UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

APPLE INC., a California corporation, Plaintiff and Counterdefendant, v. SAMSUNG ELECTRONICS CO., LTD., a Korean corporation; SAMSUNG ELECTRONICS AMERICA, INC., a New York corporation; SAMSUNG TELECOMMUNICATIONS AMERICA, LLC, a Delaware limited liability company, Defendants and Counterclaimants.	Case No.: 12-CV-00630-LHK ORDER CONSTRUING DISPUTED CLAIM TERMS OF U.S. PATENT NOS. 5,579,239; 5,666,502; 5,946,647; 7,577,757; 7,756,087; 7,761,414; 8,014,760

Plaintiff Apple Inc. ("Apple") brings this suit against Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Telecommunications America, LLC (collectively, "Samsung"). Apple asserts, among other things, that several of Samsung's products infringe Apple's patents. Samsung counterclaims that several of Apple's products infringe Samsung's patents. The parties now seek construction of nine disputed terms used in the claims of the following patents-in-suit: U.S. Patent Numbers 5,579,239 ("the '239 Patent"); 5,666,502 ("the '502 Patent"); 5,946,647 ("the '647 Patent"); 7,577,757 ("the '757 Patent"); 7,756,087 ("the '087 Patent"); 7,761,414 ("the '414 Patent"); and 8,014,760 ("the '760 Patent"). The Court held a technology tutorial on February 14, 2013, and a claim construction hearing on February 21, 2013. The Court has reviewed the claims, specifications, and other relevant evidence, and has considered the briefing and arguments of the parties. The Court now construes the terms at issue.

I. LEGAL STANDARD

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). "Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc) (internal quotation marks and citation omitted). Accordingly, a claim should be construed in a manner that "stays true to the claim language and most naturally aligns with the patent's description of the invention." *Id.*

In construing disputed terms, a 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.'" *Id.* at 1312 (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). 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. In some instances, the ordinary meaning to a person of skill in the art is clear, and claim construction may involve "little more than the application of the widely accepted meaning of commonly understood words." *Id.* at 1314.

In many cases, however, the meaning of a term to a person skilled in the art will not be readily apparent, and a court must look to other sources to determine the term's meaning. *See Phillips*, 415 F.3d at 1314. Under these circumstances, a court should consider the context in which the term is used in an asserted claim or in related claims, bearing in mind that "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. Indeed, 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)). Where the specification reveals that the patentee has given a special definition to a claim term that differs from the meaning it would ordinarily possess, "the inventor's lexicography governs." *Id.* at 1316.

Likewise, where the specification reveals an intentional disclaimer or disavowal of claim scope by the inventor, the inventor's intention as revealed through the specification is dispositive. *Id.*

A court may also consider 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 cited prior art references. The court may consider prosecution history where it is in evidence, for the prosecution history "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." *Phillips*, 415 F.3d at 1317.

Finally, a court also is authorized to consider extrinsic evidence in construing claims, such as "expert and inventor testimony, dictionaries, and learned treatises." *Markman*, 52 F.3d at 980. Expert testimony may be particularly useful in "[providing] background on the technology at issue, . . . explain[ing] how an invention works, . . . ensur[ing] that the court's understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or . . . establish[ing] that a particular term in the patent or the prior art has a particular meaning in the pertinent field." *Phillips*, 415 F.3d at 1318. Although a court may consider evidence 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." *Id.* at 1317-18 (internal quotation marks and citations 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 (internal quotation marks and citation omitted). Finally, while the specification may describe a preferred embodiment, the claims are not necessarily limited only to that embodiment. *Phillips*, 415 F.3d at 1323; *see also Prima Tek II, L.L.C. v. Polypap, S.A.R.L.*, 318 F.3d 1143, 1151 (Fed. Cir. 2003) ("The general rule, of course, is that claims of a patent are not limited to the preferred embodiment, unless by their own language.").

II. DISCUSSION REGARDING APPLE'S PATENTS

Apple and Samsung first request that the Court construe five disputed terms contained within four of Apple's patents. Specifically, the parties dispute the meaning of: (1) "history list" and "field class" contained within the '502 Patent; (2) "action processor" contained within the '647 Patent; (3) "concurrently with" contained within the '414 Patent; and (4) "completely substitute[e/ing] display of the list [of interactive items] with display of contact information" contained within the '760 Patent.

A. The '502 Patent

The disputed terms "history list" and "field class" appear in Apple's '502 Patent. The '502 Patent, entitled "Graphical User Interface Using Historical Lists With Field Classes," aims to provide solutions to improve the speed and efficiency of data entry into user interface fields.

Recognizing that a user is often asked to enter data into a particular field that he or she has entered previously, the '502 Patent discloses "[a] data input technique for a computer that provides the user with a historical list of potential choices for the data input . . . ." '502 Patent Abstract. The system allows "[t]he user [to] input[] data for a field of [a] form by selecting an item from the displayed historical list which corresponds to the particular field." '502 Patent, col. 2:25-28. This enables a user to simply select an entry in the list, rather than to re-type the data into the field. As the '502 Patent explains, this improved data entry technique is particularly useful for small, hand-held computer devices, such as computerized personal organizers and tablets, where input errors during data entry are common. *See id*. at col. 1:8-25; col. 1:63-col. 2:13. The application for the '502 Patent was filed on August 7, 1995, and the '502 Patent issued on September 9, 1997.

1. "history list"

Samsung's Proposed Construction	Apple's Proposed Construction
"A list of choices based on historical information that is shared between different applications"	No construction necessary. Should the Court find construction necessary: "a list of previously used entries"

The term "history list" appears in independent claims 8, 11, 16, and 26 of the '502 Patent. In addition, Apple contends that this term is covered by dependent claims 13-15, 17, 20, and 22-24. For example, independent Claim 11 of the '502 Patent recites:

> A method for inputting data into a computer system having a display screen associated therewith, said method comprising:
>
> (a) displaying a form on the display screen of the computer system, the form having at least one field associated with a field class and requiring data entry by a user;
>
> (b) displaying a **history list** associated with the field class on the display screen on the computer system;
>
> (c) determining whether the user has selected an item from the displayed **history list**;
>
> (d) assigning a data value for the field to that of a data value associated with the selected item when said determining (c) determines that the user has selected an item; and
>
> (e) updating the **history list** in accordance with the selected item when said determining (c) determines that the user has selected an item.

'502 Patent, col. 18:7-25 (emphasis added).

Apple does not believe that any construction of "history list" is necessary, though contends that, should the Court require a construction, a "history list" should simply be construed as "a list of previously used entries." *See* Apple Op. Claim Constr. Br. ("Apple Br."), ECF No. 356, at 4-5. Samsung does not dispute that a "history list" is comprised of "a list of previously used entries." *See* Feb. 21, 2013 Claim Construction Hr'g Tr. ("Tr.") at 20:6-22. Rather, the parties' principle dispute centers around whether a history list *can* be shared between different applications, as Apple contends, *see* Apple Br. at 4-5, or whether a history list *must* be shared between different applications, as Samsung contends, *see* Samsung's Resp. Claim Constr. Br ("Samsung Resp."), ECF No. 352, at 5. As discussed below, the Court is not persuaded by Samsung's proposed construction as it is not supported by the claim language and reads out an embodiment. Therefore, the Court construes "history list" as simply "a list of previously used entries."

a. Claim Language/Specification

The Court agrees with Apple that the term "history list" should be construed to mean "a list of previously used entries," as this construction captures the plain meaning of the term as expressed in the claim language and is further supported by the specification.

The language of independent Claims 8, 11, 16, and 26, as well as the context in which the term "history list" appears, makes it clear that a "history list" is comprised of a list of previously used entries. *See* '502 Patent, col. 18:7-25 ("updating the *history list* in accordance with the [user selected] item . . . .") (Claim 11) (emphasis added); *see generally Phillips*, 415 F.3d at 1313 (noting that the words of the claims themselves are the objective starting point for claim interpretation). For example, Claim 11 describes that, when a user selects an item to fill in a field, the "history list" is updated to reflect that selection. *See* '502 Patent, col. 18:7-25. Thus, the claim language itself makes clear that, at a minimum, a "history list" is a list of entries selected previously by the user.

The specification of the '502 Patent also supports construing the term "history list" to mean "a list of previously used entries." As stated in the specification, "[t]he history list is a list of data values most recently and/or most frequently used for the associated field." *Id.* at col. 10:3-5. Other portions of the specification also refer consistently to the "history list" as comprising entries used "recently" or "frequently." *See id*. at col. 2:30-33 (stating that the invention provides "the historical list of the most recently and/or frequently used data values . . . ."); *id*. at col. 2:66-col. 3:1 ("Preferably, the history list for each of the field classes is a menu list of most recently and frequently used data values for the field classes."). In order to list data used "recently" or "frequently," a user must have entered data in the same field previously. Thus, the specification clearly contemplates that a "history list" is "a list of previously used entries."

Samsung does not contend that there is a meaningful difference between defining "history list" as "a list of choices based on historical information," which is the first part of Samsung's proposed construction, and Apple's proposed construction, "a list of previously used entries." *See* Tr. at 20:6-22. Rather, Samsung contends that the construction of "history list" should *also* include a limitation that the information included in the history list is "shared between different applications." Samsung Resp. at 4-5.

The Court is not persuaded that the intrinsic evidence supports Samsung's proposed construction. First, the claims themselves do not discuss the concept of sharing data between multiple applications. While Samsung contends that the term "field class" itself inherently requires sharing across different applications, there is no support for this contention within the words of the claims themselves.

