show that every limitation set forth in a claim is found in the accused product. *Laitram*, 939 F.2d at 1535.

Apple provides the Declaration of Dr. Ravin Balakrishnan filed in support of Apple's motion for a preliminary injunction, a claim chart filed in support of the preliminary injunction motion, relevant portions of the Galaxy Nexus user guide, and the accused device itself, to establish that the Galaxy Nexus's unlock feature likely infringes the '721 Patent. *See* Decl. of Dr. Ravin Balakrishnan ("Balakrishnan Decl.") ¶¶ 53-96; *id.* Exs. 3-5. It appears that the Galaxy Nexus contains an unlock feature in which the user makes contact with an unlock image on the screen, which is a circle with a padlock in the center. When the user makes contact with the image, the circle enlarges and the padlock disappears. The user then moves the unlock image across the touch sensitive display from the first region to another region of the display. The device is unlocked when the circle is moved to the unlock region.

In support of its contention that the Galaxy Nexus does not infringe the '721 Patent, Samsung makes two arguments: (1) the asserted claims require a single unlock image, while the accused device displays two consecutive yet distinct unlock images; and (2) the asserted claims require continuous movement of the unlock image, but the unlock image on the accused device does not necessarily have continuous movement.

Unlock Image. Samsung's first argument turns on a claim construction argument. Samsung argues that the term "the unlock image" in both asserted independent claims must refer only to the same single "unlock image." The Galaxy Nexus, in contrast, has two unlock images: the first image is a circle with a padlock in the center, and the second image is an empty circle. Samsung argues that "the image at the original location [(the circled padlock)] is replaced with a new image [(an empty circle)] at the location of the contact," and therefore, the Galaxy Nexus does not infringe on the '721 Patent. Decl. of Dr. Geoff Cohen Re: '721 Patent ("Cohen '721 Decl.") ¶¶ 83-84; *see* Opp'n at 16.

In construing disputed terms, the court looks first to the claims themselves, for "[i]t is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips*, 415 F.3d at 1312 (quoting *Innova/Pure Water*, 381 F.3d at 1115). Generally, the words of a claim should be given their "ordinary and customary meaning," which is "the meaning that the term[s] would have to a person of ordinary skill in the art in question at the time of the invention." *Id.* at 1312-13.

First, Samsung argues that independent claims 7 and 12 refer first to "*an* unlock image" and then refer to "*the* unlock image." Thus, Samsung argues that the claim language itself implies only a single unlock image may appear on the screen. While there may be some intuitive appeal to Samsung's argument, this argument is undercut by the fact that disputed dependent claim 15 requires that the "unlock image" is a "single image." '721 Patent 20:58-59. Under the claim differentiation doctrine, there is a presumption that dependent claims are narrower than the independent claims from which they depend. *See Phillips*, 415 F.3d at 1314-15. Thus, Samsung's argument regarding the implicit meaning of the disputed claim term is undermined by the explicit language used in dependent claim 15.

Apple's argument that "unlock image" may refer to more than one image is also supported by the specification. *See id*. at 1315 (quoting *Vitronics*, 90 F.3d at 1582 (the specification is "'always highly relevant'" and "'[u]sually [] dispositive; it is the single best guide to the meaning of a disputed term'"). As Dr. Balakrishnan points out, Figures 11A-E demonstrate "an unlock gesture corresponding to *one of a plurality of unlock images*, according to some embodiments of the invention." '721 Patent 18:20-23 (emphasis added). As a general rule, "there is a strong presumption against a claim construction that excludes a disclosed embodiment." *See In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1324 (Fed. Cir. 2011). Thus, the specification further supports Apple's view.

Samsung points to an interview summary in the prosecution history in which the applicant "suggested to modify the claim language of the unlock image to further clarify that the unlock image is singular and not multiple images." *See* Cohen '721 Decl. Ex. C. While Samsung is correct that the prosecution history is always relevant to claim construction and "can often inform

the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of the prosecution," in this case, the prosecution history identified by Samsung does not require Samsung's proposed construction of the disputed term. It appears that the limitation of the single image applies only to dependent claims 13-15. *See* Reply Decl. of Dr. Ravin Balakrishnan ("Balakrishnan Reply Decl.") ¶¶ 44-45 & Ex. 4. Accordingly, the term "unlock image" should not be construed as referring to only a single image, as Samsung argues.

Moreover, even if "unlock image" can only be a single image, the Galaxy Nexus still likely infringes the '721 Patent. According to the specification, the unlock image can change form as the user interacts with the touchscreen: the unlock image can become animated or disappear as the user interacts with the device. Balakrishnan Reply Decl. ¶ 13; '721 Patent 12:40-47. Thus, the fact that the unlock image on the Galaxy Nexus changes form as the user interacts with it to unlock the device is not inconsistent with the limitations of claims 7 and 12, even assuming that the claims require a single image.

Continuous Movement. Both independent claims 7 and 12 require that the unlock image continuously move in accordance with movement of the detected contact. For example, claim 7 requires that the unlock image "continuously move . . . on the touch-sensitive display in accordance with movement of the detected contact while continuous contact with the touch-sensitive display is maintained." *See e.g.*, '721 Patent 19:59-20:2. Samsung argues that "the accused unlock image on the Galaxy Nexus does not move 'continuously'" because the image "will follow the user's finger only to a point, but then jump to the unlock region." Opp'n at 16. Moreover, "the image will follow the user's finger only within a certain bounded area of the touch screen," but will not follow the user's movement beyond this bounded area of the touch screen. *Id.*

It appears that Samsung is attempting to add additional limitations to the claim language. The claims only require that the unlock image move "continuously" on the touch sensitive display in accordance with movement of the detected contact while continuous contact with the touch-sensitive display is maintained. That the Galaxy Nexus contains additional elements – including a bounded region beyond which the unlock image does not go and a re-centering feature that allows

the circle to be re-centered around the unlocked padlock after the unlock image reaches the "predefined unlock region on the touch-sensitive display" – does not allow the Galaxy Nexus slide to unlock feature to avoid infringement of the '721 Patent.

After reviewing the '721 Patent, the declarations in support of the parties' moving, opposition, and reply papers, and the accused device itself, the Court finds that Apple has established that it is likely to succeed at trial in establishing that the Galaxy Nexus infringes the '721 Patent.

b. Validity

Pursuant to 35 U.S.C. § 282, the '721 Patent is presumed valid. Samsung challenges the validity of the '721 Patent based on anticipation, obviousness, and indefiniteness of the claimed invention. *See* 35 U.S.C. §§ 102 (anticipation), 103 (obviousness). Samsung argues that the Plaisant video and accompanying papers anticipate all asserted claims. Alternatively, Samsung argues that the NeoNode prior art reference, either alone or in combination with the Plaisant reference, renders the claimed invention obvious. Finally, Samsung argues that all asserted claims are invalid because they are fatally indefinite. Each of Samsung's arguments is addressed in turn.

i. Anticipation

The Plaisant reference, which Samsung argues anticipates the '721 Patent, is a paper and video demonstration showing the work done by Catherine Plaisant of Human-Computer Interaction Lab at the University of Maryland. Dr. Plaisant's research focused on touch screen toggle switches as user interface control mechanisms. *See* Decl. of Dr. Catherine Plaisant ("Plaisant Decl.") ¶¶ 7-9. Dr. Plaisant's work was published in a paper in 1990, and the video showing various touch screen toggle switches was shown, and VHS copies were distributed, at the Human-Computer Interaction Lab 1991 annual symposium. *Id.* The video was shown again at the ACM SIGCHI conference in May 1992, and was available after the conference through the ACM website. *Id.* ¶¶ 10-13. Dr. Plaisant estimated that the number of attendees at the conference was probably more than 1,000. *Id.* ¶ 11.

As an initial matter, the Court finds that Samsung has established that the Plaisant paper and the accompanying video that was shown and distributed at the two conferences constitute prior

art for the purposes of 35 U.S.C. § 102. Public accessibility is the touchstone in determining whether a reference constitutes a 'printed publication' bar under 35 U.S.C. § 102. *See In re Hall*, 781 F.2d 897, 899 (Fed. Cir. 1986). "[T]he question to be resolved in a 'printed publication' inquiry is the extent of the reference's 'accessibility to at least the pertinent part of the public, of a perceptible description of the invention, in whatever form it may have been recorded.'" *In re Klopfenstein*, 380 F.3d 1345, 1348 n.2 (Fed. Cir. 2004) (citing *In re Wyer*, 655 F.2d 221, 226 (C.C.P.A. 1981)).

In this case, Dr. Plaisant disseminated her paper (which was before the patent examiner), as well as the corresponding video, at two conferences, one of which was attended by approximately 100 participants, and the second of which was attended by approximately 1,000 participants. Copies of the video were given to participants at the first conference, and were available for distribution at the second conference. Moreover, it appears that the video demonstrates the same content as the Plaisant paper. *Compare* Plaisant Decl. Ex. E *with* Ex. D. Based on the circumstances surrounding the video's disclosure to members of the public, there was sufficient public accessibility and dissemination to conclude that the Plaisant video and paper are "prior art."

The Plaisant reference discloses the use "of various touchscreen devices to control any device in the home, from lights, climate control, and door locks, to televisions, and A/V equipment." Plaisant Decl. ¶ 15. The Plaisant reference discloses various touchscreen toggle switches that allow the user to control two-state devices. "The user interfaces, ranging from button type toggles to sliding toggles," are described in the paper and the video. *See id.* Ex. D, Abstract. Indeed, the Plaisant reference discloses both a slider toggle and a rocker toggle which allow the user to change the state of something by using a sliding movement across a touch screen display. For example:

> In this toggle a sliding/dragging movement is required to change the position of the yellow pointer from one side of the toggle to the other. A simple three step animation shows the movement of the pointer along the slide. If the device is ON the pointer is on the ON side. Users can then grab the pointer and slide it to the other side. If the finger is released before reaching the other side the pointer springs back to its previous position. A click is heard when the state changes (high pitch for ON, low pitch for OFF).

Plaisant Decl. Ex. D at 5.

The Court agrees with Samsung that the Plaisant reference discloses some of the limitations of the asserted claims. For example, the Plaisant reference discloses: (1) detecting a contact with the touch-sensitive display at a first predefined location; and (2) continuously moving the image on the touch-sensitive display in accordance with movement of the contact while continuous contact with the touch screen is maintained.

However, the Plaisant reference does not disclose various limitations required in independent claims 7 and 12 of the '721 Patent. Apple has identified several ways in which the Plaisant reference departs from the '721 Patent. Specifically, the Plaisant reference does not disclose: (1) a touchscreen on a "hand-held electronic device," or (2) that the "unlock image" is "a graphical, interactive user-interface object with which a user interacts *in order to unlock the device*." *See* '721 Patent 19:50, 20:3-6, 20:46-50 (emphasis added); *see also* Reply at 6. Accordingly, because the Plaisant reference does not disclose every limitation of the asserted claims, the Plaisant reference does not anticipate the '721 Patent.

ii. Obviousness

As explained above, a patent may be invalid for obviousness. "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." *KSR*, 550 U.S. at 406 (citing *Graham*, 383 U.S. at 17-18). The Court should also take into account "secondary considerations" such as "commercial success, long felt but unsolved needs, [and] failure of others" in order to determine whether the subject matter sought to be patented would have been obvious to one of ordinary skill in the art at the time of the invention. *Id.*

Samsung argues that NeoNode, either alone or in combination with the Plaisant reference, renders the '721 Patent invalid based on obviousness. *See* Opp'n at 14. NeoNode N1 and N1m were mobile phones with touchscreens that were released at some point in the 2004-2005 time period. Cohen '721 Decl. ¶ 138. As an initial matter, the Court must determine whether NeoNode is a proper prior art reference pursuant to 35 U.S.C. § 102. At the hearing, Apple clarified its position that NeoNode is not a "prior art" reference because Samsung has not provided sufficient

evidence that the NeoNode meets any of the requirements under 35 U.S.C. § 102. *See* 35 U.S.C. §102(a); Reply at 6; Balakrishnan Reply Decl. ¶ 101.

At trial, Samsung will bear the burden of establishing that NeoNode meets the requirements of one of the subsections of 35 U.S.C. § 102 by the priority date of December 2005. *Allied Colloids Inc. v. Am. Cyanamid Co.*, 64 F.3d 1570, 1574 (Fed. Cir. 1995); *see also* 35 U.S.C. § 102(a) ("the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent"); 35 U.S.C. § 102(b) ("the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States,"); 35 U.S.C. § 102(g)(2) ("before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it").

While the Court agrees that the videos and documents provided by Samsung establish that NeoNode discloses several of the claimed limitations of the '721 Patent, Apple is correct that the documentary evidence provided by Samsung does not establish that NeoNode is a proper prior art reference in the first instance. Samsung has only established that "NeoNode N1 and N1m were touch screen mobile devices released in 2004 and 2005." Opp'n at 14 (citing Cohen '721 Decl. ¶ 138). Although there is some evidence that NeoNode was offered for sale in Sweden around the relevant time period, Samsung has not provided evidence that NeoNode was "known or used by others in this country," "patented or described in a printed publication in a foreign country," "on sale in this country," or "made in this country by another inventor" before December 2005. At the hearing, when pressed on whether NeoNode was actually available in the United States, Samsung conceded, "quite frankly, we're – you know, we haven't uncovered a specific sale. We know that it was available for sale. We know it could be imported. I don't think we know where." Tr. at 52. Attorney argument aside, Samsung has not met its burden of establishing that it is likely to prove that the NeoNode is a prior art reference by clear and convincing evidence.