Second, nothing in the specification requires sharing data between different applications. While Samsung does identify portions of the specification which indicate that the invention *may* share information between different applications, *see* Samsung Resp. at 4 (citing the '502 Patent at col. 2:35-37), other portions of the specification make clear that the historical information does not have to be shared between applications, it is merely an option. *See, e.g.*, '502 Patent Abstract ("The historical [sic] *can* also be shared between different applications . . ."") (emphasis added); *id.* at col. 4:20-23 ("The historical list *can* also be shared between different applications that execute on the computer system . . . .") (emphasis added).

Further, although Samsung cites to several embodiments of the invention that involve sharing data between different applications, the specification also includes embodiments that do not share any information between applications. For instance, in support of its contention that a "history list" must be shared between applications, Samsung points to Figures 13A and 13B, which illustrate the use of the invention disclosed in the '502 Patent sharing historical entries between a fax program and a phone messaging program. However, the specification of the '502 Patent also includes other simpler embodiments of the invention, such as Figure 4, which do not mention or include multiple applications. *See id.* at col. 9:40-col. 10:14; *id.* at FIG. 4. As noted by the Federal Circuit, a patentee is not to be limited to the embodiments depicted in the drawings, as these are often merely exemplary applications of the claimed technology. *See, e.g.*, *Prima Tek II, L.L.C.*, 318 F.3d at 1148 ("[T]he mere fact that the patent drawings depict a particular embodiment of the patent does not operate to limit the claims to that specific configuration."). Moreover, limiting the claim to the embodiments described in Figures 13A and 13B, which include multiple applications, would impermissibly exclude the simpler embodiment disclosed in the description of Figure 4. *See*

Vitronics, 90 F.3d at 1583 (holding that excluding a preferred embodiment is "rarely, if ever, correct.").[1]

Finally, the Court is not persuaded by Samsung's claim that the construction should be limited to the so-called novel part of the "invention" described in the specification. *See* Samsung Resp. at 4-5; *see also id.* at 6 (citing *Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1305 (Fed. Cir. 2011), for the proposition that, "[i]n reviewing the intrinsic record to construe the claims, [courts] strive to capture the scope of the actual invention, rather than . . . allow the claim language to become divorced from what the specification conveys is the invention."). According to Samsung, the actual "'invention' is the patent's allegedly key improvement over the prior art," which Samsung construes as the sharing of history information across different applications. Samsung Resp. at 5. In support of this position, Samsung relies heavily on Figures 13A and 13B, which "illustrat[e] usage of the invention across different programming applications." '502 Patent, at col. 16:23-24. However, unlike in *Retractable Technologies, Inc.*, the specification of the '502 Patent does not expressly limit the claims to Figure 13A and 13B, the sharing embodiments. In fact, the specification also describes a simpler embodiment depicted in Figure 4 as "the invention." *See id.* at col. 9:40-41 ("FIG. 4 is a basic block diagram of list processing 164 associated with a basic embodiment of *the invention*.") (emphasis added). Yet, as already discussed, nothing in the description of Figure 4 requires that a "history list" be shared between the proffered applications. *Id.* at col. 9:40-64. Thus, while some of the embodiments of the invention described in the '502 Patent involve sharing a "history list" between multiple applications, the specification does not support limiting the claims to only these embodiments.

Therefore, the Court is not persuaded that the claims or the specification support Samsung's proposed construction. Rather, the Court finds that Apple's proposed construction is more plausible.

[1] Samsung also argued during the claim construction hearing that the algorithm in Figure 4 required sharing between multiple applications. *See* Tr. at 14:1-10. As described above, the Court disagrees with Samsung that either Figure 4 or the accompanying description *requires* sharing between applications.

b. Prosecution History

Samsung also argues that the prosecution history supports its position that the term "history list," as it is used in the '502 Patent, must be shared between multiple applications. *See* Samsung Resp. at 4-5. "The court must always consult the prosecution history, when offered in evidence, to determine if the inventor surrendered disputed claim coverage." *SanDisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1286 (Fed. Cir. 2005). When a patentee amends the language of the claims in order to overcome a rejection because of prior art, the patentee disclaims what was eliminated from the patent. *See Omega Eng'g, Inc., v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003). Thus, "[w]hile there are times that the prosecution history 'lacks the clarity' of other intrinsic sources, the prosecution history may be given substantial weight in construing a term where that term was added by amendment." *Bd. of Regents of the Univ. of Texas Sys. v. BENQ Am. Corp.*, 533 F.3d 1362, 1369 (Fed. Cir. 2008) (internal citations omitted). Nevertheless, "[a] disclaimer must be 'clear and unmistakable,' and unclear prosecution history cannot be used to limit claims." *Cordis Corp. v. Boston Scientific Corp.*, 561 F.3d 1319, 1329 (Fed. Cir. 2009) (citing *Free Motion Fitness, Inc. v. Cybex Int'l, Inc.*, 423 F.3d 1343, 1353 (Fed. Cir. 2005)).

Samsung argues that, during prosecution, the U.S. Patent and Trademark Office Examiner ("Examiner") only allowed the asserted claims to survive the examination due to the sharing of a history list among different applications for a particular "field class." *See* Samsung Resp. at 3. Samsung's argument is not, however, supported by the record.

During the prosecution of the '502 Patent, the Examiner indicated that various claims of the '502 Patent were obvious in light of various references and screenshots of the Borland Turbo C++ software ("Turbo"). *See* Decl. of Victoria Maroulis in Supp. Samsung Resp. Br. ("Maroulis Decl."), ECF No. 352, Ex. 2, at APLNDC630-0000056178-APLNDC630-0000056180 ("Office Action Summ."). The Examiner rejected Claims 5-7, 11-13, 15, and 26 because the Examiner believed that, among other things, Turbo taught "the use of a history list to expedite the entry of information of previously used data." Office Action Summ. at 5.

In response to an interview, however, the Examiner amended the claims by adding a "field class" limitation and allowed the claims. *See* Maroulis Decl., Ex. 2 at APLNDC630-0000056183-

APLNDC630-0000056189 ("Notice of Allowability"). As an example, Claim 11 was rewritten to state "displaying a form on the display screen of the computer system, the form having at least one field *associated with a field class and* requiring data entry by a user; displaying a history list associated with the field *class* on the display screen. . . ." Notice of Allowability at 2 (emphasis in original). As a basis for allowance, the Examiner stated that Turbo "does not teach updating the history list associated with the field class. In contrast, [Turbo] seems to limit updating to a specific entry field instance." Notice of Allowability at 4. Therefore, the Examiner concluded that the prior art "does not render obvious nor anticipate the combination of claim elements in light of the specification." *Id*.

Notably, during the prosecution, the Examiner made no reference to multiple applications. Instead, the Examiner appears to have allowed the claims on the ground that Turbo did not teach: (1) associating several different *fields* with the same "field class," and then (2) associating a history list with that "field class." Rather, Turbo only associated one field with each history list and did not group multiple fields into the same "class." Notice of Allowability at 4. Therefore, the prosecution history does not support Samsung's contention that the history list must be shared between multiple applications.

c. Extrinsic Evidence

Finally, in support of its proposed construction, Samsung cites to the extrinsic evidence, which is generally not dispositive of claim construction. Specifically Samsung cites to the deposition of Stephen Capps, the patents' inventor. *See* Samsung Resp. at 4. Samsung maintains that Mr. Capps's interpretation of the novel elements of the '502 Patent support Samsung's contention that a "history list" must be shared between applications. Mr. Capps identified the sharing of information between applications as the key difference between the prior art and the '502 Patent. *Id*. at 3-4 (citing Maroulis Decl., Ex. 3, Dep. Tr. of Mr. Capps from Dec. 7, 2012). However, as discussed above, the specification and prosecution history do not support reading this limitation into the claim language. Thus, the Court gives this source little or no weight. *See Bell & Howell DMP Co. v. Altek Systems*, 132 F.3d 701, 706 (Fed. Cir. 1997) ("The testimony of an inventor . . . concerning claim construction is . . . entitled to little or no consideration. The

testimony of an inventor often is a self-serving, after-the-fact attempt to state what should have been part of his or her patent application") (quoting *Markman*, 52 F.3d at 983).

Accordingly, the Court construes "history list" to mean "**a list of previously used entries.**"

2. "field class"

Samsung's Proposed Construction	Apple's Proposed Construction
"a data element that identifies a category of information"	No construction necessary. Should the Court find construction necessary: "a category of information associated with a field"

The term "field class" appears in Claims 1-2, 4-5, 8, 11, 13-17, 20, 22-24, and 26 of the '502 Patent. For example, independent Claim 11 of the '502 Patent recites:

> A method for inputting data into a computer system having a display screen associated therewith, said method comprising:
>
> (a) displaying a form on the display screen of the computer system, the form having at least one field associated with a **field class** and requiring data entry by a user;
>
> (b) displaying a history list associated with the **field class** on the display screen on the computer system;
>
> (c) determining whether the user has selected an item from the displayed history list;
>
> (d) assigning a data value for the field to that of a data value associated with the selected item when said determining (c) determines that the user has selected an item; and
>
> (e) updating the history list in accordance with the selected item when said determining (c) determines that the user has selected an item.

'502 Patent at col. 18:7-25 (emphasis added).

Apple maintains that the term "field class" does not need construction or that, if it does, it should be understood as "a class or category of information with which a field is associated." Apple Br. at 7. Samsung contends that "field class" should be construed not only to mean a category of information, but also an actual data element in software that identifies a category of information. *See* Samsung Resp. at 8. For the reasons stated below, the Court concludes that Samsung's proposed construction is not supported by the claim language or specification and

adopts Apple's construction of field class as "a category of information with which a field is associated."