Because the Court cannot conclude, based on the evidence before it, that NeoNode is a prior art reference, the Court may only look to the Plaisant reference to determine whether the

claimed subject matter was obvious in light of prior art. Samsung's expert opines that "[e]ven if Plaisant is found to not explicitly anticipate this claim element, it would have been obvious to combine Plaisant with a handheld device as an unlocking mechanism." Cohen '721 Decl. ¶ 136. However, Samsung's expert fails to explain why such a combination would have been obvious. The Plaisant reference was a terminal from which large devices such as heaters and home security systems were connected and controlled. Balakrishnan Reply Decl. ¶ 76. Samsung has not provided sufficient evidence that a person of ordinary skill in the art at the time would have applied the sliding toggles found in Plaisant to a handheld device such as a cell phone. For example, one of the main problems that the '721 Patent sought to address was the inadvertent unlocking of a portable electronic device. '721 Patent 1:46-67. It is not clear that it would have been obvious to someone of ordinary skill in the art to apply Plaisant to solve the unique problems of handheld devices such as cell phones.

Accordingly, Apple has established that it is likely to withstand Samsung's obviousness challenge to the validity of the '721 Patent based on the Plaisant reference.

iii. Indefiniteness

Samsung also argues that the asserted claims in the '721 Patent are invalid because they are fatally indefinite.[6] 35 U.S.C. § 112 requires that the "claims [of a patent] 'particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention." "The statutory requirement of particularity and distinctness in claims is met only when [the claims] clearly distinguish what is claimed from what went before in the art and clearly circumscribe what is foreclosed from future enterprise." *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 236 (1942). Only claims "'not amenable to construction or 'insolubly ambiguous' are indefinite." *Datamize LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347 (Fed. Cir. 2005) (citing *Novo Indus., L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1353 (Fed. Cir. 2003)). "Thus, the definiteness of claim terms depends on whether those terms can be given any reasonable meaning." *Id.*

[6] At the hearing, Samsung clarified that it had withdrawn its argument that claims 12 and 15 are invalid because they are mixed hybrid and apparatus claims. *See* Tr. at 57. Accordingly, the Court will not address this argument.

Samsung argues that the term "unlock the device" is fatally indefinite. Opp'n at 15. However, the specification provides a definition that establishes when a device is "locked" and when it is "unlocked:"

> In the user-interface lock state (hereinafter the 'lock state'), the device is powered on and operational but ignores most, if not all, user input. That is, the device takes no action in response to user input and/or the device is prevented from performing a predefined set of operations in response to the user input. . . .
> In the user-interface unlock state (hereinafter the 'unlock state'), the device is in its normal operating state, detecting and responding to user input corresponding to interaction with the user interface. . . . An unlocked device detects and responds to user input for navigating between user interfaces, entry of data and activation or deactivation of functions.

'721 Patent 7:64-8:45. The specification, therefore, provides guidance as to what it means when the device is "locked." According to the specification, when the device is locked it is "powered on and operational but ignores most, if not all, user input." The specification further describes what "most, if not all, user input" means. According to the specification, "the locked device responds to user input corresponding to attempts to transition the device to the user-interface unlock state or powering the device off, but does not respond to user input corresponding to attempts to navigate between user interfaces." *Id.* at 8:12-17. While discerning whether a device is in a "locked" or "unlocked" state may be difficult in certain circumstances, it can hardly be said that the term meets the standard of indefiniteness such that it is "insolubly ambiguous" or "not amenable to construction." The Court therefore does not find that the claim term is fatally indefinite.

Accordingly, Apple has met its burden of establishing that the '721 Patent is likely infringed by the Galaxy Nexus, and that the '721 Patent will likely withstand a validity challenge at trial.

4. U.S. Patent No. 8,074,172 (Word Recommendations)

U.S. Patent 8,074,172 (the "'172 Patent"), entitled "Method, System, and Graphical User Interface For Providing Word Recommendations," was filed on January 5, 2007, and issued on December 6, 2011. The '172 Patent discloses an invention that provides word recommendations for users inputting text into a portable communication device, and allows the user to select the word recommendations suggested. *See generally* '172 Patent Abstract. The '172 Patent was aimed

at addressing a problem encountered in portable communication devices when users attempt to communicate by text, such as by email or short message service. Because portable communication devices restrict the size of the keyboard, users may make more mistakes when inputting text. "This makes the process of inputting text on the devices inefficient and reduces user satisfaction with such portable devices." '172 Patent 1:33-35.

Apple claims that the Galaxy Nexus infringes upon three independent claims of the '172 Patent. Mot. at 14-15. Specifically, Apple claims that the Galaxy Nexus infringes independent claims 18, 19, and 27. The claims are recited below:

> 18. A graphical user interface on a portable electronic device with a keyboard and a touch screen display, comprising:
>
> a first area of the touch screen display that displays a current character string being input by a user with the keyboard; and
>
> a second area of the touch screen display separate from the first area that displays the current character string or a portion thereof and a suggested replacement character string for the current character string;
>
> wherein;
>
> the current character string in the first area is replaced with the suggested replacement character string if the user activates a key on the keyboard associated with a delimiter;
>
> the current character string in the first area is replaced with the suggested replacement character string if the user performs a gesture on the suggested replacement character string in the second area; and
>
> the current character string in the first area is kept if the user performs a gesture in the second area on the current character string or the portion thereof displayed in the second area.

'172 Patent 12:49-13:4.

> 19. A portable electronic device, comprising:
>
> a touch screen display;
>
> one or more processors;
>
> memory; and
>
> one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, one or more programs including:
>
> instructions for displaying, in a first area of the touch screen display, a current character string being input by a user with the keyboard;
>
> instructions for displaying, in a second area of the touch screen display separate from the first area, the current character string and a suggested replacement character string for the current character string;

instructions for replacing the current character string in the first area with the suggested replacement character string if the user activates a key on the keyboard associated with a delimiter;
instructions for replacing the current character string in the first area with the suggested replacement character string if the user performs a first gesture on the suggested replacement character string displayed in the second area; and
instructions for keeping the current character string in the first area if the user performs a second gesture in the second area on the current character string or the portion thereof displayed in the second area.

'172 Patent 13:5-34.

27. A portable electronic device, comprising:
one or more processors;
a touch screen display; and
computer readable memory comprising instructions that, when executed by the one or more processors, perform operations comprising:
receiving a plurality of user inputs of characters through the keyboard, and displaying a current character string as input by the user,
displaying a suggested replacement character string for the current character string;
while both the current character string and the suggested replacement string are displayed, receiving a further user input through a punctuation mark key of the keyboard, and
in response to the further user input, replacing the current character string with the suggested replacement character string, and appending a punctuation mark at the end of the replacement character string, the punctuation mark corresponding to the punctuation mark key through which the further user input was received.

'172 Patent 14:35-55.

a. Infringement

Apple alleges that the word recommendation feature in the Galaxy Nexus infringes claims 18, 19, and 27 of the '172 Patent. Claims 18 and 19 contain similar limitations: claim 18 is a claim for a graphical user interface on a portable electronic device, while claim 19 is a claim for a portable electronic device. Because the parties analyze claims 18 and 19 together, so too will the Court, before then turning to discuss claim 27.

i. Claims 18 and 19

Apple provides the Declaration of Dr. Karan Singh filed in support of Apple's motion for a preliminary injunction, a claim chart filed in support of the preliminary injunction motion, specifications and reviews of the Galaxy Nexus, and the accused device itself, to establish that the

Galaxy Nexus's word recommendation feature likely infringes the '172 Patent. *See* Decl. of Karan Singh ("Singh Decl.") ¶¶ 56-92 & Exs. 3-6. It appears that the Galaxy Nexus contains a word recommendation feature which practices each of the limitations in claims 18 and 19 of the '172 Patent. The Galaxy Nexus is a portable electronic device with a graphical user interface. *Id*. ¶¶ 57-64, 72-82, 94-106. The user types a message in the text box (first area of the touch screen display). *Id*. ¶¶ 65, 86-87. While typing, in an area above the keyboard which is visually distinct from the first area (second area of the touch screen display), several words are displayed, including the text as typed by the user (current string), as well as recommended words that the user may have intended to type (suggested string). *Id*. ¶¶ 66, 88. The user may either select the current string or the suggested string. The user may replace the current string with the suggested string by pressing the "space" bar on the keyboard. *Id*. ¶¶ 68, 89. The user may also replace the typed text with the suggested string in the first area by touching the suggested string displayed in the second area. *Id*. ¶¶ 69, 90. Alternatively, the user can elect to keep the current character string in the first area by touching the current character string in the second area. *Id*. ¶¶ 70, 91.

Samsung argues that Ice Cream Sandwich does not actually "replace" or keep the current character string in the first area as is required under the limitations in claims 18 and 19. [redacted] Opp'n at 21. The Court disagrees with Samsung's argument. Fundamentally, claims 18 and 19 refer to what the user views on the display screen, rather than the source code implementation of what the user sees. Samsung points to no claim language or specification language that supports its position that the term "replace" requires a type of source code implementation of what the claim language requires from the viewpoint of the user's experience. Indeed, both claims 18 and 19 refer to what is displayed to the user on the screen of the portable electronic device: either the current string is "kept" in the first area, or the recommended word "replaces" the current string in the display area. Accordingly, the Court finds that Apple has established that it is likely to succeed on the merits of its claim that the Galaxy Nexus infringes claims 18 and 19 of the '172 Patent.

ii. Claim 27

Dr. Singh also opines that the Galaxy Nexus's word recommendation feature infringes on claim 27 of the '172 Patent. The Galaxy Nexus's word recommendation feature appears to practice every limitation of claim 27. When the user types in characters through the keyboard, the character string is displayed. Singh Decl. ¶¶ 107-08. The device also displays a suggested word recommendation to replace the character string. *Id*. ¶¶ 109-10. When the user then inputs a punctuation mark through the keyboard, the current character string is replaced with both the suggested replacement word and the punctuation mark that was selected at the end of the suggested word. *Id*. ¶¶ 111-12.

As with claims 18 and 19, Samsung raises a similar argument with respect to noninfringement of claim 27 of the '172 Patent. Specifically, Samsung argues that claim 27 is directed to instructions that perform certain operations, and Dr. Singh, Apple's expert, never reviewed the source code or analyzed the algorithms used in Ice Cream Sandwich. Opp'n at 21. However, claim 27 describes a "computer readable memory comprising instructions that, when executed by one or more processors, perform operations." '172 Patent 14:37-40. The subsequent limitations thereafter refer only to operations that may be viewed from the perspective of the user. Thus, what is claimed, and correspondingly whether infringement occurs, may be evaluated without analysis of the source code. Samsung has offered no other argument in support of its non-infringement position. Accordingly, the Court finds that Apple has met its burden of establishing a likelihood of success on the merits of establishing infringement of claim 27 of the '172 Patent.

b. Validity

Pursuant to 35 U.S.C. § 282, the '172 Patent is presumed valid. Samsung challenges the validity of the '172 Patent based on anticipation and obviousness of the claimed invention. *See* 35 U.S.C. §§ 102 (anticipation), 103 (obviousness). Samsung argues that the Longe and Robinson references and the TextPlus User Guide anticipate all asserted claims. Alternatively, Samsung argues that the TextPlus and King prior art references, either alone or in combination with the other references, render the asserted claims obvious. Finally, Samsung argues that all asserted claims are invalid because they are fatally indefinite. Each of Samsung's arguments is addressed in turn.

i. Anticipation

Longe/Robinson. U.S. Patent Pub. No. 2006/0274051 ("*Longe*") was filed on April 17, 2006. A related patent, U.S. Patent No. 6,801,190 ("*Robinson*"), issued on October 5, 2004. *Longe* and *Robinson* disclose an auto-correction keyboard for devices that provide suggested word replacements as the user types. Although *Longe* and *Robinson* are two separate references, both parties discuss the references jointly, and so the Court will do the same.[7]

Samsung's expert identifies several elements of *Longe/Robinson* that disclose limitations found in claims 18 and 19 of the '172 Patent. Specifically, *Longe* discloses: (1) a first area that displays text being input by the user; and (2) a second area of the display separate from the first area that displays the current character string or a portion thereof and a suggested replacement character string for the current character string. *See* Decl. of Dr. Martin E. Kaliski ("Kaliski Decl.") ¶¶ 115-16. Although Dr. Kaliski, Samsung's expert, argues that *Longe* discloses all of the limitations in claims 18 and 19, after reviewing the declarations and the prior art, it does not appear that Dr. Kaliski's interpretation of *Longe* is accurate. Specifically, it is not clear that *Longe* discloses that the current character string appears in both the first and second areas at the same time as the user is typing on the keyboard. *See, e.g.*, Kaliski Decl. ¶ 113 & Fig. 1B. Therefore, many of the claim limitations are not disclosed in *Longe*, including (1) replacing the current character string in the first area with a suggestion selected from the second area, or (2) keeping the current character string in the first area if the user selects the current character string in the second area. *See* Reply Decl. of Dr. Karan Singh ("Singh Reply Decl.") ¶¶ 41-52. Because some of the claim limitations found in claims 18 and 19 of the '172 Patent are not disclosed in *Longe/Robinson*, claims 18 and 19 are not anticipated by this prior art reference.

Samsung also argues that *Longe/Robinson* anticipate claim 27 of the '172 Patent. Claim 27 is broader than claims 18 and 19 because, unlike claims 18 and 19, claim 27 does not require that the current character string appear in both the first and second areas of the display screen. However, claim 27 does require "while both the current character string and the suggested

[7] *Longe* is a continuation in part of the application that issued as U.S. Patent No. 7,030,863, which is itself a continuation in part of the application that issued to Robinson.

replacement string are displayed, receiving a further user input through a punctuation mark key of the keyboard, and in response to the further user input, replacing the current character string with the suggested replacement character string, and appending a punctuation mark at the end of the replacement character string, the punctuation mark corresponding to the punctuation mark key." '172 Patent 14:46-55. Thus, the user input of selecting a punctuation mark both "replaces" the current character string with the suggested string and appends the punctuation mark to the end of the suggested string.

Longe discloses a "keyboard of punctuation and symbols," wherein "the selection of any character from the displayed alternate keyboard causes the Default word of the previously displayed word choice list to be output to the output text region 104 prior to outputting the selected character." Kaliski Decl. ¶ 110 (citing *Longe* at [180]). Upon review of the relevant sections of *Longe*, it is not clear that *Longe* discloses "'replacing' the current character string" by selecting a punctuation mark; nor is it clear that a user can select a punctuation mark while both the user-input current character string and the suggested string are on the display, as required by claim 27. Singh Reply Decl. ¶ 55; *Longe* at [180] and [227]. Thus, it does not appear that Longe discloses every limitation of claim 27 of the '172 Patent.