The claims of the '502 Patent do not define "field class" and only reference a "field class" as something that may be associated with at least one field (such as on a form) and with at least one history list or table. *See* '502 Patent at col. 18:7-25. Thus, the Court turns to the specification for further guidance.

The invention disclosed by the '502 Patent allows for a user to easily fill out electronic forms by suggesting historical entries to the user when the same or similar fields on different forms are encountered. *See* '502 Patent Abstract. The specification describes a "field class" as a category of information corresponding to a history list or history table that can also be associated with a particular field on a form. *See* '502 Patent at col. 2:45-66. The "field class" describes the particular category of historical information that should be associated with a particular field. For example, as described in the '502 Patent, the form fields "name," "caller," and "to" may all be associated with the same field class of "full names." *See* '502 Patent at col.10:45-67; *id.* at col. 16:23-49. As such, if a user selected the field "name" or "caller" depending on the form, the same history list containing "full names" would be referenced to offer suggestions to the user. As described in the specification, "each history list is associated with a field class . . . [and] [t]he input fields of a form then designate the field class associated therewith." '502 Patent at col. 10:64-66. Thus, the specification makes clear that a "field class" should at least be understood to be a particular category of information that is associated with a particular field on a document.

The remaining dispute centers on whether a "field class" is merely a category of information or if it is an actual "data element" as proposed by Samsung. Samsung states that, because the concept of a "field class" "must exist in software, and not simply a user's mental impression," it must exist as a "data element." *See* Samsung Resp. at 10. According to Samsung, to not tie the "field class" to a concrete data element in a software program would "render the limitation essentially meaningless." *Id.* ("If the 'field class' in the '502 Patent was nothing more than an *abstract* association between a field and a category of information, and not a tangible data

element in the software, the claims would be unpatentable, and thus would not have been allowed.") (emphasis in original).

While the invention of the '502 Patent is related to software and computer systems, this fact alone does not require that each claim term be explicitly defined as a particular software element to become meaningful. Apple's proposed construction will not relegate "field class" to a "user's mental impression" or "abstract idea," as Samsung contends, *see* Samsung Resp. at 10, because it is not just an amorphous concept left to the user's mind. It is a discrete association that is actually carried out on a "computer system." *See* '502 Patent at col. 18:7-25 (claiming a "method for inputting data into a computer system" wherein the "display screen" and associated computer "display[] a history list associated with the field class on the display screen.").

Moreover, the term "data element" does not appear anywhere in either the intrinsic record or the extrinsic evidence submitted by Samsung, and would thus interject a new and undefined term into the claim language. The goal of claim construction is to remove ambiguity from the claim terms. *See U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997). Because the specification does not make reference to a "data element" or any equivalent limitation, the addition of that term would add unnecessary ambiguity and confusion to the claims.

Accordingly, the Court construes the term "field class" to mean "**a category of information associated with a field.**"

B. The '647 Patent

The disputed term "action processor" appears in Apple's '647 Patent. The '647 Patent, entitled "System and Method for Performing an Action on a Structure in Computer-Generated Data," discloses "a system and a method [that] causes a computer to detect and perform actions on structures identified in computer data." '647 Patent Abstract. Generally speaking, the system "identifies structures, associates . . . actions to the structures, enables selection of an action and automatically performs the selected action on the structure." *Id.* at col. 1:66-col. 2:2. The application for the '647 Patent was filed on February 1, 1996, and the '647 Patent issued on August 31, 1999.

1. "action processor"

Samsung's Proposed Construction	Apple's Proposed Construction
"a program routine separate from a client that performs the selected action on the detected structure"	No construction necessary. Should the Court find construction necessary: "program routine(s) that perform the selected action on the detected structure"

The term "action processor" appears in Claim 1 of the '647 Patent. Independent 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 at col. 7:9-24 (emphasis added).

The '647 Patent discloses a system and method for recognizing when certain patterns or "data structures" are present in a data set, and automatically providing optional actions for a user to perform on the data structures. *See id*. at col. 2:21-54. For example, the system may scan a Microsoft Word document and recognize when phone numbers or email addresses appear in the document. *See id.* at col. 1:24-35; *see also id.* at col. 2:42-53. Then, the system may link actions to these structures and allow the user to select an action. *Id*. As an example, when an email address is detected in a document, the system may automatically give the user the options to send an email to the identified address or to store the email address in an electronic address book. *Id*. at col. 5:5-18. As another example, when a phone number is detected in a document, the system may

give the user the option to place a call to that phone number or to place the number in an electronic telephone book. *Id.*

As described in the claims and the specification, the invention of the '647 Patent achieves this functionality principally through the use of three program routines: (1) an analyzer server; (2) a user interface; and (3) an action processor. Collectively, the specification refers to these routines as the "program." *See id.* at col. 7:9-24 (Claim 1); *id.* at col. 2:25-27 ("the program includes program subroutines that include an analyzer server, an application program interface, a user interface and an action processor."); *id.* at Fig. 2 (depicting a "Program," 165, made up of subroutines including the action processor). The analyzer server "detect[s] structures [(patterns)] in the data," and "link[s] actions to the detected structures." *Id.* at col. 7:16-17. The user interface "enable[s] the selection of a detected structure and a linked action." *Id.* at col. 7:18-19. Finally, the action processor "perform[s] the selected action linked to the selected structure." *Id.* at col. 7: 20-21. The action processor operates by "retriev[ing] the sequence of operations that constitute the selected action, and perform[ing] the sequence using the selected structure as the object of the selected action." *Id.* at col. 4:54-57. In the above example involving the Word document, if the user elected to save the recognized phone number to an electronic telephone book, the action processor would "locate[] and open[] the electronic telephone book, [and] place[] the telephone number in the appropriate field and allow[] the user to input any additional information into the file." *Id.* at col. 5:47-50.

The parties agree in principle that the "action processor" is "a program routine that performs the selected action on the detected structure." *See* Apple Br. at 10; Samsung Resp. at 11. However, Samsung seeks to add a limitation that this action processor must be "separate from a client [or application]."[2] *Compare* Apple Br. at 11, *with* Samsung Resp. at 12. Apple maintains that reading "separate from a client" into the claim language would both introduce ambiguity and improperly import a limitation into the claim based on a particular embodiment of the invention. *See* Apple Br. at 11-13. The Court finds that, while the specification discloses several

[2] Samsung stated that there is no difference in this context between the term "Client," which is not found in the patent, and the term "Application," which is found in the patent. *See* Samsung Resp. at 13.

embodiments which utilize sharing between applications, sharing is not a requirement. Therefore, the Court adopts Apple's construction.

a. Claim Language/Specification

The claims themselves neither mention a "client" nor make reference to the location of the action processor, apart from it being located in the memory storage of a computer-based system (which it would be whether integrated into, or separate from, any client or application). *See* '647 Patent at col. 7:9-24. The claims do, however, provide some guidance. Specifically, the doctrine of claim differentiation suggests that the action processor is not necessarily separate from the application supplying the data.

The presence of a dependent claim with an additional limitation indicates that the limitation is not found in the independent claim it references. *See Phillips*, 415 F.3d at 1314-15. Here, independent Claim 15 recites:

> In a computer having a memory storing actions, a method for causing the computer to perform an action on a structure identified in computer data, comprising the steps of:
>
> receiving computer data;
> detecting a structure in the data;
> linking at least one action to the detected structure;
> enabling selection of the structure and a linked action; and
> executing the selected action linked to the selected structure.

'647 Patent at col. 8: 23-34. Dependent Claim 16 includes an additional limitation not found in Claim 15:

> The method recited in claim 15, wherein the computer data is received from the application running concurrently.

Id. at col. 8:34-35.

The claims strongly suggest that an action processor is not necessarily separate from the application containing the data. While Claim 16 includes the requirement that the data be received from a separate application, this limitation requiring separateness is *not* found in Claim 15. Under the doctrine of claim differentiation, it appears that Claim 15 may be satisfied by a program that is *not* separate. Though Claim 15 does not actually use the term "action processor," it does refer to "executing the selected action linked to the selected

structure," which is precisely the language used in Claim 1 to describe the function of the action processor. *See* '647 Patent at col. 7:20-21. A very similar argument arises with respect to Claim 1, which claims the action processor, and Claim 3, which claims "the system recited in claim 1, wherein the input device receives the data from an application running concurrently. . . ." *Id.* at col. 7:27-30.

Samsung's arguments for requiring separateness based on the embodiments disclosed in the specification are insufficient to overcome the clear indication from the claims that no such separateness is required. As Samsung points out, the specification of the '647 Patent consistently describes the claimed invention interacting with an "application." *See, e.g.*, *id.* at col. 3:36-44 ("Application 167 is a program, such as a word-processor or email program. . . . The [claimed invention] identif[ies] structures in the data presented by application 167, [and acts] to associate actions with the structures identified in the data, to enable the user to select a structure and an action, and to automatically perform the selected action on the identified structure."). In addition, as noted by Samsung, the preferred embodiment of the '647 Patent clearly contemplates the claimed program routines interacting with a separate application. Specifically, Figure 1 of the specification shows a box (element 165, identified as "Program") containing the program routines of the claimed invention (including the action processor). This Program is adjacent to a separate box (element 167), identified as the "Application," on which the Program acts. *See id.* at Fig. 1. Similarly, Figures 8 and 9 show the claimed invention operating during the runtime of an apparently separate application. *Id.* at col. 5:50-55 ("FIGS. 8 and 9 display a flowchart illustrating preferred method 800 for recognizing patterns in documents and performing actions. This method is carried out during the run-time of application 167.").