TextPlus User Guide. TextPlus for the Palm OS Version 5.5 User's Guide ("TextPlus User's Guide") was a printed publication available in August 2004. Kaliski Decl. Ex. H. TextPlus disclosed the display of a word being entered by the user and, in a separate area, word and phrase suggestions. Word recommendations could be selected by tapping on them or by entering a space or punctuation mark.

Samsung argues that TextPlus anticipates all limitations of claim 27.[8] *See* Opp'n at 18. However, the TextPlus User's Guide does not disclose the element that a punctuation mark is appended to the suggested string after the word is selected by the user. *See* Singh Reply Decl. ¶¶ 59-61. Including an appended punctuation mark to the end of a selected string is a limitation required in claim 27. '172 Patent 14:50-55 ("[I]n response to the further user input, replacing the current character string with the suggested replacement character string, and appending a

[8] Samsung concedes that TextPlus does not anticipate claims 18 and 19.

punctuation mark at the end of the replacement character string, the punctuation mark corresponding to the punctuation mark key through which the further user input was received."). Therefore, TextPlus does not anticipate claim 27.

ii. Obviousness

As previously explained, a patent may be invalid for obviousness. "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." *KSR*, 550 U.S. at 399 (citing *Graham*, 383 U.S. at 17-18). The Court should also take into account "secondary considerations" such as "commercial success, long felt but unsolved needs, [and] failure of others" in order to determine whether the subject matter sought to be patented would have been obvious to one of ordinary skill in the art at the time of invention. *Id.* Samsung argues that *Longe/Robinson TextPlus*, and *King* either alone, or in combination, render obvious all asserted claims.

Claims 18, 19. None of the three prior art references upon which Samsung relies anticipates claims 18 and 19. Nonetheless, the Court must still determine whether these references individually, or in combination, render claims 18 and 19 obvious.

As explained above, *Longe/Robinson* do not disclose that the current character string appears in both the first and second areas at the same time as the user is typing on the keyboard. Therefore, many of the claim limitations are not disclosed in *Longe/Robinson*, including (1) replacing the current character string in the first area with a suggestion selected from the second area, or (2) keeping the current character string in the first area if the user selects the current character string in the second area. Although Samsung's expert, Dr. Kaliski, opines that *Longe/Robinson* "standing alone" render the asserted claims obvious, he essentially offers no reason or analysis for his opinion. *See* Kaliski Decl. ¶ 135. Samsung's expert testimony is insufficient to overcome the presumption of validity that claims 18 and 19 enjoy, and therefore the Court will look to the other prior art references to determine if these references suggest the limitations that *Longe/Robinson* are lacking.

Even in combination with the *TextPlus* and *King* references, it is not clear that the subject matter of claims 18 and 19 would have been obvious to one of ordinary skill in the art at the time of invention. First, *TextPlus* lacks the element of displaying the current character string in two locations. *TextPlus* instead discloses a display with the current character string in only one area of the display. Second, *TextPlus* also does not require that the second area of the display always show the current character string, even if it is not a recognized word. Singh Reply Decl. ¶ 61. Nor does TextPlus disclose keeping the current character string by gesturing (touching) on the current character string as is required by claims 18 and 19. *Id.* ¶ 62.

Nor would it necessarily be obvious to one of ordinary skill in the art to look to *TextPlus* given the problem sought to be solved by the '172 Patent. *TextPlus* does not attempt to solve the same problem the inventors of the '172 Patent sought to solve: namely the increase in typing errors that arise in portable communication devices arising from the restricted size of the keyboard. '172 Patent 1:27-37. Instead, *TextPlus* offered word or phrase completions based on the letters the user has already typed. Singh Reply Decl. ¶ 59. It does not, unlike the '172 Patent, offer suggestions for misspelled words. *Id.* Moreover, Dr. Singh argues, and persuasively so, that prior iterations of *TextPlus* disclosed displaying the current character string in two areas, but then abandoned this feature in the 2004 *TextPlus* iteration, thus abandoning the user interface feature claimed in claims 18 and 19 that is absent from *Longe/Robinson*. Singh Reply Decl. ¶ 64. Thus, *TextPlus* teaches away from the claimed features.

Finally, the Court is unconvinced that U.S. Patent No. 5,953,541 (*King*) discloses displaying the current character string in both the first and second areas on the display screen as is required in claims 18 and 19. *See* Singh Reply Decl. ¶ 67. *King* was issued on September 14, 1999. Kaliski Decl. Ex. J. *King* discloses a reduced keyboard (three letters on each key) implemented on a touch screen display, with a "disambiguation system" for identifying which words the user intended to type. The user could select any of the words in the selection list by touching them, or by choosing the "Select" button or a punctuation mark. *King* displays *suggested character strings* in both the first and second areas, instead of *current character strings* in both the first and second areas. This feature in *King* was particularly tailored to the problems associated with character input using

reduced keyboards: "*King* always displays the suggested word in the first area because it assumes that the user-input character string will usually not reflect the character string the user actually intended to type." Singh Reply Decl. ¶ 68. In sum, Samsung has not raised a substantial question regarding the validity of claims 18 and 19. Samsung has not established that it would have necessarily been obvious to one of ordinary skill in the art to combine the references in the manner proposed by Samsung.

Claim 27. Samsung argues that, even if *Longe/Robinson* does not anticipate claim 27, it is invalid as obvious in light of prior art. While *Longe/Robinson* disclose several of the limitations in claim 27, *Longe/Robinson* do not disclose "replacing the current character string with the suggested replacement character string, and appending a punctuation mark at the end of the replacement character string, the punctuation mark corresponding to the punctuation mark key." '172 Patent 14:46-55. Moreover, *TextPlus* does not disclose appending the punctuation mark at the end of the suggested string. Instead, the punctuation mark is used purely as a selection mechanism. Singh Reply Decl. ¶ 60. As with claims 18 and 19, it is not clear that it would have been obvious to one of ordinary skill in the art to combine elements in order to reach the subject matter of claim 27, or that combining elements would have led one of ordinary skill in the art to replace the current character string with the suggested string and append the punctuation mark at the end of the replacement string. *See id*. ¶¶ 71-72. In sum, Samsung has not raised a substantial question regarding the validity of claim 27. Samsung has not established that it would have necessarily been obvious to one of ordinary skill in the art to combine references in the manner it has proposed.

iii. Indefiniteness

Claims 18 and 27. Samsung also argues that claims 18 and 27 in the '172 Patent are invalid because they are impermissible hybrid claims. In *IPXL Holdings, LLC v. Amazon.com, Inc.*, 430 F.3d 1377, 1383-84 (Fed. Cir. 2005), the Federal Circuit found a single claim covering both an apparatus and a method of use of that apparatus as invalid and indefinite under section 112, paragraph 2. This is because "a manufacturer or seller of the claimed apparatus would not know from the claim whether it might also be liable for contributory infringement because a buyer or user of the apparatus later performs the claimed method of using the apparatus." *Id*. at 1384. For

example, in *IPXL*, claim 25 read: "The *system of claim 2* [including an input means] wherein the predicted transaction information comprises both a transaction type and transaction parameters associated with that transaction type, and the *user uses the input means* to either change the predicted transaction information or accept the displayed transaction type and transaction parameters." *Id*. at 1384 (emphasis in original). The Federal Circuit held that it was unclear whether infringement occurred when one created the system or when the user actually used the input means.

The Federal Circuit has since limited *IPXL* and clarified that it is only when the public cannot discern when infringement occurs that the *IPXL* rule applies. For example, in *Microprocessor Enhancement Corp. v. Texas Instruments Inc.*, 520 F.3d 1367 (Fed. Cir. 2008), the Federal Circuit overturned a district court's determination of claim invalidity under the *IPXL* rule barring hybrid claims. There, the court concluded that "method claim preambles often recite the physical structures of a system in which the claimed method is practiced." *Id*. at 1374. Similarly, where the claims require capability, not actual use, or describe functional limitations, such claims are not invalid based on the *IPXL* rule. *See Yodlee v. Cashedge*, No. C 05-01550 SI, 2006 WL 3456610, at *4 (N.D. Cal. Nov. 29, 2006).

Claims 18 and 27 are not indefinite hybrid claims. Claim 18 describes: "A graphical user interface . . . comprising: a first area of the touch screen display that displays a current character string being input by a user with the keyboard . . . wherein; the current character string in the first area is replaced with the suggested replacement character string if the user activates a key on the keyboard associated with a delimiter." '172 Patent 12:49-63. Claim 18 claims an apparatus that has the capability of performing certain steps if activated by the user. Whether the user actually performs the functions is "of no import." *Yodlee*, 2006 WL 3456610, at *4. Thus, there is no confusion as to whether infringement occurs upon manufacture of the device or the user's use of the device, and the *IPXL* rule does not apply.

Similarly, claim 27 describes: "A portable electronic device, comprising . . . computer readable memory comprising instructions that, when executed by the one or more processors, perform operations comprising: receiving a plurality of user inputs . . . and displaying a current

character string as input by the user, . . . [and] in response to the further user input, replacing the current character string . . . .” ’172 Patent 14:35-51. As with claim 27 above, the patentable subject matter is the apparatus, which has the *capability* of performing certain steps when certain user inputs are received. Like *Microprocessor Enhancement*, the functional limitations on the method claim do not create ambiguity regarding when infringement might occur. Accordingly, Samsung has not met its burden of raising a substantial question of invalidity with respect to claims 18 and 27.

Claims 19 and 27. Alternatively, Samsung argues that Claims 19 and 27 are indefinite because they do not disclose claimed algorithms. Samsung argues that claims 19 and 27 are means-plus-function claims under 35 U.S.C. § 112 ¶ 6. As such, Samsung argues that the specification must disclose the algorithm to be performed. According to Samsung, because the patent does not disclose any algorithm to perform the “instructions,” claims 19 and 27 are invalid. Opp’n 20-21. Apple argues that these claims are *Beauregard* claims that do not require the disclosure of an algorithm. *See In re Beauregard*, 53 F.3d 1583 (Fed. Cir. 1995).

Samsung is correct that in certain means-plus-function claims, the specification must “disclose an algorithm for performing the claimed function.” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1367 (Fed. Cir. 2008); *Aristocrat Techs. Austl. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008). The specification can express the algorithm “in any understandable terms including as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure.” *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008) (internal citation omitted).

However, before determining whether the specification is required to disclose an algorithm, the Court must first determine whether claims 19 and 27 are means-plus-function claims. “Means-plus-function claiming applies only to purely functional limitations that do not provide the structure that performs the recited function.” *Phillips*, 415 F.3d at 1311 (citing *Watts v. XL Sys. Inc.*, 232 F.3d 877, 880-81 (Fed. Cir. 2000)). “[A] claim term that does not use ‘means’ will trigger the rebuttable presumption that [35 U.S.C.] § 112 ¶ 6 does not apply.” *CCS Fitness v. Brunswick Corp.*, 288 F.3d 1359, 1369 (Fed. Cir. 2002). The Federal Circuit has made clear that “the

presumption flowing from the absence of the term 'means' is a strong one that is not readily overcome." *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1358 (Fed. Cir. 2004).

The term "means" is not invoked in either claim 27 or claim 19. Thus, Samsung must rebut the presumption that these claims do not invoke a means-plus-function analysis. Samsung has failed to do so. Indeed, similar claims that require "computer readable program code configured to cause a computer to . . ." have been found not to be means-plus-function claims. *See Versata Software, Inc. v. Sun Microsystems, Inc.*, No. 06-CV-358, 2008 WL 3914098, at *13-14 (E.D. Tex. Aug. 19, 2008). The Court declines to construe these terms as means-plus-function claims. Therefore, Samsung has failed to show that it is likely to overcome the presumption of validity that claims 19 and 27 enjoy.

Accordingly, Apple has shown that it is likely to succeed on the merits at trial in its claims that the Samsung Galaxy Nexus infringes claims 18, 19, and 27 of the '172 Patent.

B. Likelihood of Irreparable Harm

As previously discussed, "[a]n injunction is a matter of equitable discretion; it does not follow from success on the merits as a matter of course." *Winter*, 555 U.S. at 32 (citing *Weinberger v. Romero-Barcelo*, 456 U.S. 305, 313 (1982)). The Supreme Court has made clear that the right to exclude afforded under the Patent Act does not displace the district court's discretion to grant or deny injunctive relief in accordance with traditional principles of equity. *eBay*, 547 U.S. at 391-92. One of these equitable principles requires that the plaintiff make "a clear showing" that it is at risk of "substantial and immediate irreparable injury" in the absence of relief. *Apple*, 678 F.3d at 1325 (internal quotation marks and citations omitted). Furthermore, "[t]o show irreparable harm, it is necessary to show that the infringement caused harm in the first place." *Id.* at 1324. Thus, to prevail on its request for the extraordinary remedy of preliminary injunctive relief, Apple must clearly show that (1) irreparable harm will result absent the requested relief, and (2) "some causal nexus" exists between the infringement and the alleged irreparable harm. *Id.* at 1327.

The Supreme Court has rejected the use of categorical rules in fashioning equitable relief, and the Federal Circuit has likewise held that it is error to rely exclusively on a single factor in determining whether a plaintiff has demonstrated irreparable harm. *See eBay*, 547 U.S. at 392-93; *Robert Bosch LLC v. Pylon Mfg. Corp.*, 659 F.3d 1142, 1149-51 (Fed. Cir. 2011). Accordingly, the Court addresses each of the party's arguments in turn and then considers the evidence in totality.