However, the fact that the specification depicts the program acting on a separate application does not ultimately support Samsung's proposed limitation. First, the language of the claims should not be limited to only the preferred embodiment. *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004). Second, the figures of the specification are often idealized or simplified renditions of the claimed invention, and the claims should not be limited to those renditions. *Prima Tek II, L.L.C.*, 318 F.3d at 1148. Finally, nothing in the specification clearly

states that the patentee intended the invention only to operate in conjunction with a separate application. In fact, the summary of the invention states that "the program *may* be executed during the run-time of another program, i.e. the application which presents the document, such as Microsoft Word." '647 Patent at col. 2:42-46 (emphasis added). The invention summary does not say that it "must" or "shall" operate during the run-time of another program.

In addition, Samsung argues that the action processor must be separate because "the detected structure and selected action are 'transmitted' to the action processor." Samsung Resp. at 12 (citing '647 Patent at col. 4:52-54). Presumably, Samsung is arguing that information cannot be "transmitted" from the application to the action processor if the action processor is integrated into the application. However, the language Samsung cites, when read in context, specifies that, as depicted in Figure 2, it is the user interface that transmits the information to the action processor. *See* '647 Patent at col. 4:52-54. In Figure 2, the "user interface" and the "action processor" are both part of the larger "Program," indicated by Box 165. Thus, the "transmission" that the Patent is describing occurs internally within the Program, regardless of whether that Program is integrated into the application or completely separate from it. This language thus does not support Samsung's construction.

Samsung also claims that one of skill in the art would understand the word "processor" to imply a separate software component that executes actions on behalf of client applications. *See* Samsung Resp. at 14. However, Samsung provides no legal or factual support for this proposition. Indeed, Samsung's argument appears to be premised on the generally understood meaning of a different word entirely: "server."

Therefore, the claim language and specification do not support Samsung's contention that the action processor must be "separate from a client."

b. Prosecution History

Samsung also argues that the prosecution history supports Samsung's position that the term "action processor," as it is used in the '647 Patent, refers to a program routine that is "separate from a client" because the applicant referred to the invention as a "system-wide service." *See*

Samsung Resp. at 14. This argument is of limited relevance given the clear indication in the claims. However, for the sake of thoroughness, the Court will address the prosecution history.

During the prosecution of the '647 Patent, the PTO Examiner indicated that the claims of the '647 Patent were anticipated by U.S. Patent No. 5,574,843 ("*Gerlach*"). Decl. of Jennifer Rho in Supp. Apple Br. ("Rho Decl."), ECF No. 333, Ex. E, at 2. *Gerlach* disclosed "[a] computer-based system for detecting structures in data and performing actions on detected structures . . . ." *Gerlach* Abstract. The Examiner rejected independent Claims 1-3, 11-14, and 20 of the '647 Patent because the Examiner believed that, among other things, "an action processor" was disclosed by *Gerlach*. *Id.* at 2-3.

Notably, the prosecution history indicates that the disagreement between the Patentee and the Examiner about the meaning of "action processor" was over the definition of "structures," not over the location of the action processor. Specifically, in response to the rejection, the Patentee argued that *Gerlach* did not teach an "action processor" because it did not describe "selecting a pre-existing structure detected from within externally generated data." Rho Decl. Ex. F, at 5. The Patentee argued that *Gerlach* relied on internally generated structures, such as unique computer code, as opposed to using pre-exiting structures having "semantic significance such as phone numbers, e-mail addresses, post-office addresses, zip codes and dates." *Id.* at 4 (quoting the '647 Patent). The Patentee distinguished *Gerlach* on the grounds that the data structures in the '647 Patent were "generated *externally* to [Patentee's] system" (*e.g.*, the outside world defines that a 7- or 10-digit string with appropriate dashes represents a telephone number). *Id.* (emphasis in original). Thus, the patentee made clear that the action processor, unlike the invention in *Gerlach*, does not define the structures. However, this clarification says nothing about whether the action processor must be separate from the application on which it operates.

Samsung also argues that the Patentee's explanations for how the invention is different from the *Gerlach* invention require that the invention of the '647 Patent be considered "separate from a client." Samsung Resp. at 12, 14. In support of its argument, Samsung states that, because the applicant referenced the invention as a "system-wide service" that can "enable cooperating systems to detect recognizable structures," the "action processor" must be "separate from a client."

Id. at 12. Otherwise, presumably, it would not need to be system-wide, as it could be confined to a single program. However, even if the mention of a "system-wide service" does indicate that the invention served to *enable* cooperation across different applications, that does not mean that such cooperation is *required* to satisfy the claims. Thus, the prosecution history of the '647 Patent does not support Samsung's contention that the action processor must be "separate from a client."

Accordingly, Apple's construction, which mirrors the claim language, is supported by both the specification and the prosecution history, and the Court construes "action processor" to mean "**program routine(s) that perform the selected action on the detected structure**."

C. The '414 Patent

The disputed term "concurrently with" appears in Apple's '414 Patent. The '414 Patent, entitled "Asynchronous Data Synchronization Amongst Devices" discloses "[s]ystems [and] methods . . . for synchronization tasks and non-synchronization tasks being executed concurrently." '414 Patent Abstract. The system allows, for example, "a user [to] manipulate or view a calendar while a synchronization operation, which synchronizes structured data from, for example, the calendar or other databases such as a contact database, is being performed." '414 Patent at col. 2:37-40. The application for the '414 Patent was filed on January 7, 2007, and the '414 Patent issued on July 20, 2010.

1. "concurrently with"

Samsung's Proposed Construction	Apple's Proposed Construction
"At the same time as"	No construction necessary. Should the Court find construction necessary: "The synchronization thread and the non-synchronization thread are both active during an overlapping time interval."

The term "concurrently with" appears in Claims 1, 11, 21, 23, 27, and 31 of the '414 Patent. For example, independent Claim 1 of the '414 Patent recites:

A machine implemented method comprising:

> executing at least one user-level non-synchronization processing thread, wherein the at least one user-level non-synchronization processing thread is provided by a user application which provides a user interface to allow a

> user to access and edit structured data in a first store associated with a first database; and
>
> executing at least one synchronization processing thread **concurrently with** the executing of the at least one user-level non-synchronization processing thread, wherein the at least one synchronization processing thread is provided by a synchronization software component which is configured to synchronize the structured data from the first database with the structured data from a second database.

'414 Patent at col. 32:56-col. 33:3 (emphasis added).

The '414 Patent describes systems and methods that allow for both "synchronization tasks and non-synchronization tasks to be executed concurrently." '414 Patent at col. 2:18-20. With the advent of mobile computing devices, many databases contained on those devices—such as contact information, "to-do" lists, or calendar information—often need to be shared between multiple computers. *See id*. at col. 1:13-35. It is desirable that these databases synchronize with each other such that, for example, when a user makes changes to his or her calendar on a mobile phone, that change is reflected on the calendar on his or her home computer. *Id*. For this to be accomplished, the two computing devices need to synchronize with each other. *Id*. Traditional synchronization software required that the program being synchronized be locked or inaccessible during the synchronization operation. *Id*. at col. 1:35-66. The invention embodied in the '414 Patent overcomes the limitations of these prior systems and allows for the synchronization operation to run currently with the user performing non-synchronization operations. *Id*. at col. 2:18-27. For example, in certain embodiments a user may view or manipulate a calendar "while a synchronization operation, which synchronizes structured data from, for example, the calendar or other databases such as the contact database, is being performed [at the same time]." '414 Patent at col. 2:37-40.

The parties disagree as to what it means for the synchronization operation to be executed "concurrently with" the non-synchronization operation. The parties' proposed constructions differ as to whether "concurrently with" means that both the synchronization and non-synchronization threads are being executed by a processor at precisely the same instant, as Samsung proposes, or merely within an overlapping time frame—as with rapid switching back and forth between the processes—as Apple proposes. The Court concludes that, while the claims and specification are

unclear as to the meaning of "concurrently with," the extrinsic evidence supports Apple's proposed construction that the threads need only be active "during an overlapping time interval."

a. Claim Language/Specification

The claims themselves do not define "concurrently with" other than to state that the "processing thread[s]" associated with the synchronization and non-synchronization routines are executed "concurrently." *See* '414 Patent at col. 32:56-col. 33:3. Thus, the Court turns to the specification for further guidance.

The specification provides some limited guidance as to the meaning of "concurrently with." Samsung's proposed construction "at the same time" is found in the specification's description of Figures 13A and 13B, but it does not provide any clearer guidance as to whether both processing threads are being executed at the exact same instant, or if they are merely being completed during an overlapping time frame. *See id*. at col. 24:53-67 ("[A] user on [a] device may be viewing a calendar . . . while *at the same time* a synchronization service is synchronizing the calendar. . . .") (emphasis added).

The specification does, however, make clear that the invention can operate either on a single processor or on multiple processors. Specifically, the description for Figures 13A and 13B states that "[the] non-synchronization processes and synchronization processes occur[] concurrently in that they are both being executed by one or more processing systems." *See id*. at col. 24:45-47. Thus, the specification contemplates that the synchronization and non-synchronization processing threads may be executed "concurrently" either by a single processor or by multiple processors. The description of Figure 3 also describes embodiments of the invention containing either one or multiple processors. *See id*. at col. 6:15-17 ("The data processing system 60 shown in FIG. 3 includes a processing system, which may be one or more microprocessors . . . ."); *see also id.* at 5:23-24 ("The processing system 47 may include one or more microprocessors . . . .").