1. Irreparability

Apple's theory of irreparable harm here is that Samsung uses Apple's unlicensed patents to compete with and steal market share from Apple, particularly with respect to capturing all-important first-time smartphone purchasers, causing incalculable and unrecoverable loss of market share in both the smartphone market and in collateral downstream markets, such as apps, tablets, and music downloads. More specifically, Apple alleges that it will suffer three types of irreparable harm if the Court does not immediately enjoin the manufacture, use, sale, offers to sell, or importation of the Galaxy Nexus: (1) long-term loss of market share in the smartphone market; (2) loss of sales of other Apple products due to downstream and network effects; and (3) loss of goodwill.

a. Long-Term Loss of Market Share

First, Apple asserts that the Galaxy Nexus incorporates key patented features and that sales of the Galaxy Nexus, especially to all-important first-time smartphone customers, will permanently reduce Apple's market share in the smartphone market. Mot. at 16. It is well settled that loss of market share to a competitor as a result of infringing conduct may support a finding of irreparable harm. *Robert Bosch*, 659 F.3d at 1153-54; *Polymer Techs.*, 103 F.3d at 975-76. Indeed, courts are most likely to grant an injunction when the plaintiff and defendant are direct competitors in the same market, because in that context, the potential harm in allowing the defendant to continue its infringing conduct may be the greatest. *See i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 831, 861 (Fed. Cir. 2010); *Robert Bosch*, 659 F.3d at 1153. As the moving party, Apple bears the burden of making "a prima facie showing of lost market share," though this showing need not be made with direct evidence. *Robert Bosch*, 659 F.3d at 1154.

Samsung argues that Apple has failed to show evidence of lost market share – or even any lost sales, for that matter – attributable to the Galaxy Nexus. Samsung makes a variety of arguments in this regard. First, Apple offers no data or projections showing the past or future effect of the Galaxy Nexus on its sales or market share, and thus Apple's conjecture of lost market share is purely speculative. Second, Apple's speculation about lost market share is premised on a faulty and grossly overblown hypothetical by its expert, Dr. Vellturo. Third, recent data of Apple's persistent success since the launch of the Galaxy Nexus belies any claim of irreparable harm, or even of lost sales. Fourth, past sales data show that fluctuations in Apple's sales figures are attributable to the timing of a new Apple product's release. Thus, Samsung argues, the data undermines Apple's theory that Samsung's alleged infringement is responsible for any lost sales, and illustrates that any theoretical lost market share can be regained with release of a new Apple product. Opp'n at 23-25.

Of course, the mere potential of lost sales alone does not demonstrate irreparable harm, for if such were the case, an injunction would issue in every case of infringement. *See Abbott Labs.*, 452 F.3d at 1348; *Ill. Tool Works*, 906 F.2d at 683; *see also Automated Merchandising Sys., Inc. v. Crane Co.*, 357 Fed. Appx. 297, 300-01 (Fed. Cir. 2009) ("[L]ost sales standing alone are insufficient to prove irreparable harm. . . . Lost sales (without more) are presumed to be compensable through damages, so they do not require injunctive relief."). Nevertheless, the Federal Circuit has not required a plaintiff to produce direct evidence of specific consumers who would have bought plaintiff's product but for the alleged infringer's product. For example, in affirming the district court's finding of irreparable injury in *i4i*, the Federal Circuit held that "i4i was not required to prove that its specific customers stopped using i4i's products because they switched to the infringing Word products." *i4i Ltd. P'ship*, 598 F.3d at 862.

The Court finds that ample evidence supports Apple's prima facie case that its risk of lost sales is more than merely speculative or conjectural. That Apple and Samsung are direct competitors in the smartphone market cannot be genuinely disputed. *See* Vellturo Reply Decl. Ex. 35 at SAMNDCA00258697 ([redacted]); *see* Decl. of Arthur Rangel ("Rangel

Decl.") Ex. 3 at 16 ([redacted]), 24 ([redacted]). Independent commentators have described the Galaxy Nexus as "the most credible competitor to the iPhone so far." Vellturo Decl. ¶ 68 & Ex. 101. Although Samsung points to the fact that the Galaxy Nexus was only one of 315 Android models sold by 32 different manufacturers in the fourth quarter of 2011, *see* Opp'n at 22, evidence shows that Samsung is now Apple's largest smartphone competitor worldwide and is rapidly becoming Apple's largest smartphone competitor in the U.S. market. Vellturo Decl. ¶¶ 24-25 & Ex. 40 ("Samsung is now well positioned alongside Apple in a two-horse race at the forefront of one of the world's largest and most valuable consumer electronics markets."). Indeed, Samsung's own internal documents suggest that Samsung itself [redacted], and confirm that part of Samsung's overall business strategy is centered around "[redacted]" in order to [redacted]" *See* Vellturo Reply Decl. Ex. 35 at SAMNDCA00258729 ([redacted]"), *697 ([redacted]), *791 ("[redacted]"); *id.* Ex. 48 at SAMNDCA11545934 ("[redacted]"); *id.* Ex. 57 at S-ITC-50057696 ("[redacted]"). Samsung's internal documents further demonstrate that Samsung [redacted]. *See id.* Ex. 53 at S-ITC-500047403 ([redacted]); *id.* Ex. 35 at SAMNDCA00258798 ([redacted]); *id.* Ex. 36 at SAMNDCA00261825 ([redacted])

[redacted]"); *id.* Ex. 57 at S-ITC-500057724 ("[redacted]"). In any event, "[w]hile the existence of a two-player market may well serve as a substantial ground for *granting* an injunction – e.g., because it creates an inference that an infringing sale amounts to a lost sale for the patentee – the converse is not automatically true, especially where, as here, it is undisputed that the patentee has sought to enforce its rights against other infringers in the market." *Robert Bosch*, 659 F.3d at 1151. Thus, "without additional facts showing that the presence of additional competitors renders the infringer's harm reparable, the absence of a two-supplier market does not weigh against a finding of irreparable harm." *Id.*; *see also Pfizer, Inc. v. Teva Pharms. USA, Inc.*, 429 F.3d 1364, 1381 (Fed. Cir. 2005) (The "fact that other infringers may be in the marketplace does not negate irreparable harm.").

As evidence that Apple is likely to lose market share to Samsung in the absence of an injunction, Apple points to the fact that [redacted] Vellturo Decl. ¶ 23 & Ex. 29 at 8, 18. Apple opines that "[j]ust as Samsung was able to capture and increase critical market share with its prior infringing smartphones, Samsung undoubtedly will do so again now with the new infringing Galaxy Nexus," Mot. at 18, which independent commentators have characterized as 'the most credible competitor to the iPhone so far,'" Vellturo Decl. ¶ 68 & Ex. 101. Apple argues that "even if Apple's overall market share *increased* while the Galaxy Nexus was sold, lost iPhone sales due to sales of the Galaxy Nexus would result in Apple losing some additional portion of market share that Apple would have enjoyed but for Samsung's infringement." Mot. at 18.

Samsung counters that Apple's speculation regarding market loss is based on an unreliable hypothetical projection by Dr. Vellturo that distorts the actual facts. While Samsung's attack on the reliability of Dr. Vellturo's hypothetical that the Galaxy Nexus would sell 20 million units is well taken, the Court does not find Dr. Vellturo's hypothetical to be material to Apple's showing of

irreparable harm. The actual sales figures reflect that Samsung had already sold [redacted] Galaxy Nexus phones to carriers or Google as of May 4, 2012. Vellturo Reply Decl. ¶ 65 & Ex. 5 [Geklinsky Dep.] at 68:20-69:6. A Samsung employee reported that Samsung has generated over a [redacted] dollars of revenue. Furthermore, in Samsung's brief on bond, Samsung estimates that between July 2012 and June 2013, it will sell approximately [redacted] units of the Galaxy Nexus in the United States, at an average profit rate of [redacted] per unit. Samsung's Brief Re: Bond ("Samsung Bond Br."); *see* Decl. of Corey Kerstetter ("Kerstetter Decl.") ¶¶ 2-3. Even if the Galaxy Nexus has perhaps not sold as well as anticipated, the Court is not persuaded by Samsung's evidence that the competitive impact of the Galaxy Nexus is only negligible or so insignificant as to preclude injunctive relief.

Samsung also argues that Apple cannot show irreparable harm because it has remained a market leader even since the release of the Galaxy Nexus. *See* Decl. of Michael J. Wagner ("Wagner Decl.") ¶¶ 25, 27-28. Samsung points to evidence showing that the iPhone is the dominant smartphone in the U.S. with a [redacted] *See id.* & Figs. 1-3. In the fourth quarter of 2011, when the Galaxy Nexus was released in the U.S., [redacted]. Posner Decl. Ex. CC. Moreover, [redacted]. Wagner Decl. ¶ 73 & Fig. 13. In conjunction with this evidence, Samsung's expert Dr. Wagner offers an alternative explanation for the variations in Apple's market share. According to Mr. Wagner, [redacted] Wagner Decl. ¶ 24 & Fig. 1. Thus, Samsung's expert posits that fluctuations in Apple's market share are more likely attributable to Apple's own conduct than to the release of the Galaxy Nexus or of any other particular Android product. Mr. Wagner explains that there are myriad complex and

interconnected factors that affect consumers' purchasing decisions and shape the market, which Mr. Wagner says Apple's expert Dr. Vellturo failed to take into account in opining on irreparable harm.

Although the Court appreciates that the dynamics of the smartphone market are multifaceted and that it is therefore difficult for Apple to establish a direct relationship between a particular competitor's product and specific lost sales, the Court is not persuaded by Samsung's argument that Apple's continued success in the market precludes a finding of irreparable harm. Not only has Apple presented unrebutted evidence that Apple and Samsung compete directly for first-time smartphone customers, but Apple has also presented compelling evidence that any loss of market share to Samsung now as a result of an infringing product would be difficult to quantify or recapture.

Apple makes clear that its loss of market share argument is not based solely on projected lost sales during the next 18 to 24 months. Rather, "given the critical juncture in which first-time buyers are moving to smartphones as well as platform stickiness . . . Apple will lose significant long-term market share." Reply at 9. Apple argues that its loss of market share to Samsung's infringing product cannot be compensated by money damages, because loss of market share during this "critical juncture" of the rapidly expanding smartphone market will have incalculable and irreversible long-term effects. Apple contends that "smartphone adoption is accelerating and has entered a critical phase wherein an unprecedented portion of mobile device customers will make their initial choice of a smartphone and associated operating system platform, a choice that will likely dictate their future purchases as well." Vellturo Decl. ¶ 27. Not only do industry data and analyst reports indicate that a significant percentage of U.S. mobile phone users will be switching from basic "feature phones" to smartphones over the next several years, which will create a huge opportunity for both Apple and Samsung to capture market share, but furthermore, "platform stickiness" means that the initial capture of market share is likely to lead to high rates of market share retention. *See* Vellturo Decl. ¶¶ 24-25, 37 & Ex. 33 (characterizing the U.S. mobile market as a "two-horse race between Apple and Android, as BlackBerry's lead slips away").

Apple has presented ample evidence that the smartphone market is a rapidly growing one and that the consumer base is likely to expand significantly over the next few years. Apple's expert, Dr. Christopher Vellturo, analyzed industry data from the International Data Corporation ("IDC") on shipments of mobile phones for the period 2004Q1 through 2011Q3, and found that mobile phone shipments are in a high growth period, while "feature phone" shipments are declining. Vellturo Decl. ¶ 18. Data projections show that significant adoption of smartphones by current feature phone users will continue to take place over approximately the next 18 to 24 months. For example, the Yankee Group analyzed and projected U.S. market share by mobile phone type from 2003 through 2015. While basic feature phones comprised 86% of the U.S. mobile phone market in 2009, compared to 14% market share for smartphones, the Yankee Group projects that by 2015, basic feature phones will retain only 10% of the U.S. mobile phone market share, while smartphones will surge to comprise 90% of the U.S. mobile phone market share. Vellturo Decl. ¶ 19 & Attach. D.

Another industry report states that the number of U.S. smartphone users grew nearly 49% between the end of 2009 and the end of 2010, and grew another 21.9% between the end of 2010 and the end of 2011. Vellturo Decl. Ex. 33 at 1. From 2009 to 2011, the number of U.S. smartphone users grew from 40.4 million users to 73.3 million users. That industry report projects that the number of smartphone users will grow another 15.1% from the end of 2011 to the end of 2012, and another 10.7% from the end of 2012 to the end of 2013, reaching 93.4 million users by the end of 2013. *Id.* Smartphone adoption will continue after 2013 but at a somewhat more modest pace, with the number of smartphone users growing only another 15.5% between the end of 2013 and the end of 2015. *Id.*

In fact, Samsung's internal documents reveal that [redacted]. Vellturo Reply Decl. ¶ 11 & Exs. 35, 40. Moreover, Samsung's own documents reflect [redacted]

[redacted]. *See* Vellturo Reply Decl. Ex. 53 at S-ITC-500047435 ([redacted]); *id.* Ex. 57 at S-ITC-500057724 ([redacted]"). Samsung's own documents also reveal that [redacted] *See id.* Ex. 37 at SAMNDCA00268358 [redacted], *372 [redacted] According to Samsung's internal strategic planning documents, [redacted] *Id.* Ex. 37 at SAMNDCA00268372. In fact, Samsung's growth strategy is to [redacted] *Id.* Ex. 38 at SAMNDCA00268778. Furthermore, Samsung's documents observe that [redacted] *Id.* Ex. 38 at SAMNDCA00268780.