Thus, while the meaning of "concurrently with" is not apparent from the words of the claims or of the specification, the specification does make clear that the processing threads for both the synchronization and non-synchronization processes may be executed "concurrently" by a

device with only one processor. Therefore, an appropriate construction for "concurrently with" must be one that can be implemented on a single processor. As the specification provides no further guidance, and the parties have submitted no prosecution history, the Court turns to extrinsic evidence.

b. Extrinsic Evidence

When interpreting a claim, a court should first look to the intrinsic evidence such as the claim language, specification, and prosecution history. *Vitronics*, 90 F.3d at 1582. If ambiguity remains as to the meaning of a claim term after considering the intrinsic evidence, the court may turn to extrinsic evidence. *Id*. at 1584.

In this dispute, the claims, specification, and prosecution history do not provide an adequate definition of "concurrently with." The specification repeatedly makes reference to a one-processor embodiment of the invention that may execute the processing threads for both the synchronization and non-synchronization operations "concurrently," but the specification does not describe *how* this one-processor embodiment accomplishes this feat. The Court thus considers extrinsic evidence as to what it means for a "single processor" to execute two threads "concurrently."

In support of its construction that the two threads need only be "active during an overlapping time interval," rather than at precisely the same instant, Apple argues that a single processor can only execute one single programming instruction at a time. *See* Apple Br. at 17. Thus, Apple maintains, it was commonly understood in the computing and software field at the time of the invention that "concurrently," when referencing a single processor with multiple program threads, meant that the processor would rapidly switch back and forth between the multiple threads, thereby giving the illusion of simultaneous processing. *Id*. Apple submitted excerpts from several technical dictionaries and an operating system textbook in support of its argument. *See* Rho Decl., Exs. I , J, K. The 2004 *Wiley Electrical and Electronics Dictionary* states that, because "microprocessors can work so quickly, [concurrent execution] seems simultaneous, even though each operation is usually executed in sequence." *See* Rho Decl., Ex. I, Kaplan, *Wiley Electrical and Electronics Dictionary* (2004) at 138. Additionally, the 1992 textbook *Modern Operating Systems* states that, "strictly speaking, at any instant of time, the

[single processor] is running only one program, in the course of 1 second, it may work on several programs, thus giving users the illusion of parallelism." *See* Rho Decl. Ex. J, Tanenbaum, *Modern Operating Systems* (1992) at 27. Thus, Apple argues that its construction, "[both] thread[s] are both active during an overlapping time interval," accurately describes this rapid-swapping operation of a single processor that was included in the common understanding of "concurrently." This definition does not require true simultaneous processing of the multiple threads (which would require more than one processor or a multi-core processor).

Samsung argues that it is "factually incorrect" to state that a "single microprocessor is . . . incapable of executing two threads 'at the same time.'" Samsung Resp. at 17. Samsung states that, at the time of the '414 Patent, multi-core processors existed that were capable of being configured to execute multiple threads at the same time. *Id*. at n.8. Thus, according to Samsung, a single processor *could* execute two threads simultaneously, without the rapid switching contemplated by Apple, as long as it was a multi-core processor, and thus Samsung's construction could be correct even for single-processor embodiments.

Apple, however, has presented convincing evidence in the form of an IBM technical paper that, even if multi-core processors were available at the time of the invention, they were not considered to be single processors. Rather, they would be considered "two physical processors on one chip." *See* Decl. of Jennifer Rho in Supp. Apple Reply ("Rho Reply Decl."), ECF No. 362, Ex. 3, at 4. Thus, the single processor embodiments contemplated by the specification do not seem to include multi-core processors, which would be considered multi-processor systems.

Moreover, as Apple points out, the specification also discloses implementation on a "cellular telephone with PDA-like functionality." '414 Patent at col. 6:46. Apple has presented evidence that the first cellular phone with a multi-core processor was not released until December of 2010, *see* Rho Reply Decl. Ex. 4, while the '414 Patent Application was filed in July of 2010. Thus, at the time of the '414 Patent's application, any embodiment on a cellular phone most likely was intended to work on only a single processor, without multi-core functionality. As the parties appear to agree that one basic (non-SMT, non-dual core) single processor cannot execute two threads in precisely the same instant, the specification's indication that the invention can be

implemented on a single processor makes clear that "concurrently with" cannot be given a meaning that could not be implemented in one single processor.

While Samsung criticizes Apple's extrinsic evidence as "cherry picked" and "out of date," Samsung does not provide any reliable extrinsic evidence for its claim that persons of ordinary skill in the art would have understood a single "processor" to reference only multi-core processors at the time of the '414 Patent. *See* Samsung Resp. at 19-20. Nor does Samsung provide any evidence to contradict Apple's evidence that Samsung claims is an inaccurate representation of the state of the available evidence at the time of the invention.

Thus, the extrinsic evidence indicates that a person of ordinary skill in the art at the time of the invention would have understood "concurrently" to include the kind of rapid switching contemplated by Apple's proposed construction, which would permit the invention to be implemented on a single processor. Accordingly, Apple's construction is supported by both the intrinsic and extrinsic evidence, and the Court construes "concurrently with" to mean "**the synchronization thread and the non-synchronization thread are both active during an overlapping time interval.**"

D. The '760 Patent

The disputed term "completely substitute[e/ing] display of the list [of interactive items] with display of contact information" appears in Apple's '760 Patent. The '760 Patent, entitled "Missed Telephone Call Management for a Portable Multifunction Device" discloses "a computer-implemented method [for managing missed calls] . . . for use in conjunction with a portable electronic device with a touch screen display." '760 Patent Abstract. The method allows, for example, "[displaying] a list of items comprising missed telephone calls . . . [and] [u]pon detecting user selection of an item in the list, [displaying] contact information . . . for a respective caller corresponding to the user selected item." *Id.* The '760 Patent is intended to enable smartphone users to contact a missed caller easily and quickly by phone, e-mail, instant message, or other method of communication with just a few simple gestures on a touchscreen. The application for the '760 Patent was filed on June 27, 2007, and the '760 Patent issued on September 6, 2011.

1. "Completely substitut[e/ing] display of the list [of interactive items] with display of contact information"

Samsung's Proposed Construction	Apple's Proposed Construction
Original: "Display[ing] numbers, addresses, and/or instant messaging usernames for contacting a caller such that none of the list of missed calls is visible." *Markman* Revised Construction:[3] "Entirely replac[e/ing] the display of interactive items from a missed call list with the contact list entry"	No construction necessary. Original, should the Court find construction necessary: "Replace[e/ing] the display of the list of interactive items with the display of information for a selected contact" *Markman* Revised Construction: "Displaying at least two contact objects in place of the display of the list of interactive items"

The term "completely substitute[e/ing] display of the list [of interactive items] with display of contact information" appears in various forms in Claims 1, 8, 10, 12, 14, 16, 18, 19, and 21 of the '760 Patent. For example, independent Claim 1 of the '760 Patent recites:

> A method, comprising:
>
> at a portable electronic device with a touch screen display:
>
> displaying a list of interactive items comprising missed telephone calls, wherein each item in the list of interactive items includes a first interactive displayed portion and a second interactive displayed portion distinct from the first interactive displayed portion;
>
> immediately in response to detecting a finger gesture on the first interactive displayed portion of a respective user selected item in the list, initiating a return telephone call to a return telephone number associated with the respective user selected item;
>
> immediately in response to detecting a finger gesture on the second interactive displayed portion of the respective user selected item in the list, **completely substituting display of the list of interactive items with display of contact information** for a respective caller corresponding to the respective user selected item, the displayed contact information including a plurality of contact objects; the plurality of contact objects including:
>
> a first contact object comprising a telephone number object having the return telephone number, and

[3] During the technology tutorial, the Court requested that the parties clarify their dispute over "completely substituting" as the parties' briefing and tutorials were unclear and the parties appeared to agree on several aspects. At the claim construction hearing, the parties narrowed and clarified their dispute for the Court and also proposed new constructions for "completely substituting." *See* Tr. at 82:11-83:14. The Court's Order is directed toward the parties' revised, as opposed to original, constructions.

> a second contact object associated with a non-telephonic communication modality for contacting the respective caller; and
>
> immediately in response to detecting user selection of the second contact object, initiating a communication with the respective caller via the non-telephonic communication modality corresponding to the second contact object.

'760 Patent at col. 36:19-49 (emphasis added).

The '760 Patent claims a method for managing missed telephone calls on a mobile device, such as a smartphone. *See* '760 Patent Abstract. The Background of the '760 Patent notes that, due to the small size of modern smartphones, it can often be difficult to design an interface that is simple and easy to use, but still allows the user to access the multitude of functions the device offers. *See id.* at col. 1:49-col. 2:18. The inventors of the '760 Patent were particularly concerned with the design of an interface that would allow the user to view missed calls and be able to respond to those calls in one or more ways without having to memorize "complicated key sequences and menu hierarchies." *Id.* at col. 1:66-67. In some embodiments, the user will be provided with a screen that lists missed calls from various persons. *Id.* at col. 24:45-64; *see also id.* at col. 30:41-64. Each entry on the list will have two distinct interactive portions (regions where the user may tap a touchscreen and activate a response). *Id.* at col. 30:41-61. If the user taps on the first interactive portion of an item, a return phone call is initiated to the return telephone number associated with that item. *Id.* at col. 32:16-23. If, instead, the user taps on the second interactive portion of an item, a display of "contact information" is shown for the caller corresponding to the selected item. *Id.* at col. 31:3-22. The screen showing the contact information for the selected item is "completely substitute[ed]" for the original screen containing the listing of missed calls. *Id.*; *id.* at col. 36:19-49 (Claim 1). The new display shows the "contact information" associated with the selected person and allows the user to communicate with that person in a variety of ways (such as another telephone number, instant messaging, or email). *Id.* at col. 31:23-47.