Samsung argues that, while Apple makes much fanfare of this "critical juncture" during which smartphone manufacturers are competing for first-time customers, the evidence shows that most purchasers of premium, high-end smartphones like the iPhone 4S or the Galaxy Nexus are not first-time but rather repeat customers. However, [redacted]. Rangel Decl. Ex. 3 at 13. Samsung's expert likewise admitted that [redacted]. Vellturo Reply Decl. ¶ 14 & Ex. 4 [Wagner Dep.] at 73:10-23. In light of the totality of the evidence on the record presented, the Court finds that Samsung has failed to rebut Apple's prima facie showing that it will suffer lost market share in the absence of a preliminary injunction, due to the direct competition between Samsung and Apple for critical first-time smartphone buyers over the next 18 to 24 months, whose first purchasing decisions will largely predict their operating system allegiance for future purchases. While a preliminary injunction cannot issue on "[a] mere showing that Apple might

lose some insubstantial market share as a result of Samsung's infringement," *Apple*, 678 F.3d at 1324-25, Apple has adduced an abundance of evidence showing that it is at risk of suffering harm that is substantial, immediate, and irreparable, such that "remedies available at law, such as monetary damages, are inadequate to compensate for that injury." *eBay*, 547 U.S. at 391; *see also Winter*, 555 U.S. at 22; *Weinberger v. Romero-Barcelo*, 456 U.S. 305, 311 (1982). In other words, Apple has adequately shown a likelihood of irreparable harm in the form of lost market share and permanent loss of customers.

b. Loss of Sales Due to Downstream and Network Effects

Second, Apple argues that the harm to Apple resulting from loss of smartphone market share would radiate out in a multitude of other ways, reducing demand for other Apple products. Mot. at 20. Samsung argues that these downstream effects are quantifiable through ordinary damages calculations. Apple, as the movant here, bears the burden of providing "[s]ome evidence and reasoned analysis" for the inadequacy of monetary damages to compensate its alleged harms. *Nutrition 21*, 930 F.2d at 872. At the same time, "the simple fact that one could, if pressed, compute a money damages award does not always preclude a finding of irreparable harm." *Celsis In Vitro*, 664 F.3d at 930.

In its Order Denying Apple's Motion for a Preliminary Injunction in *Apple I*, this Court found that "potential customers that Apple loses to Samsung may have long-term effects that are difficult to calculate and may not be recaptured." *Apple I*, 2011 WL 7036077, at *20. Apple again argues here that, due to "platform stickiness" and brand loyalty, the impact of lost smartphone sales today will continue to reverberate incalculably into the future, not only in loss of smartphone market share, but also in lost "sales of tag-along products." Reply at 11 (quoting *Apple I*, 2011 WL 7036077, at *20); *see* Vellturo Reply Decl. ¶¶ 123-27. Specifically, Apple argues that it will suffer lost sales in downstream product markets, including (1) future smartphone purchases; (2) other iOS products, such as iPad and iPod touch; (3) other Apple products, such as iMacs, MacBooks, and Apple TVs; and (4) digital media tied to lost sales of Apple products. Mot. at 21-23. In other words, the harmful effects to Apple's smartphone market share will radiate outward to infect the competitiveness of Apple's entire business.

Apple's expert opines that Galaxy Nexus users will be less likely to buy not only Apple iPhones, but also iPad, iPod, iMac, and Macbook products, and will not download content, such as apps and music, because apps and music are specific to the operating system for which they are designed. Vellturo Reply Decl. ¶¶ 123-27. Although Apple does not present direct evidence that consumers who purchase the Galaxy Nexus would have bought any of the above-described categories of Apple products but for their purchase of the Galaxy Nexus, Apple does present compelling circumstantial evidence supporting the plausibility of its downstream effects theory. For example, consumer surveys and sales data confirm that the vast majority of iPhone owners use apps from the iTunes App Store. Indeed, [redacted] and in July 2011 alone, [redacted] were downloaded from the Apple iTunes App Store by iPhone, iPad, and iPod Touch users worldwide. *See* Vellturo Decl. ¶¶ 57-58; *id.* Ex. 53 at 82. As another example, [redacted] Vellturo Decl. ¶ 59; *id.* Ex. 53 at 109.

Although Samsung's expert opines that Apple's expert overstates the impact of platform loyalty on future smartphone and tag-along product sales, *see* Wagner Decl. ¶¶ 84-103, Samsung's own internal documents acknowledge that [redacted]," Vellturo Reply Decl. ¶¶ 21-22; *id.* Ex. 51 at S-ITC-003353324. Samsung's document illustrates this with a diagram showing that, [redacted] *Id.* All this further evidences the strong demand complementarity

between sales of iPhones and sales of other iOS and Apple devices, reinforcing Apple's claim that lost iPhone sales will impact downstream purchases, and furthermore that loss of these downstream sales, which include "new devices" that remain to be invented, will be difficult to quantify.

Apple has also presented evidence that these same demand complementarity forces are at work among Samsung customers. As noted, Samsung's own documents acknowledge the importance of brand loyalty and the critical potential to sell to the installed base of smartphone consumers. *See* Vellturo Reply Decl. Ex. 37 at SAMNDCA00268385 [redacted]; *see also id.* Ex. 38 at SAMNDCA00268778 [redacted], *780 [redacted]). Samsung's documents include a second flow chart depicting [redacted], concluding that, as with Apple purchases, "[redacted]." *Id.* Ex. 35 at SAMNDCA002586752. Yet another Samsung document observes that [redacted]. *Id.* Ex. 35 at SAMNDCA00258795; *id.* Ex. 40 at SAMNDCA00277035.

Moreover, Samsung's strategic planning documents show that [redacted]." According to Apple's expert Dr. Vellturo, the Galaxy Nexus is the first Android smartphone to use an operating system that will allow the phone to be interoperable with other Android-based devices, such as tablets running the Android Ice Cream Sandwich operating system. Vellturo Decl. ¶ 9 & n.11. Apple introduces evidence that "[redacted]." *Id.* ¶ 13. Samsung's documents reveal the importance of [redacted]." *Id.* Ex. 40 at SAMNDCA00276992. As Mr. Vellturo points out, Samsung's advertising and promotional campaigns are increasingly [redacted]

[redacted] *Id.* ¶ 13; *id.* Ex. 53 at S-ITC-500047401; *id.* Ex. 55 at S-ITC-500054993 [redacted]

Apple also argues that it will suffer irreparable harm to the entire Apple "ecosystem" due to "network effects," meaning not only would Apple lose sales of other Apple products to Galaxy Nexus users, but also the resultant smaller installed base of iPhone users would have ripple effects on other prospective Apple customers. As Apple's expert explains, Facebook is a classic example of network effects, wherein Facebook was able to overtake competitor social networks as the size of the Facebook network expanded and thus became of greater value to non-participants. Vellturo Decl. ¶ 52. In the context of the smartphone market, "network effects" means that customer demand for a given smartphone platform increases as the number of other users on the platform increases. *Id.* ¶ 50. Apple's expert points to various third-party documents confirming industry recognition of the "'tippy' nature of smartphone platforms" and the fact that network effects help shape the smartphone market. *Id.* ¶ 51 & Exs. 68, 69. Furthermore, Samsung's own documents recognize the competitive importance of network effects. *See, e.g.*, Vellturo Reply Decl. Ex. 56 at S-ITC-500056410 ("[redacted]."). Although Samsung's expert opines that Apple's expert overstates the potential harm derived from network effects, *see* Wagner Decl. ¶¶ 75-82, Samsung's evidence does not fully undermine Apple's evidence that network effects are playing some role in the consumer dynamics of the smartphone market. Thus, the Court finds plausible Apple's theory that network effects will further exacerbate the magnitude of Apple's harm.

Based on the record before it, the Court finds that Apple has provided sufficient evidence of the downstream effects of lost smartphone sales, which would be both long-term and difficult to calculate. This showing further supports a finding of irreparable harm.

c. Loss of Goodwill

Finally, Apple argues that it will also suffer irreparable harm in the form of loss of goodwill. Mot. at 24. Loss of goodwill, as well as damage to reputation, can support a finding of irreparable harm. *See Celsis In Vitro*, 664 F.3d at 930 (citing *Sandoz*, 544 F.3d at 1362; *Sanofi-*

Synthelabo v. Apotex, Inc., 470 F.3d 1368, 1382-83 (Fed. Cir. 2006)); *AstraZeneca*, 633 F.3d at 1062-63. For example, in *AstraZeneca*, the Federal Circuit affirmed the district court's finding that AstraZeneca, the patentee of a pediatric asthma drug, would suffer a loss of unquantifiable public goodwill if the accused infringer began distributing its generic drug and was subsequently forced to remove the drug from the market, which would result in confusion among physicians and patients alike. *AstraZeneca*, 633 F.3d at 1062-63. Similarly, in *Celsis In Vitro*, the Federal Circuit found no error in the district court's finding that the patentee would suffer loss of customer goodwill if the patentee later, upon obtaining a permanent injunction, attempted to restore the original price. 664 F.3d at 930.

In contrast to the claimed loss of goodwill at issue in these biotechnology and pharmaceutical cases, Apple here claims that it will suffer a loss of goodwill because it has built a reputation for innovativeness, and Samsung's introduction of infringing products like the Galaxy Nexus into the smartphone market will dilute the distinctiveness of Apple's products and the goodwill associated with those products. Mot. at 24. Apple fails, however, to cite any Federal Circuit case law recognizing loss of brand distinctiveness as a form of loss of goodwill. Even assuming that Apple has articulated a legally cognizable theory of irreparable harm based on erosion of its reputation for innovativeness, Apple has failed to support this theory with evidence. Admittedly, Apple has presented evidence that a [redacted] Rangel Decl. Ex. 3 at 25; *see also* Vellturo Decl. ¶¶ 97-98. [redacted]. Rangel Decl. Ex. 3 at 25. Nonetheless, although Apple has submitted evidence that it has invested in cultivating strong customer goodwill and that some consumers purchase Apple products because of Apple's good reputation, Apple has presented no evidence explaining how the presence in the market of an infringing product such as the Galaxy Nexus erodes that goodwill. Samsung points this out in its opposition brief, *see* Opp'n at 25, and indeed, Apple offers no rebuttal in its reply. Accordingly, on this record, the Court cannot find that Apple will likely suffer loss of goodwill in the absence of preliminary relief. *See Tech-Wear, Inc. v. Acme Laundry Prods., Inc.*, 38 F. Supp. 2d 1147, 1152 (C.D. Cal. 1998) (declining to find loss of

goodwill where plaintiffs provided "no evidentiary facts" to support that conclusion); *Quad/Tech, Inc. v. Q.I. Press Controls B.V.*, 701 F. Supp. 2d 644, 656-57 (E.D. Pa. 2010) (speculative harm insufficient).

d. Summary

For the reasons discussed, the Court finds that, although Apple has not proven a likelihood that it will suffer loss of goodwill in the absence of immediate injunctive relief, Apple has made a clear showing that, in the absence of a preliminary injunction, it is likely to lose substantial market share in the smartphone market and to lose substantial downstream sales of future smartphone purchases and tag-along products. The Court finds that the full extent of these losses would likely be unascertainable, difficult to calculate, and irreparable.[9] Having adequately shown this risk of irreparable harm, however, Apple must further show that this theoretical harm is attributable in some way to Samsung's alleged infringement of the '604, '647, '721, and '172 Patents. The Court therefore turns next to determining whether Apple has adequately established some "causal nexus" between Samsung's purported infringement of each asserted patent and the theoretical irreparable harm described above.

2. Causal Nexus

Subsequent to Apple's filing of its opening brief, the Federal Circuit issued an opinion clarifying that a party seeking a preliminary injunction must show "some causal nexus" between the accused infringer's alleged infringement and the patentee's alleged irreparable harm. *Apple*, 678 F.3d at 1324. As the Federal Circuit explained:

> To show irreparable harm, it is necessary to show that the infringement caused harm in the first place. Sales lost to an infringing product cannot irreparably harm a patentee if consumers buy that product for reasons other than the patented feature. If the patented feature does not drive the demand for the product, sales would be lost even if the offending feature were absent from the accused product. Thus, a

[9] The parties highlight a tension inherent in the irreparable harm standard. On the one hand, a plaintiff cannot establish irreparable harm based on a purely speculative allegation of lost market share. *See Ill. Tool Works*, 906 F.2d at 683. On the other hand, the incalculability of future lost market share supports a finding that monetary damages are an inadequate remedy. *See Robert Bosch*, 659 F.3d at 1154. The Court finds that here, Apple's claim that it will suffer incalculable future lost market share is not merely speculative, but rather is amply supported by industry data and Samsung's own internal documents.

> likelihood of irreparable harm cannot be shown if sales would be lost regardless of the infringing conduct. . . . A mere showing that [the patentee] might lose some insubstantial market share as a result of [the accused's] infringement is not enough.

Id. at 1324-25 (citing *Voda v. Cordis Corp.*, 536 F.3d 1311, 1329 (Fed. Cir. 2008)).

Apple has established that the Galaxy Nexus likely infringes four of Apple's likely valid patents, but it is undisputed that smartphones today are comprised of a multitude of different features. In this context, the Federal Circuit's guidance is clear: Apple cannot enjoin the Galaxy Nexus unless it is able to show that the features claimed by the '604, '647, '721, or '172 Patents "drive the demand for the [Galaxy Nexus]." *Id.* Of course, not all consumers' purchasing decisions are driven by the same preferences. Therefore the Court does not take the Federal Circuit's ruling to mean that Apple must show that its patented features are the sole or even the primary driver of consumer demand. Nonetheless, the party seeking an injunction must show that the accused's infringement is responsible for more than an insubstantial loss of market share, for "[a] mere showing that [the patentee] might lose some insubstantial market share as a result of [the accused's] infringement is not enough" to make the requisite "'clear showing' that the patentee is at risk of irreparable harm." *Id.* at 1324-25 (quoting *Winter*, 555 U.S. at 22).

While the Federal Circuit has made clear that the patented features must "drive the demand" for the accused product, the Federal Circuit has not provided more detailed guidance on what standard of proof would satisfy the movant's burden. Samsung argues that Apple has produced no evidence that any of the four accused features drives consumer demand for the Galaxy Nexus. Samsung argues it is "common sense" that "consumers do not buy advanced smartphones based on non-core attributes like the unlock feature, any more than consumers buy cars because they like the cup holder." Opp'n at 27. At the hearing on this motion, Samsung argued that the relevant nexus inquiry was, "Does [the patented feature] drive . . . sufficient sales that would affect substantially the market share?" Tr. at 106:6-8. Apple agrees that "a feature can satisfy the nexus requirement if it affirmatively drives demand," but insists that proof of such affirmative demand cannot reasonably be required in the context of a complex device with a multiplicity of features. Tr. at 79:23-80:5. Apple therefore suggests that "[a] feature can also satisfy the nexus requirement if its removal would suppress demand, [i.e.,] if its removal would render the product less valuable."

Tr. at 80:6-9; *see also id.* at 106:24-107:12. According to Apple, an equally appropriate inquiry is, "If you were to remove the feature, [would there] be an impact on the functionality of the device in some manner that would have some causal link to demand[?]" Tr. at 107:2-5. Applying that nexus standard, Apple contends that "[i]f [Samsung] were to remove the features that are covered by our patents, each one, from the Galaxy Nexus, it would have a substantial impact on the functionality of the device and, as a consequence, a substantial impact on the demand for the device." Tr. at 80:13-18.

In the absence of more specific guidance from the Federal Circuit, this Court concludes that the requisite causal nexus between the alleged infringement and irreparable harm can be established by showing either that the patented feature is an affirmative driver of consumer demand, or that the patented feature's absence would suppress consumer demand. In other words, a patentee seeking to establish irreparable harm by virtue of lost sales must show that the infringing feature is a "drive[r] [of] demand for the product," such that its presence or absence from the product is responsible for the substantial gain or loss, respectively, of market share. That a patented feature drives consumer demand may be proven by direct evidence, such as consumer surveys, or by circumstantial evidence, such as evidence that the patented feature is a "core" feature of the product at issue. *Cf. Apple I*, 2011 WL 7036077, at *39; *Commonwealth Sci. & Indus. Research Org. v. Buffalo Tech. Inc.*, 492 F. Supp. 2d 600, 606 (E.D. Tex. 2007) (concluding that the patent at issue is a "core technology" of the infringing products and thus monetary damages are less likely to compensate for the infringement of the patent-in-suit); *z4 Techs., Inc. v. Microsoft Corp.*, 434 F. Supp. 2d 437, 440-41 (E.D. Tex. 2006) (finding no irreparable harm because "Microsoft only uses the infringing technology as a small component of its own software, and it is not likely that any consumer of Microsoft's Windows or Office software purchases these products for their product activation functionality").

Apple asserts that "[t]he patents at issue in this motion relate to core functionalities of the Galaxy Nexus and are very likely to drive consumer purchasing decisions," because the patents at issue all "cover important features that enable the 'smart' behavior of cutting-edge smartphones

that have helped make Apple's products successful." Mot. at 26. The Court considers each asserted patent individually to determine whether it satisfies the nexus requirement.

a. '604 Patent (Unified Search)

Apple asserts that Samsung has incorporated the unified search feature of the '604 Patent into the Galaxy Nexus in the form of the Google Quick Search Box because this search feature is highly valued by customers, as evidenced by the fact that the implementation of this feature on the iPhone 4S in the form of "Siri," "a computerized personal assistant," has driven consumer demand for the iPhone 4S. *See* Polish Decl. ¶¶ 77-78 & Ex. 8. Apple accuses Samsung of infringing the '604 Patent by using the patented unified search feature to allow users to search across sources, including contacts and the web, using a single interface, thus depriving Apple of its exclusive right to reap the benefit of this invention through Siri.

In support of its claim that the feature claimed by the '604 Patent drives consumer demand, Apple submits customer surveys showing that [redacted]. According to one recent survey, [redacted] Rangel Decl. Ex. 3 at 26; *see also* Vellturo Decl. ¶ 44. [redacted] Rangel Decl. Ex. 3 at 27. [redacted] Rangel Decl. Ex. 3 at 31. Indeed, [redacted]. Vellturo Decl. ¶ 44 & Ex. 14. This consumer survey data is strengthened by even more recent consumer survey data from the first quarter of 2012, which reveals that [redacted]. Vellturo Reply Decl. Ex. 31 at APLNDCA630-00001494990. [redacted] *Id.* at APLNDCA630-0000149481, *483, *484. In addition to customer surveys, Apple

points to industry praise for the Siri feature as evidence that it is a driver of consumer demand. For example, one review of the iPhone 4S calls Siri "the standout feature" of the iPhone 4S that has to "be tried to be believed." Vellturo Decl. Ex. 51 [Walt Mossberg, *The iPhone Finds Its Voice,* allthingsd.com, Oct. 11, 2011] at 1, 3. Another review says "Siri is the reason people should buy this phone." Vellturo Decl. Ex. 50 [Brian X. Chen, *Review: With Siri, the iPhone Finds Its Voice,* wired.com, Oct. 11, 2011] at 1.

Samsung insists that "the Galaxy Nexus doesn't compete on Siri." Tr. at 111:4. Samsung responds that the Siri feature on the iPhone 4S and the Quick Search Box on the Galaxy Nexus are not comparable features in the eyes of consumers, and that Apple has failed to adduce specific evidence that the unified search functionality claimed by the '604 Patent, as opposed to the intelligent voice-response feature of Siri, is the real driver of consumer demand. Samsung's expert Mr. Wagner points to a few reviews of Siri that focus on its voice-recognition improvements as evidence that consumers value Siri not for its search functionality across multiple databases, but rather for the ability to interface with the phone verbally in a natural, conversational manner. Wagner Decl. ¶ 60; *id.* Exs. W, X. Mr. Wagner asserts that industry praise for Siri as a "virtual personal assistant" – a feature of Siri that Apple itself advertises – suggests that "[b]uyers value the idea of Siri because it is a step towards artificial intelligence." Wagner Decl. ¶ 60; *see also* Decl. of Steven Sinclair ("Sinclair Decl.") ¶ 9 (iPhone 4S commercials advertise Siri as "The Assistant"). Samsung further argues that even if Siri is a driving force behind consumer demand for the iPhone 4S, the Quick Search Box, which allegedly practices the asserted claims of the '604 Patent, is decidedly not driving consumer demand for the Galaxy Nexus. Samsung presents evidence, comprised primarily of its own marketing messages and industry analyst commentary, that consumers are drawn to the Galaxy Nexus for features other than the Quick Search Box, such as the phone's AMOLED display, its 1.2 GHz dual-core processor, Android 4.0 ("Ice Cream Sandwich"), the Android Beam, face unlock,[10] and its camera. Wagner Decl. ¶¶ 64-67.

[10] Although Samsung emphasizes that it advertises the "face unlock" feature, even Samsung's own internal documents note that [redacted] Vellturo Reply Decl. Ex. 49 at SAMNDCA630-00055973.

Samsung's criticism of the probative weight of Apple's consumer survey evidence on Siri is well taken, but the Court nonetheless finds the evidence to be persuasive circumstantial evidence. While direct evidence of Galaxy Nexus customers' feature preferences would certainly be even more compelling, Apple's survey evidence of its own customers is still relevant to the Court's determination of what features drive consumer demand for either the iPhone or the Galaxy Nexus. This is particularly true in light of Samsung's own documents confirming that Samsung and Apple compete directly with one another for the same customers. *See, e.g.*, Vellturo Decl. ¶ 67; *id.* Exs. 23, 40 (commentators noting that Samsung's marketing campaign for the S II (a predecessor to the Galaxy Nexus) "is [g]oing [r]ight for Apple [f]anboys' [j]ugular"). In any event, the Federal Circuit has not held that customer survey evidence or other direct proof of "consumer motivation" is "a prerequisite to a finding of irreparable harm" in every patent case. *Apple*, 678 F.3d at 1324 n.3; *see also i4i Ltd. P'ship*, 598 F.3d at 862 (holding that "i4i was not required to prove that its specific customers stopped using i4i's products because they switched to the infringing Word products").

Furthermore, notwithstanding Samsung's argument that Siri's voice recognition capability drives demand, Apple introduces evidence in support of its competing argument that "Siri is core to the functioning and sales of the iPhone not just because it hears requests, but because it *delivers search results*." Reply at 13 (emphasis in original); *see* Vellturo Reply Decl. ¶¶ 96, 102. As Apple's expert stated during his deposition, "[A] lot of Siri's value comes from its comprehensiveness and . . . the claimed features of the '604 are important to achieving that comprehensiveness. So there may well be other aspects of Siri such as its ability to do speaker independent speech recognition that's very important or handle noisy microphones, but . . . I think comprehensiveness is very . . . important to the . . . success of it as an interface and the '604 patented features are very important to that comprehensiveness." Posner Decl. Ex. E at 158:10-21. Indeed, the importance of Siri's underlying search functionality is corroborated by consumer studies, which show that [redacted]. Vellturo Reply Decl. ¶ 101; *id.* Ex. 30 at APLNDC630-

0000149092, *094. Samsung does not contest that the Siri feature uses the claimed unified search features of the '604 Patent. *See* Polish Decl. ¶¶ 77-78; *see generally* Opp'n.

Third-party reviewers similarly recognize the importance of Siri's search capabilities. For example, a *Forbes* article notes that "its potential really lies in its ability to revolutionize the way we search," and further predicts that "in the future it may even be a 'Google killer.'" Vellturo Reply Decl. Ex. 15 at APLNDCA630-0000149197. The article goes on to say, "Siri is the latest . . . game changer in Internet search, and it has certainly begun to change people's expectations about both the process and the results of search. . . . Siri has become a near-indispensible [sic] entry point." *Id.* Ex. 15 at APLNDCA630-0000149197. Indeed, even one of the third-party articles on which Samsung relies highlights Siri's search functionality, remarking, "Behold, the awesome power of curated search," and "Siri is a great tool even when you're using it for basic search." Wagner Decl. Ex. W at 4.

Moreover, Samsung's effort to downplay the importance of the Quick Search Box's search functionality to Galaxy Nexus is undermined by Android and Google documents. The Android developer's guide stresses that "[s]earch is a core user feature on Android." Vellturo Reply Decl. ¶ 104; *id.* Ex. 6 at 1. The Android developer's guide specifically emphasizes the importance of a search feature that lets users "search any data that is available to them, whether the content is located *on the device or the Internet*." *Id.* Ex. 6 at 1 (emphasis added). This is unified search. The Google Mobile Blog also featured the Quick Search Box for Android, highlighting precisely the functionality claimed by the '604 Patent:

> Rather than giving you one search box for the web and another for your phone, QSB provides one single search box to let you search content on your phone, including apps, contacts, and browser history, as well as content from the web, like personalized search suggestions, local business listings, stock quotes, weather, and flight status, all without opening the browser. QSB even learns from your habits and provides faster access to the items you search for and use most often (by, for example, moving them higher on the suggestions list).

Polish Reply Decl. Ex. 1 at 1. Third parties agree that the Quick Search Box "adds a whole new layer of functionality" that helps Android phones "win new customers, even ones with iPhones." Vellturo Reply Decl. ¶ 104; *id.* Ex. 10 at 2. Finally, to the extent Samsung's evidence suggests that

consumers are drawn to the voice-recognition functionality of Siri, the Quick Search Box also features voice search capability. *See* Polish Reply Decl. Ex. 1 at 1-2 ("The next time you want to search the web or call a friend, try speaking your query, like 'pictures of the Golden Gate Bridge at sunset,' or the name of a contact, like 'Call Dave Burke."); Vellturo Reply Decl. Ex. 10 at 1.

The Court is persuaded by the evidence in the record that the '604 unified search functionality drives consumer demand in a way that affects substantial market share. Even accepting Samsung's argument that the intelligent voice-recognition aspect of Siri, as advertised, also contributes to consumer interest in the iPhone 4S, Apple has shown that the '604 Patented feature is core to Siri's functionality and is thus a but-for driver of demand for Siri. Accordingly, the Court finds that Apple has adequately established the requisite causal nexus between Samsung's alleged infringement of the '604 Patent and Apple's risk of suffering irreparable harm.

b. '647 Patent (Links for Structures)

Apple asserts that "[p]roviding links for structures is an important aspect of the user experience, and is core to both the iPhone and the Galaxy Nexus." Reply at 15; *see also* Tr. at 94:8-9; 95:18-20 (arguing that "links for structures" is now fundamental to "the way people interact with their phones"). Apple has submitted evidence that Apple itself practices at least claim 1 of the '647 Patent. Mowry Decl. ¶¶ 84-87 & Exs. 13 [Mowry Expert Rep. in 710 Investigation], 15 [ITC Initial Determination in 710 Investigation], 16 [ITC Commission Opinion in 710 Investigation]. The ITC also recently found that HTC phones practiced the same patented feature, and granted an injunction on that basis. *See* Mowry Decl. Ex. 16. Furthermore, as discussed above, Apple has shown a likelihood of proving at trial that the Galaxy Nexus infringes this feature as well.

Apple asserts that "[a] phone without this feature would be far more cumbersome, and less appealing to consumers," and thus "[t]he absence of this feature would fundamentally change the easy and intuitive way users interact with their devices, and diminish sales." Reply at 15 (citing Vellturo Reply Decl. ¶¶ 90-95). In support of this argument, Apple relies principally on the views of its own expert, Dr. Mowry, who opines that links for structures "is particularly useful in today's mobile devices, which often prevent multiple applications from being shown simultaneously.

Users no longer ha[ve] to flip back and forth between screens or applications to copy a phone number from a web page to the phone dialer or to carefully highlight a number[,] copy it into a device's memory and then paste it into a dialer application." Mowry Decl. ¶ 24. Apple also points to Apple's June 2007 iPhone Reviewer's Guide 2007, which advertises that "[m]aking a call is as simple as tapping a name," and that "any phone number that appears in an email, SMS text message, or web page can be called instantly by tapping on it." Vellturo Reply Decl. ¶ 91; *id.* Ex. 28 [iPhone Reviewers Guide: June 2007] at APLNDCA630-0000128233, *240. Though not overwhelming, there is also some evidence that Samsung recognizes the importance of the "links for structures" feature as well. In particular, Apple points to a Samsung document [redacted] Vellturo Reply Decl. ¶ 94; *id.* Ex. 32 at SAMNDCA00203915.