The parties appear to agree that, visually, the second display must take the place of the first display rather than being superimposed or concealing some portion of it. During the claim

construction hearing, the parties clarified that their dispute centered around whether "completely substituting" referred to completely substituting the *display* only, or the *content* of the display. *See* Tr. at 83:11-24 (describing Apple's view on the limitation as relating to "how you're viewing the information, not necessarily what the information is," whereas Samsung's position relates to the content of the information and requires "some additional information"). Apple maintains that the second display need only contain a plurality of contact objects, such as phone numbers or email addresses, as stated in the claim language. Samsung, on the other hand, contends that the second display of "contact information" must contain information beyond just replicating a portion of the original missed call list; specifically, the second display contains a "contact list entry" in addition to the plurality of contact objects. Accordingly, the Court will address the required and permissible content of the second display.

The parties' dispute centers around the prosecution history of the '760 Patent, but the Court will begin with the claims and specification as they form the objective starting point for the claim construction. For the reasons stated below, the Court concludes that Samsung's proposed construction is not supported by the prosecution history, and construes this term as "displaying at least two contact objects in place of the display of the list of interactive items."

a. Claim Language

The claims themselves do not provide a clear answer to the parties' dispute: whether "completely substituting" refers to merely swapping the *displays* or, as Samsung contends, it refers to the *information* in the second display that must be completely substituted and must include a "contact list entry."

Independent Claim 1 states that the second display includes "contact information for a respective caller," and that this contact information includes a "plurality of contact objects," including at least one "contact object comprising a telephone number" and "a second contact object associated with a non-telephonic communication method for contacting the respective caller." *See* '760 Patent at Claim 1, col. 36:19-49. Based on this plain language, Claim 1 does not appear to require that there be a "contact list entry" or other type of information in addition to the plurality of the required "contact objects." Claim 1 only requires that the second display contain "contact

information," which must include at least two "contact objects." Claim 1 does not, however, define or make clear whether "completely substituting" refers to substituting only the actual displays, or whether it refers to the information contained in the displays. As such, the Court turns to the specification for further guidance.

b. Specification

For the specification to limit the scope of a claim, there must be a clear disavowal of the claim scope. *See Omega Eng'g, Inc.*, 334 F.3d at 1324. Samsung argues that Apple's proposed construction is overly broad because it potentially reads the limitation as being met by merely a reiteration of missed call information for that particular caller. *See* Samsung Resp. at 24. Specifically, Samsung argues that Apple's proposed construction would allow the second display to merely replicate a portion of the missed call list (for example, by merely displaying a list of missed calls from the selected contact). Tr. at 118:17-119:25. Samsung objects to this possibility both because missed call information itself does not permit contacting the caller, as the invention clearly contemplates, and because a display that includes missed call information cannot be said to "completely substitute" for the list of missed calls. Instead, Samsung maintains that, in addition to the plurality of contact objects, the second display must additionally include a "contact list entry," as disclosed in the specification's description of Figures 12B and 12C. *See* Tr. at 116:6-16; *see also* Samsung Resp. at 22-23.

However, to the extent that Samsung's construction is intended specifically to foreclose the inclusion of only information about missed calls in the display of contact information, the specification does not include any clear disavowal of such a limited version of "contact information." It is true that Figure 12C specifically depicts a "contact list entry" comprising information beyond the mere "plurality of contact objects." However, the specification nowhere expressly limits the claims to this one embodiment of the invention. Instead, the description of Figure 12 states that, "*[i]n some embodiments*, in response to the user activating icon 2808 for a particular row . . . the touch screen displays the corresponding contact list entry for the other party . . . ." '760 Patent at 24:55-60 (emphasis added).

Thus, based on the specification alone, the Court does not agree with Samsung that the second display must include a "contact list entry" in addition to the plurality of contact objects required by Claim 1. The "contact list entry" appears to be a particular element of one embodiment described by Figure 12, not a limitation on the entire patent.

Given that "completely substituting" was added late in the prosecution of the '760 Patent and that this amendment forms the basis of the parties' dispute, however, the Court finds that the specification does not clearly address to what "completely substituting" refers, and now turns to the prosecution history for further guidance.

c. Prosecution History

During the prosecution of the '760 Patent, the PTO Examiner allowed the claims of the '760 Patent after making an Examiner's amendment. Rho Decl., Ex. N, at 15. The Examiner stated that the claims originally were anticipated or rendered obvious by U.S. Patent No. 6,593,949 ("Chew"), U.S. Patent No. 7,680,513 ("Haitani"), U.S. Patent No. 7,289,614 ("Twerdahl"), and Pub. No. US 20060281449 ("Kun"). *See id*. The Examiner altered the pertinent portion of several claims to read as follows:

> . . . **immediately** in response to detecting a finger gesture on the second interactive displayed portion of the respective user selected item in the list, ~~immediately displaying~~ **completely substituting display of the list of interactive items with display of** contact information . . . .

See Rho Decl., Ex. N, at 3-14 (emphasis on additions, strikethroughs on removed portions). In multiple claims, the Examiner thus added the phrase "completely substituting display of the list of interactive items with [the second display]" in place of "displaying [the second display]" to allow the claims over the cited prior art references. In his reasons for allowance, the Examiner stated that none of the prior art taught "completely substituting the display of the list of interactive items . . . **as defined in the specification (Figs 12B-12C)** . . . ." *Id*. at 15 (emphasis added).

Apple argues that the limitation "completely substituting" was added precisely to distinguish from the Chew reference. *See* Apple Br. at 22. Specifically, the Chew reference discloses a second display that only partially covered the first display of phone numbers. *Id*. Thus, Apple maintains, the prosecution history makes clear that the phrase "completely substituting" was

added to distinguish Chew and make clear that the '760 Patent refers to completely replacing one display of missed calls with another display containing contact information. In essence, Apple argues that "completely substituting" was added to make it clear that the second display had to visually replace the first display, and not merely overlay or partially obscure it.

Samsung, by contrast, argues that the Examiner intended to limit the '760 Patent to only the embodiment described by Figures 12B and 12C. *See* Tr. at 108:8-12. Samsung contends that the Examiner's statement should be read as requiring that the invention be limited to "the display of contact information . . . as defined in the specification (Figs 12B-12C)." Tr. at 3-7. If understood in this manner, Samsung argues that, instead of describing one embodiment of the invention, the description of Figure 12—which describes a "contact list entry" in addition to a plurality of contact objects—is the only embodiment which was allowed by the Examiner. *See* Tr. at 110:3-7. Thus, Samsung concludes that the second display must contain both a plurality of contact objects and a contact entry which is pulled from the phone's memory and thus "completely substituting" the information from the missed call list.

The Court disagrees with Apple's contention that the amendment was made specifically to address the partial displays disclosed in the Chew reference. The Examiner's amendment makes no reference to any specific figure of Chew, and the Examiner only referenced Chew when reciting the list of prior art now overcome with the "completely substituting" amendment. *See* Rho Decl. Ex. N at 15.

However, the Court also disagrees with Samsung's argument that the Examiner's statement expressly limits the claims to the contact list embodiment described by Figure 12. The Examiner made no statement to that effect, and it appears equally likely that the Examiner was referencing Figures 12B and 12C as an example of one display "completely substituting" or replacing another from a visual, not a content, standpoint.

Figure 12B shows a list of missed calls, and Figure 12 C shows an entirely new display of contact information which has totally replaced the display from Figure 12B. Thus, it appears that the Examiner's reference to those two figures was meant to demonstrate that what he meant by "completely substituting" was that the second display was visually distinct from the first (as shown

in the figures). There is no indication in the Examiner's reasons for allowance that he intended to limit the content of the displays to the content shown in Figures 12B and 12C.

Accordingly, the Court construes "completely substitute[e/ing] display of the list [of interactive items] with display of contact information" to mean "**Displaying at least two contact objects in place of the display of the list of interactive items.**"

III. DISCUSSION REGARDING SAMSUNG'S PATENTS

Next, Apple and Samsung request that the Court construe four disputed terms contained within three of Samsung's patents. Specifically, the parties dispute the meaning of: (1) "non-scheduled transmission" contained within the '807 Patent; (2) "zone specific storage and interface device" contained within the '757 Patent; and (3) "means for capturing, digitizing, and compressing at least one composite signal" and "means for transmitting said composite signal" contained within the '239 Patent.

A. The '087 Patent

The disputed term "non-scheduled transmission" appears in Samsung's '087 Patent.[4] The '087 Patent, entitled "Method and Apparatus for Performing Non-Scheduled Transmission in a Mobile Communication System for Supporting an Enhanced Uplink Data Channel," discloses a mobile communication method and apparatus that allows user equipment ("UE"), such as a cellular phone, to efficiently send non-scheduled data transmissions without interfering with other UEs. '087 Patent Abstract. This is accomplished by specifying possible transmission time intervals ("TTIs") during which a UE may send non-scheduled transmissions. The application for the '087 Patent was filed on July 18, 2005, taking priority from a family of Korean patent applications, of which KR 10-2004-055678 was the earliest filed, on July 16, 2004. The '087 Patent issued on July 13, 2010.