While probative of the fact that both Apple and Samsung value the functionality claimed by the '647 Patent, Apple's evidence does not demonstrate that the links for structures feature actually drives consumer demand in a way that affects substantial market share. Dr. Mowry's testimony explaining the value of the patented invention is uncorroborated and does not adequately support an inference that removal of the feature would substantially affect consumer demand for either the iPhone or the Galaxy Nexus. The 2007 iPhone Reviewer's Guide does not describe the full invention of the '647 Patent, which is linking multiple structures to multiple actions, but instead describes only the ability to call a phone number by tapping on it. As discussed above in the Court's merits analysis, this limited functionality of being able to perform a single action, "dialing," on a single type of structure, "phone number," was disclosed in the prior art, such as the Sidekick. Thus, it is not clear even from Apple's own evidence whether the claimed invention of the '647 Patent is critical functionality, or whether only the more limited functionality disclosed by the prior art is the relevant driver of consumer demand. [redacted]

[redacted] Again, while the evidence shows that there is some connection between the links for structures feature and consumer interest, the evidence falls short of establishing that this particular feature is a substantial driver of consumer demand.

In an effort to establish the requisite causal nexus between Samsung's alleged infringement of the '647 Patent and Apple's claimed irreparable harm, Apple also leans heavily on customer surveys [redacted] and then argues that the links for structures feature [redacted] "helps put the 'smart' in smartphone." Mot. at 28. [redacted] as a driver of consumer demand is well supported. For example, one customer survey of iPhone 4S customers shows that [redacted]." Rangel Decl. Ex. 3 at 27. Another Apple survey of iPhone buyers shows that [redacted] Rangel Decl. Ex. 1 at 60. A third Apple study comparing both iPhone and Android consumers' preferences shows [redacted]. Wagner Decl. Ex. T at APLNDCA630-0000149121.

Notwithstanding this data [redacted], however, Apple has failed to adduce consumer survey evidence establishing demand specifically for the '647 Patented feature. Unlike [redacted], which appears to practice the invention of the '604 Patent, [redacted] Apple's 30(b)(6) witness [redacted] Posner Decl. Ex. G [Joswiak Dep.] at 18:24-19:18. He further admitted that [redacted] *See* Wagner Decl. ¶ 56; Posner Decl. Ex. G [Joswiak Dep.] at 20:15-38:11. Indeed, [redacted] Posner Decl. Ex. G [Joswiak Dep.] at 23:2-4. Instead, [redacted]

[redacted] Posner Decl. Ex. G at 20:18-24. [redacted] Posner Decl. Ex. G at 23:5-9. Apple has not presented any more granular data specifically demonstrating how the "links for structures" feature drives consumer demand.

The sole connection between the links for structures feature and [redacted] *See* Posner Decl. Ex. K at 34:22-25; Vellturo Reply Decl. ¶ 93 & Ex. 24. According to a memo summarizing key findings from the study, [redacted] Vellturo Reply Decl. Ex. 24 at APLNDC0002420480. [redacted] *Id.* [redacted] the Court finds this evidence to be of only limited probative value. The memo provides no information about the number of participants, the questions they were asked, or any other parameters that would generally be important in assessing the reliability of a study. Moreover, the memo states that [redacted] *Id.* Ex. 24 at APLNDCA002420484. Even the results of [redacted] Apple has presented no evidence of its attempt to do so. Thus, although Apple has demonstrated some causal link between the "links for structures" feature and consumer purchasing decisions, the evidence adduced falls

short of making the requisite clear showing that the "links for structures" feature drives consumer demand in a way that affects substantial market share.

Of course, customer survey evidence, while probative of nexus, is not required. *Apple*, 678 F.3d at 1324 n.3. Nonetheless, Apple bears the burden of providing some evidence that Samsung's alleged infringement of the '647 Patent will cause it to lose more than "some insubstantial market share." *Id.* at 1324-25. As both the Supreme Court and the Federal Circuit have made clear, a preliminary injunction "is a drastic and extraordinary remedy." *Munaf*, 553 U.S. at 689-90; *Intel Corp.*, 995 F.2d at 1568. A party seeking preliminary injunctive relief must therefore "make 'a clear showing' that it is at risk of irreparable harm." *Apple*, 678 F.3d at 1325 (quoting *Winter*, 555 U.S. at 22). On this record, viewing the evidence in its totality, the Court finds that Apple has not made a clear showing that the functionality described in the '647 Patent drives consumer demand such that Samsung's alleged infringement is likely to cause Apple a substantial loss of market share.

c. '721 Patent (Slide to Unlock)

Apple argues that "[s]lide-to-unlock is an iconic feature of the iPhone . . . and also is a core feature of the Galaxy Nexus." Reply at 14. As evidence that the slide-to-unlock feature is part of what drives consumer demand for the iPhone, Apple points to the fact that iPhone commercials have for a long time featured a finger demonstrating the slide-to-unlock feature. *See* Vellturo Reply Decl. ¶¶ 74-75. As further support, Apple again points to the [redacted] *See* Rangel Decl. Ex. 3 at 27; *id.* Ex. 1 at 60. Although Apple's evidence clearly demonstrates [redacted], the Court finds the record devoid of any evidence that specifically links the "slide to unlock" feature to [redacted]. As previously noted, [redacted] When asked whether Apple has ever asked consumers whether the "slide to unlock" feature was important or contributed to their buying decision, [redacted]

[redacted] Posner Decl. Ex. G at 25:14-24. Thus, Apple's [redacted] is of only extremely limited relevance to the present inquiry.

Apple's second argument emphasizes the superiority of the slide to unlock feature compared to other methods of unlocking a smartphone. Apple points to Samsung's internal research and development documents, which [redacted]. *See* Vellturo Reply Decl. ¶¶ 77-81. For example, a Samsung document noted that [redacted] Vellturo Reply Decl. Ex. 49 at SAMNDCA630-00055973. Another Samsung document noted that [redacted]. Vellturo Reply Decl. ¶ 79 & Ex. 33 at SAMNDCA00231472.

Samsung contends that the proper inquiry is not whether the general functionality to which Apple's patent is directed is a driver of consumer demand, but rather whether "Apple's way of doing that feature" is a driver of sales. Tr. at 105:9-10. The Court is not convinced that the mere availability of other implementations is dispositive. For example, though there may be other possible ways to unlock a device, the fact that Samsung has chosen to copy Apple's particular, patented method may be indicia that Apple's method is not only a superior one, but a driver of demand. Nonetheless, the Court agrees that when examining the causal nexus between infringement of the patented feature and the claimed irreparable harm, the Court necessarily must take into account the scope of the claimed invention. Here, it is apparent that the scope of the '721 Patent covers only one method of unlocking a device. Samsung has identified examples of other methods for unlocking a device, such as "face unlock," which uses facial recognition to unlock the device, and is an alternative setting available on the Galaxy Nexus. *See* Vellturo Reply Decl. ¶ 80 Ex. 21. Again, the Court is not particularly persuaded that "face unlock" is a comparable alternative to the slide to unlock feature, given that [redacted] Vellturo Reply Decl. Ex. 49 at SAMNDCA630-00055973. Nonetheless, on the record as a whole, Apple has not met its burden of showing that removal of the slide to unlock feature would suppress consumer demand to a degree that would substantially affect market share.

Although there is some evidence in the record that the slide to unlock feature is an improvement over the prior art and thus a valued one, the Court cannot say that Apple has established that this one feature is a substantial driver of consumer demand. Apple's reliance on its own advertising highlighting the slide-to-unlock feature and its unsupported assertion that slide-to-unlock contributes to a smartphone's "ease of use" is simply insufficient to establish the requisite causal nexus between Samsung's infringement of this particular feature, on its own, and the alleged irreparable harm.

d. '172 Patent (Word Recommendations)

Apple asserts that the word recommendation feature claimed in the '172 Patent "helps make the iPhone's touchscreen user interface remarkably easy to use, as it allows users to type on the touchscreen quickly (by automatically completing words) and accurately (by correcting misspellings)." Mot. at 29. Apple asserts that this user-interface invention is "very important to the success of Apple's devices" and that Samsung has copied the feature because Samsung "knows that consumers who are choosing a new phone want a fun, easy-to-use touchscreen interface like the one Apple provides." Mot. at 29.

Apple has no direct evidence linking consumer demand for iPhones or other smartphones to the claimed word recommendation feature, specifically. Once again, Apple points to the [redacted] *See* Rangel Decl. Ex. 3 at 27; *id.* Ex. 1 at 60. However, as with the slide to unlock feature, [redacted] Posner Decl. Ex. G at 32:24-33:1. Apple's reliance on its [redacted] is again undermined by its failure to establish a link between [redacted] and the patented "word recommendations" feature.

Perhaps recognizing the limited probative value of its [redacted], Apple takes a different tack in its reply, repackaging the '172 Patent in its reply brief as directed towards an "auto-correct feature," which Apple asserts is essential to the viability of glass keyboards that are now a fundamental component of smartphones. *See* Reply at 14; *see also* Tr. at 81:2-82:2, 89:9-90:8. Apple's expert asserts that without an auto-correct feature, touchscreen keyboards, which are more prone to error than are tactile keyboards, would be difficult and intimidating, particularly to the critical customer base of first-time smartphone users. Vellturo Reply Decl. ¶¶ 83-87. In support of this theory, Apple submits two newspaper articles, one by the *Wall Street Journal* and another by the *New York Times*, praising the success of the auto-correction feature on the iPhone touchscreen. *Id.* ¶ 86 & Exs. 8, 9. Apple also points [redacted]. Vellturo Reply Decl. ¶ 87; *id.* Ex. 3 [Joswiak Dep.] at 30:2-22. Finally, Samsung's witness agreed during his deposition that typing is a "necessity" for messaging and web browsing capabilities on the Galaxy Nexus. Vellturo Reply Decl. ¶ 88; *id.* Ex. 5 [Geklinsky Dep.] at 113:4-8. Based on this evidence, Apple argues that if the feature covered by the '172 Patent were removed from the Galaxy Nexus, demand for the phone would plummet.

The Court finds that Apple's evidence regarding the importance of auto-correct functionality to the viability of touchscreen keyboards is not adequately tailored to capture consumer demand for Apple's specific patented invention. As noted above, the Court deems it appropriate to take into account the scope of the claimed invention when considering whether the patentee has established the requisite causal nexus between infringement of the patented feature and the claimed irreparable harm. Apple equates the '172 Patent with "auto-correct" functionality as a blanket category. However, as addressed in the Court's discussion of the merits above, Apple's '172 Patent is narrow in scope. Contrary to Apple's characterizations, the '172 Patent does not broadly claim "auto-correction" functionality in all its forms. If it did, Samsung has shown that it would likely be invalidated by numerous prior art references that similarly were directed to methods of providing auto-correct functionality.

The Court finds that Apple has failed to adduce evidence demonstrating that the particular auto-correct implementation claimed by the '172 Patent drives consumer demand, or that Samsung's alleged infringement of this feature is likely to cause a *substantial* loss of market share. In short, as with the slide to unlock feature, Apple has failed to show that the user interface feature covered by the '172 Patent is a substantial driver of consumer demand.

3. Inadequacy of Legal Remedies

The Court next considers Samsung's contention that Apple's delay in prosecuting its patent claims and Apple's past willingness to license at least some of the asserted patents belie the inadequacy of monetary damages in remedying any injuries that may ultimately be proven at trial.

a. Delay

Samsung argues that Apple's delay in seeking to enjoin Samsung from selling products with the allegedly patented features undercuts its claimed irreparable harm. Opp'n at 30. Indeed, a prolonged or undue delay in bringing suit or seeking a preliminary injunction "is an important factor bearing on the need for a preliminary injunction." *High Tech Med. Instrumentation, Inc. v. New Image Indus., Inc.*, 49 F.3d 1551, 1557 (Fed. Cir. 1995) (finding that an unjustified 17-month delay in bringing suit, combined with other factors, "militate[d] against" issuance of an injunction because it suggested there was "no apparent urgency to the request for injunctive relief"); *see Nutrition 21*, 930 F.2d at 872 (finding that a seven-month delay in bringing suit "at least suggests that the *status quo*" does not cause irreparable harm).

Here, Samsung argues that Apple delayed seeking to enjoin Samsung's infringement of the '604 and '721 Patents. Although the '604 Patent did not issue until December 27, 2011 – just a few months before Apple brought this infringement action – the'604 Patent is a continuation of U.S. Patent No. 6,847,959 ("the '959 Patent"), which issued in January 2005, and the Quick Search Box has been included in Samsung's other Android products since at least July 2010. *See* Decl. of Youngsoon Lee ("Youngsoon Lee Decl.") Ex. A. Similarly, although the '721 Patent did not issue until October 25, 2011, the '721 Patent is a continuation of a prior patent, U.S. Patent No. 7,657,849 ("the '849 Patent"), which issued in February 2010. Samsung asserts that earlier generations of its Android-based products, since at least July 2010, used features similar to those in

the Galaxy Nexus accused of infringing the '604 and '721 Patents, yet Apple waited until 2012 to assert these patents against Samsung. *See* Youngsoon Lee Decl. Exs. A & B.

The Court is not persuaded. The Court finds that Apple did not unreasonably delay in seeking to enforce the '604 or '721, which did not even issue until just a few months before Apple filed for preliminary injunctive relief. Nor did Apple unreasonably delay in bringing this infringement suit or moving for preliminary relief with respect to the Galaxy Nexus, which was not released until December 2011, just three months before Apple filed this suit and the instant motion.

Samsung also argues that Apple unreasonably delayed in seeking an injunction based on the '647 Patent, which issued in 1999. Samsung argues that the accused Browser application was part of earlier versions of Android that have been included in other Samsung products since at least July 2010. *See* Youngsoon Lee Decl. Ex. A. Apple's delay in seeking to enjoin previous generations of Samsung products that may also have infringed the '647 Patent is a factor that undercuts Apple's claim of urgency and irreparable harm with respect to the '647 Patent. *See Pfizer*, 429 F.3d at 1381. Nonetheless, this Court previously rejected Samsung's argument that a patentee's initial failure to timely enjoin a first generation of products forever forecloses a patentee's ability to preliminarily enjoin subsequent generations of infringing products. *See Apple I*, 2011 WL 7036077, at *22. To the extent Apple did delay in enforcing its patent rights, delay in seeking a preliminary injunction "is but one factor to be considered" by the court "in the context of the totality of the circumstances." *Hybritech*, 849 F.2d at 1457; *see also High Tech Med. Instrumentation*, 49 F.3d at 1557 (noting that the 17-month delay "may not have been enough, standing alone, to demonstrate the absence of irreparable harm"). While a significant delay may support a district court's finding of no irreparable harm as a matter of discretion, a showing of delay does not preclude a finding of irreparable harm as a matter of law. *Hybritech*, 849 F.2d at 1457. Furthermore, "[t]he fact that other infringers may be in the marketplace does not negate irreparable harm. A patentee does not have to sue all infringers at once. Picking off one infringer at a time is not inconsistent with being irreparably harmed." *Polymer Techs.*, 103 F.3d at 975. Thus, the Court does not find that Apple's failure to enforce the '647 Patent against earlier generations of Samsung products weighs heavily against a finding of irreparable harm.

b. Licensing Practices

Samsung also argues that "Apple's licensing practices show that Apple could be compensated with money damages for any alleged infringement." Opp'n at 31. Samsung's only evidence with regard to [redacted]. *See* Posner Decl. Ex. S; *see also* Mot. at 5-6, nn.9-10. Thus, the Court finds this license inapposite to the question of irreparable harm.

[redacted], however, tells a different story. [redacted] Opp'n at 31. More importantly, it appears that [redacted]. Posner Decl. Ex. P [Lutton Dep.] at 47:21-55:4; *id.* Ex. DD at 15, 23. While not dispositive, a patentee's willingness to license its patents can weigh against a finding of irreparable harm, when viewed in the context of the totality of circumstances. *See Acumed*, 551 F.3d at 1328 ("While the fact that a patentee has previously chosen to license the patent may indicate that a reasonable royalty does compensate for an infringement, that is but one factor for the district court to consider."); *cf. eBay*, 547 U.S. at 393 (rejecting district court's conclusion that "a plaintiff's willingness to license its patents . . . would be sufficient to establish that the patent holder would not suffer irreparable harm if an injunction did not issue"). "The fact of the grant of previous licenses, the identity of the past licensees, the experience in the market since the licenses were granted, and the identity of the new infringer all may affect the district court's discretionary decision concerning whether a reasonable royalty from an infringer constitutes damages adequate to compensate for the infringement." *Acumed*, 551 F.3d at 1328.

Though not dispositive, Apple's [redacted], is relevant to the Court's factual determination of whether Samsung's alleged

infringement of the [redacted] is compensable by money damages. The Court finds that this factor therefore weighs against a finding of irreparable harm as to the [redacted].

4. Summary of Irreparable Harm

The Court finds that Apple and Samsung are direct competitors in the smartphone market, and that Apple practices its own claimed inventions in the iPhone. Both factors weigh in favor of finding irreparable harm. *See Robert Bosch*, 659 F.3d at 1150 (in fashioning equitable relief, the "wisdom" of history "is particularly apt in traditional cases . . . where the patentee and adjudged infringer both practice the patented technology"). The Court further finds that Apple has articulated a plausible theory of irreparable harm that would flow from long-term loss of market share and unascertainable losses of downstream sales. *See id.* at 1153-54 (loss of market share supports finding of irreparable harm). Furthermore, although the Court finds that Apple has not clearly shown that the features claimed by the '647, '721, and '172 Patents are substantial drivers of consumer demand, Apple has made such a showing with respect to the unified search functionality claimed by the '604 Patent. Thus, the Court finds that Apple has established the requisite causal nexus between Samsung's alleged infringement of the likely valid '604 Patent and Apple's alleged irreparable harm. In addition, the Court finds that Apple did not unreasonably delay in bringing this suit against Samsung and in seeking preliminary injunctive relief. Finally, although [redacted] is a factor that weighs against a finding of irreparable harm with respect to the [redacted], Samsung has introduced no relevant evidence of Apple's willingness to license the '604 Patent. Thus, after weighing all the evidence presented by both parties, the Court finds that Apple has clearly shown that it is likely to suffer irreparable harm in the absence of preliminary injunctive relief. *Cf. Robert Bosch*, 659 F.3d at 1151 (finding irreparable harm where the parties were in direct competition, plaintiff established a likely loss in market share and access to potential customers, and defendant lacked financial wherewithal to satisfy a judgment).

C. Balance of Hardships

Under the third prong of the *Winter* test, "[t]he magnitude of the threatened injury to the patent owner is weighed, in the light of the strength of the showing of likelihood of success on the

merits, against the injury to the accused infringer if the preliminary decision is in error." *H.H. Robertson, Co. v. United Steel Deck, Inc.*, 820 F.2d 384, 390 (Fed. Cir. 1987), *abrogated on other grounds by Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995). "Because the court must balance the hardships, at least in part in light of its estimate of what is likely to happen at trial, it must consider the movant's showing of likelihood of success. Yet, a court must remain free to deny a preliminary injunction, whatever be the showing of likelihood of success, when equity in the light of all the factors so requires." *Ill. Tool Works*, 906 F.2d at 683 (citing *Roper Corp. v. Litton Sys., Inc.*, 757 F.2d 1266, 1272-73 (Fed. Cir. 1985)). As the Federal Circuit has recognized, "[t]he hardship on a preliminarily enjoined manufacturer who must withdraw its product from the market before trial can be devastating." *Id.* On the other hand, "the hardship on a patentee denied an injunction after showing a strong likelihood of success on validity and infringement consists in a frequently and equally serious delay in the exercise of his limited-in-time property right to exclude." *Id.* "Neither hardship can be controlling in all cases." *Id.*

On this record, the Court finds that the balance of hardships tips in Apple's favor. Although Samsung will necessarily be harmed by being forced to withdraw its product from the market before the merits can be determined after a full trial, the harm faced by Apple absent an injunction is greater. Apple's interest in enforcing its patent rights is particularly strong because it has presented a strong case on the merits. As discussed above, Apple has shown a likelihood of prevailing on the merits of all four of its asserted patents. Apple has further shown a likelihood of irreparable harm attributable to Samsung's infringement of the '604 Patent if the injunction does not issue. Samsung, by contrast, does not present any evidence of what hardship it will suffer if the injunction issues. *See* Opp'n at 31-32. Samsung's only balance of hardships arguments simply duplicate its irreparable harm arguments, which the Court finds unpersuasive. First, Samsung asserts, without explanation, that "evidence of Apple's growing sales and market share . . . tips the balance of the hardships in Samsung's favor." Opp'n at 32. As discussed previously, however, Apple has presented evidence that Samsung's market share has also been growing. Thus, this factor does not weigh in Samsung's favor. Second, Samsung argues that an injunction on the Galaxy Nexus is overbroad, because the "four allegedly infringing features . . . are 'but a small

part' of the overall product." Opp'n at 32. The Court takes to heart Justice Kennedy's admonition that "[w]hen the patented invention is but a small component of the product the companies seek to produce . . . legal damages may well be sufficient to compensate for the infringement." *eBay*, 547 U.S. at 396. Nonetheless, whether a patented invention is "but a small component" of the accused product turns not on some quantitative tally of total features, but rather on the power of the patented invention to drive consumer demand. Here, the Court has already found that the unified search feature claimed by the '604 Patent is not merely "a small component" of the product but rather a substantial driver of consumer demand.

While Apple's showing of a likelihood of success and a likelihood of irreparable harm with respect to the '604 Patent may have supported issuance of an injunction on its own, the Court finds that Apple's showing of likely validity and infringement of the '647, '721, and '172 Patents further tips the scales in Apple's favor. *See Celsis In Vitro*, 664 F.3d at 931 (a strong showing of likely success on the merits and likely irreparable harm support a finding that the balance of hardships favors the patentee). "One who elects to build a business on a product found to infringe cannot be heard to complain if an injunction against continuing infringement destroys the business so elected." *Windsurfing Int'l, Inc. v. AMF, Inc.*, 782 F.2d 995, 1003 n.12 (Fed. Cir. 1986). While Samsung will certainly suffer lost sales from the issuance of an injunction, the hardship to Apple of having to directly compete with Samsung's infringing products outweighs Samsung's harm in light of the Court's findings. Viewing the totality of the evidence and weighing the equities based on the record before it, the Court finds that the balance of hardships tips in Apple's favor.

D. Public Interest

"[T]he touchstone of the public interest factor is whether an injunction, both in scope and effect, strikes a workable balance between protecting the patentee's rights and protecting the public from the injunction's adverse effects." *i4i Ltd. P'ship*, 598 F.3d at 863 (citing *Broadcom Corp. v. Qualcomm Inc.*, 543 F.3d 683, 704 (Fed. Cir. 2008)). Apple argues that issuance of a preliminary injunction would serve the public interest in this case because Apple has established a likelihood of success on the merits, and the Federal Circuit has "long acknowledged the importance of the patent system in encouraging innovation." *Sanofi-Synthelabo*, 470 F.3d at 1383; *accord Celsis In Vitro*,

664 F.3d at 931. Apple further argues that Samsung is a "serial infringe[r]," as Samsung launched its Galaxy Nexus just two weeks after this Court determined that its prior devices likely infringed several other Apple patents. Mot. at 31. Samsung, in turn, argues that the "public also has an interest in promoting competition," and that "[r]emoving from the market the product described as 'the most credible competitor of the iPhone so far' based on alleged infringement by four of its non-core features would fail to serve the public's interest in enjoying the benefits of competition . . . ." Opp'n at 32-33.

Both parties have identified valid public interests. Nonetheless, in light of Apple's showing of likely success on the merits and likely irreparable harm, the Court finds that the public interest favors enforcement of Apple's patent rights. *See Celsis In Vitro*, 664 F.3d at 931; *Sanofi-Synthelabo*, 470 F.3d at 1383 ("We have long acknowledged the importance of the patent system in encouraging innovation."). Although Samsung has a right to compete, it does not have a right to compete with infringing products. As explained by the Federal Circuit, "[a]lthough the public interest inquiry is not necessarily or always bound to the likelihood of success o[n] the merits, . . . absent any other relevant concerns . . . the public is best served by enforcing patents that are likely valid and infringed." *Abbott Labs.*, 452 F.3d at 1348. As a patent holder, Apple has a valid right to exclude others from practicing Apple's invention. In order to protect that right, and to promote the "encouragement of investment-based risk," the public interest weighs in favor of Apple in this case. *See Sanofi-Synthelabo*, 470 F.3d at 1383 (citing *Patlex Corp. v. Mossinghoff*, 758 F.2d 594, 599 (Fed. Cir. 1985)).

E. Weighing the Factors

As previously noted, in determining whether a party is entitled to preliminary injunctive relief under *Winter*, "the district court must weigh and measure each factor against the other factors and against the form and magnitude of the relief requested." *Hybritech*, 849 F.2d at 1451 n.12. "[N]o one factor, taken individually, is necessarily dispositive." *Chrysler Motors Corp. v. Auto Body Panels of Ohio, Inc.*, 908 F.2d 951, 953 (Fed. Cir. 1990). The Court therefore considers and weighs all four factors, in light of the totality of the evidence in the record.

Apple has shown that it is likely to prove at trial that the Galaxy Nexus phones infringe claims 6 and 19 of the '604 Patent; claims 1 and 8 of the '647 Patent; claims 7, 8, 12 and 15 of the '721 Patent; and claims 18, 19, and 27 of the '172 Patent, and that these patent claims are valid. Apple has further shown that it is likely to suffer irreparable harm in the absence of immediate relief, and that this irreparable harm will be attributable to Samsung's infringement of the '604 Patent, though Apple has not made the same showing with respect to Samsung's infringement of the '647, '721, or '172 Patents. As explained above, the remaining two *Winter* factors also weigh in favor of an injunction. In light of the fact that all four *Winter* factors weigh in Apple's favor, the Court finds that the issuance of a preliminary injunction enjoining Samsung from practicing the claimed features of the '604 Patent is proper and justified.

V. BOND

Federal Rule of Civil Procedure 65(c) requires that the Court order Apple to provide security "in an amount that the court considers proper to pay the costs and damages sustained by any party found to have been wrongfully enjoined or restrained." The amount of bond is within the court's discretion. *See Save Our Sonoran, Inc. v. Flowers*, 408 F.3d 1113, 1126 (9th Cir. 2005). The bond requirement is "designed to protect the enjoined party's interests in the event that future proceedings show the injunction issued wrongfully." *Apple*, 678 F.3d at 1339 (O'Malley, J. concurring) (citing *Edgar v. MITE Corp.*, 457 U.S. 624, 649 (1982) (Stevens, J., concurring)).

Samsung argues that Apple should be required to post a bond of no less than $95,637,141.60. This figure is based on Samsung's projected losses resulting from lost sales of the Galaxy Nexus through trial in this matter, currently scheduled for March 31, 2014. Samsung Bond Br. at 1-2. Samsung estimates that between July 2012 and June 2013, it will sell approximately [redacted] units of the Galaxy Nexus in the United States, at an average profit rate of [redacted]. *Id.*; *see* Decl. of Corey Kerstetter ("Kerstetter Decl.") ¶¶ 2-3. Because the amount of the bond is an upper limit on an injured party's redress for a wrongful injunction, courts have held that "district courts should err on the high side." *Mead Johnson & Co. v. Abbott Labs.*, 201 F.3d 883, 888 (7th Cir. 2000). Apple offers no alternative bond amount. Accordingly, the Court sets the bond in the amount of $95,637,141.60.

VI. CONCLUSION

For the foregoing reasons, Apple's motion for a preliminary injunction is GRANTED. Accordingly, Samsung Electronics Co., Ltd.; Samsung Electronics America, Inc.; and Samsung Telecommunications America, LLC; its officers, directors, partners, agents, servants, employees, attorneys, subsidiaries, and those acting in concert with any of them, are enjoined from making, using, offering to sell, or selling within the United States, or importing into the United States Samsung's Galaxy Nexus and any product that is no more than colorably different from the specified product and infringes U.S. Patent No. 8,086,604. As a condition of the preliminary injunction, Apple is ordered to post a bond in the amount of $95,637,141.60 to secure payment of any damages sustained by defendant if it is later found to have been wrongfully enjoined. This Order shall become effective upon posting of the bond.

IT IS SO ORDERED.

Dated: June 29, 2012

LUCY H. KOH
United States District Judge