[4] The parties initially disputed the term "N" as well in the '087 Patent. However, after the technology tutorial held on February 14, 2013, the parties agreed that "N" should be construed as "a positive integer." *See* Joint Submission Re: Claim Constr., ECF No. 389.

1. "Non-Scheduled Transmission"

Samsung's Proposed Construction	Apple's Proposed Construction
No construction necessary. Should the Court find construction necessary: "Transmission of data using non-scheduled transmission information to indicate possible TTIs"	"Transmission of uplink data by the UE without using scheduling assignment information sent by the base station."

The term "non-scheduled transmission" appears in Claims 1, 4, 5, 9, 12, 13, 17, 18, 20, 22, 23, and 25 of the '087 Patent.[5] For example, independent Claim 1 of the '087 Patent recites:

> A method for performing **non-scheduled transmission** in a user equipment (UE) of a mobile communication system for supporting an enhanced uplink dedicated channel (E-DCH), comprising the steps of:
>
> > receiving non-scheduled transmission information indicating k transmission time intervals (TTIs) for transmitting non-scheduled data via the E-DCH, wherein **non-scheduled transmissions** can be performed during the k TTIs within a period having N TTIs; and
> >
> > transmitting data on at least one TTI of the k TTIs within the period; wherein the parameter k is an integer greater than 0 and less than or equal to a positive integer N.

'087 Patent at col. 13:3-17 (emphasis added).

The '087 Patent generally relates to a method and apparatus for controlling data transmission between a base station ("Node B") and a plurality of user equipment ("UE") devices (such as 3G capable smartphones). *See* '087 Patent at col. 1:35-62. The invention disclosed in the '087 Patent improves the overall performance of such systems by reducing interference and the number of communications through a novel scheduling system. *See id*. at col. 3:23-34. Traditional systems required that the Node B and each UE go through a series of scheduling communications in order for the UE to make a transmission. *Id*. at col. 2:42-53. These sorts of transmissions are known as "scheduled transmissions." *Id*. To make a scheduled transmission, the UE contacts the

[5] "Non-Scheduled Transmission *Information*" or "Non-Scheduled Transmission *Determination Value*" or "Non-Scheduled Transmission *Mode*" appear in other claims, but are separate terms from "Non-Scheduled Transmission."

Node B and requests to make a scheduled transmission. *Id*. This request comprises information such as the amount of data to be transferred, transmission power, and other specifics related to the information to be transferred. *Id*. The Node B then considers requests from a plurality of UEs and creates scheduling assignment information for each requested transmission. *Id*. at col. 2:54-61. This scheduling assignment information lets the UE know when it can send the requested file, at what data rate, and other transmission information. *Id*. The scheduling assignment information is sent to the UE and the UE then sends the data along during the scheduled timeframe. *Id*.

The '087 Patent covers a novel method of transmitting data between a UE and a Node B as "non-scheduled transmissions." *See* '087 Patent Abstract. Rather than wait for the UE to request scheduling assignment information, the '087 Patent discloses a system where a radio network controller ("RNC") at the Node B calculates potential transmission time intervals ("TTIs") ahead of time. *Id*. at col. 7:50-8:34. These potential transmission times, or TTIs, are then transmitted to the UE, and the UE may make "non-scheduled" transmissions during the upcoming TTIs. *Id*. This system offers the advantage of the UE not having to go through the process of requesting a data transfer schedule from the Node B; instead, the UE is provided ahead of time with several time intervals during which it may transmit data should it chose to do so. *Id*. at col. 6:49-59. These TTIs are expressed in terms of the integers k and N; N represents the period of total TTIs, and k represents the number of TTIs during the period N in which the UE may make "non-scheduled" transmissions. *Id*. at col. 6:60-7:3. By allowing both traditional "scheduled" transmissions, and the novel "non-scheduled" transmissions, the '087 Patent lets the Node B and UEs communicate faster and with less overall interference. '087 Patent Abstract.

Samsung's proposed construction explains that "non-scheduled transmissions" are sent using non-scheduled transmission information, which designates possible TTIs for transmission. Apple's proposed construction adds a negative limitation: that non-scheduled transmissions must be sent "without using scheduling assignment information sent by the base station." The Federal Circuit has cautioned against reading negative limitations into claims where there is no express disclaimer or independent lexicography in the written description that would justify adding that negative limitation. *Omega Engineering*, 334 F.3d at 1322. As set forth below, there is no express

disclaimer or independent lexicography in the claim language or specification; thus, the Court does not find support for Apple's proposed construction. Consequently, the Court adopts Samsung's proposed construction.

a. Claim Language

Claim 1 requires "receiving non-scheduled transmission information," which indicates particular TTIs during which the UE may transmit, and "transmitting data on at least one TTI" of the possible TTIs identified. Samsung's construction, "[t]ransmission of data using non-scheduled transmission information to indicate possible transmission time intervals (TTIs)," restates the claim language in a somewhat simplified phrasing.

Apple's construction, on the other hand, bars the use of "scheduling assignment information." Of the 40 independent and dependent claims, only independent Claims 27 and 34 refer to "scheduling assignment information." Claim 34 recites in relevant part:

> a receiver receiving at least one of scheduling assignment information generated by Node B [a "base station," *e.g.*, a cellphone tower] based on scheduling information . . . and non-scheduled transmission information indicating [TTIs] . . . for transmitting non-scheduled data . . . .

'087 Patent at col. 19:4-9. Claim 34 claims transmission using scheduling assignment information in "Node B controlled scheduling mode" and transmission during at least one of the possible TTIs during "non-scheduled transmission mode." '087 Patent at col. 19:13-17. However, Claim 34 does not explicitly exclude any use of scheduling assignment information when the UE is in non-scheduled transmission mode or is making non-scheduled transmissions; it requires only that non-scheduled transmission information be used. *Id.* Indeed, Claim 34 makes clear that the invention contemplates that both non-scheduled transmission information and scheduling assignment information are available to the UE.

Similarly, Claim 27 recites both "transmitting uplink data according to the scheduling assignment information in a Node B controlled scheduling mode" and "transmitting uplink data on at least one TTI of the k TTIs within the period in a non-scheduled transmission mode." Claim 27 thus claims both using scheduling assignment information and making transmissions during at least one of the designated TTIs within the non-scheduled transmission period. However, a transmission

made during one of those designated TTIs would meet the limits of the claim, whether or not the transmission also used some of the available scheduling assignment information.

Thus, there is no clear support in the claims for Apple's proposed negative limitation. The Court now turns to the specification.

b. Specification

In support of Apple's construction foreclosing the use of scheduling assignment information, Apple points to language in the specification disclosing that a UE can operate without using scheduling assignment information. *See* Apple's Resp. Claim Constr. Br. ("Apple Resp."), ECF No. 350, at 3-4. For example, the specification discloses:

> The UE **enables** non-scheduled transmission (referred to as non-scheduled transmission) for transmitting uplink data through the E-DCH without using scheduling assignment information. The non-scheduled transmission **can** quickly transmit E-DCH data by omitting a series of processes for sending scheduling information from the UE to the Node B and receiving scheduling assignment information from the Node B. The system limits a data rate possible for the non-scheduled transmission to within a relative low level, thereby maintaining system performance enhancement through the Node B controlled scheduling and reducing a delay time due to scheduling.

'087 Patent at col. 3:23-34 (emphasis added).

However, the fact that scheduling assignment information is not *necessary* in a non-scheduled transmission does not mean that it is not *allowed*. Therefore, this passage does not support Apple's construction that scheduling assignment information is forbidden in making non-scheduled transmissions.

Moreover, Samsung argues that, in some embodiments, "non-scheduled transmission information" alone will not be sufficient to allow the non-scheduled transmission, but that additional information from the base station will be required. *See* Samsung Op. Claim Constr. Br. ("Samsung Br."), ECF No. 335, at 7-8. "Non-scheduled transmission information," as defined in Claim 1, need only "indicat[e] k TTIs for transmitting non-scheduled data . . . within a period having N TTIs"—in other words, the set of possible TTIs a given UE may use for transmission. *Id.* at col. 15:38-42. However, Figure 8 and the accompanying text disclose an embodiment in which non-scheduled transmission information is supplemented by data rate information. In this embodiment, a base station node transmits to a UE "non-scheduled transmission parameters such

as a non-scheduled transmission period N, the number of non-scheduled transmissions k, a possible non-scheduled transmission time interval, and so on." *Id.* at col. 11:44-48. Additionally, in this embodiment, any ultimate non-scheduled transmissions by the UE also depend upon the allowed data rate. *Id.* at col. 11:48-58. Thus, non-scheduled transmissions can clearly use data rate information in addition to non-scheduled transmission information.

Because non-scheduled transmissions can use data rate information, the Court must determine whether data rate information may be obtained from the scheduling assignment information. If it can, then Apple's additional negative limitation excluding the use of scheduling assignment information cannot be correct, because the specification specifically contemplates a non-scheduled transmission using data rate information.

The Background of the '087 Patent explains the scope of "scheduling assignment information." In describing the related art, the specification discloses that "scheduling assignment information [may] compris[e] information about an allowed data rate . . . and so on." *Id.* at col. 2:59-61. Thus, the Patent is explicit that data rate information *is* part of the scheduling assignment information, meaning that if a non-scheduled transmission uses data rate information from the scheduling assignment information, then it cannot be said to occur "without using scheduling assignment information from the base station." Accordingly, Apple's construction precluding the use of scheduling assignment information is foreclosed by the specification.

In sum, the invention involves sending from a base station to a UE non-scheduled transmission information that specifies possible TTIs that may be used for non-scheduled data transmission. The claim language does not limit the use of additional data from other sources when making non-scheduled transmissions, and the specification and dependent claims explicitly disclose using data rate information, which is a component of scheduling assignment information.

Accordingly, the Court agrees with Samsung's proposed construction, and disagrees with the additional limitation proposed by Apple. The Court therefore adopts the following construction: **"Transmission of data using non-scheduled transmission information to indicate possible transmission time intervals (TTIs)."**

B. The '757 Patent

The disputed term "zone specific storage and interface device" appears in Samsung's '757 Patent. The '757 Patent, entitled "Multimedia Synchronization Method and Device," discloses "[a] system . . . for synchronizing a multiplicity of devices in a multimedia environment" so that users can access their multimedia collection (*e.g.*, movies and music) in different locations. '757 Patent Abstract. The system is comprised of "at least one central storage and interface device," "at least one zone," and "at least one zone specific storage and interface device." '757 Patent at col. 10:31-50 (Claim 1). The application for the '757 Patent was filed on October 19, 2006, as a continuation of Patent Application No. 9/884,661, which was filed on June 19, 2001. The '757 Patent issued on August 18, 2009.

1. "zone specific storage and interface device"

Samsung's Proposed Construction	Apple's Proposed Construction
"A storage and interface device associated with a particular viewing and/or listening zone"	"a device fixed in a room, or similar bounded location, for multimedia playback"

The term "zone specific storage and interface device" appears in independent Claim 1 of the '757 Patent, and dependent claims 2-4, 6, and 8-13. Independent Claim 1 recites:

> A system for synchronizing devices in a multimedia environment, the system comprising:
>
> > at least one central storage and interface device, wherein audio, video, or photographic data, including content information and content management information, relating to at least one user, are stored in digital form; and
> >
> > at least one zone, each zone having at least one **zone specific storage and interface device** capable of storing or interfacing with information stored in the central storage and interface device, wherein audio, video, or photographic information, relating to at least one user, contained within the **zone specific storage and interface device** and the central storage and interface device, are updated in relation to the **zone specific storage and interface devices** and the central storage and interface device, whereby the at least one user can be situated in any one of the zones and access the audio, video, or photographic information related to the at least one user.

'757 Patent at col. 10:31-50 (emphasis added).

The '757 Patent discloses methods and a device for providing audio, video, and photographic information across a multiplicity of devices. '757 Patent Abstract. The invention allows a single user to access the same database of music, movies, or photographs from one of many "zones." *Id.*

The device functions by having a plurality of "zone specific storage and interface devices" synchronized with a "central storage and interface device." *Id.* at col. 4:17-35. The "central storage and interface device" maintains digital copies of a user's audio, video, and photographic information. *Id.* at col. 4:19-23. The various "zone specific storage devices," located in a "plurality of zones," then synchronize with that data so that the user can enjoy the same collection of entertainment options from a wide variety of areas. *Id.* at col. 4:23-32.

Samsung's proposed construction requires only that a zone specific storage and interface device be "associated" with a particular "zone" for viewing and/or listening to the multimedia content stored on the system. Apple's proposed construction adds the limitation that the zone specific device must be "fixed" in a physical zone, rather than merely "associated" with the zone. In addition, Apple's proposed construction requires that the relevant zone be "a room, or similar bounded location."[6] The Court concludes that neither party's construction is completely consistent with the '757 Patent and instead construes "zone specific storage and interface device" as "a storage and interface device that resides in an area, such as a room or similar location."

a. Claim Language

Although neither party selected the term "zone" for construction, the parties' disagreement about whether a zone-specific device may move or must be fixed is predicated largely on the parties' different definitions of the term "zone."

[6] Apple's proposed construction also includes the additional limitation that the "zone specific storage and interface device" be for "multimedia playback." However, the parties have not addressed this limitation in their briefing. Additionally, the Court finds that the zone specific device itself should not be limited to requiring "multimedia playback" as dependent Claim 4 recites that an "output device" may be coupled to the "zone specific storage and interface device" for outputting the "audio, video, and photographic information." This functionality may thus be accomplished by an "output device" rather than the "zone specific storage and interface device" itself.

Apple construes the term "zone" as "a room, or similar bounded location." Apple contends that, by virtue of requiring that the "storage and interface device" be "zone specific," the term itself requires that the device "be dedicated to and fixed in a zone, and not move across multiple zones." Apple Resp. at 9. While the claims do state that a "storage and interface device" must be "specific" to a "zone," nothing in the language of the claims themselves requires that the specific zone be a fixed location, that the device be fixed within that zone, or that the zone must be bounded.

For additional support of its construction, Apple notes that dependent Claim 13 draws a distinction between a "wireless mobile device," which is "mobile," and thus not fixed in a room or similar bounded location, and a "zone specific storage and interface device." *See* '757 Patent at col. 12:12-15 (Claim 13) ("The system of claim 1, wherein the zone specific storage and interface device is disposed to be coupled to a wireless mobile device."). However, the plain language of Claim 13 does not state that the "zone specific storage and interface device" must be fixed or bounded, only that it must be "zone specific." The only requirement of Claim 13 on its face is that the zone specific device must be "disposed to be coupled to" a wireless mobile device.

Accordingly, the Court does not find that the claims themselves clearly support Apple's proposed limitation. The Court now turns to the specification.

b. Specification

Samsung contends that the examples of portable and mobile multimedia devices found in the specification show that these devices may serve as "zone specific storage and interface device[s]." *See Samsung* Br. at 14. However, the specification distinguishes "zone specific storage and interface devices" from portable and mobile multimedia devices. For example, in Figure 7—which depicts various elements of the invention—the specification discloses a central storage and interface device, "702," linked via a local area network ("LAN") to a multitude of devices including: (1) "zone specific storage and interface devices 706, 708, and 710, each of which resides in a specific zone;" (2) a "personal computer 712"; (3) an "automobile 716"; and (4) "[an]other device 714 such as an intelligent MP3 player." *Id.* at col. 8:17-31. Thus, Figure 7 distinguishes "zone specific storage and interface devices" from a personal computer, an automobile, and an

MP3 player. Furthermore, in discussing Figure 7, the specification repeatedly refers to zone specific devices *without* including networked digital portable personal players, "714," or automobile devices, "716." *See, e.g.*, '757 Patent at col. 8:40-44 (stating that "[a] practical example of implementing the instant invention" involves the AudioReQuest Pro, the patent's example of a central storage device, and the AudioReQuest Multizone, the patent's example of "zone specific storage and interface devices 706, 708, 710."); *see also id.* at col. 9:44-45 ("zone specific storage and interface devices 706, 708, 710").

Moreover, despite the specification's reference to portable and mobile multimedia devices, the specification never suggests that such devices are "zone specific." Rather, mobile and portable devices are simply described as being "coupled" to the central device via networks such as LAN. *Compare* '757 Patent at 8:25-31 (stating that portable devices and automobiles can be coupled to LAN); *with id.* at 8:23-24 (stating that "zone specific storage and interface devices 706, 708, and 710," each "reside[] in a specific zone").

The specification further indicates that some portable devices could simply be secondary devices that connect to the "central storage and interface device" through a network rather than being "zone specific storage and interface devices." *See, e.g., id.* at col. 9:17-27; col. 9:36-38 (distinguishing between: (1) the zone specific storage and interface devices, such as AudioReQuest Multizone, which have removable hard drives to store the entire multimedia collection; and (2) "car and other mobile devices" which "can . . . synchronize over wired or wireless connections"); *see also id.* at col. 10:1-10 (distinguishing between: (1) "content [that] is stored locally in a device within a zone or any zone, so that output can be played in multiple zones and rooms;" and (2) "other device[s] for mobile applications such as car, boat, airplane, and other transportation, that would synchronize through either hardwired or wireless means resulting in storing the content locally.").

Therefore, the specification contradicts Samsung's claim that the portable and mobile multimedia devices found in the specification are "zone specific storage and interface device[s]." Samsung Br. at 14. Instead, they appear to be different types of devices, which may be connected

to the central storage and interface device over a network, but are portable rather than zone-specific.

Samsung argues that, should the Court construe automobile and personal mobile devices as distinct from "zone specific storage and interface devices," the Court will exclude disclosed elements from the scope of the claims. However, Claims 13, 14, and 15 make clear that a system including a networked wireless mobile device coupled to a "zone specific" device can still fall within the scope of the invention, even if that networked device is not one of the "zone specific storage and interface devices" found in Claim 1. *See, e.g.*, '757 Patent at col. 12:12-15 (Claim 13) ("The system of claim 1, wherein the zone specific storage and interface device is disposed to be coupled to a wireless mobile device."). Therefore, the Court's construction does not exclude mobile devices from the scope of the patent, even if they are not "zone specific storage and interface devices." Similarly, an automobile or boat device can fall within the scope of Claims 14 and 15, which require "central" and "mobile" devices, but do not require the use of "zone specific" devices. *See, e.g.*, *id.* at col. 12:20-22 (Claim 15) ("The system if claim 1, wherein the central storage and interface device is disposed to be coupled to a wireless mobile device"). Therefore, the Court is not persuaded that "zone specific storage and interface devices" must include automobile and personal mobile devices.

However, the Court does not believe that the specification clearly supports Apple's proposed limitation that the zone of the "zone specific storage and interface device" must be fixed and bounded. In support of its construction, Apple points to examples of a zone in the embodiment, which liken it to a "room." *See id.* at col. 9:12-16 ("In a typical custom home installation, there may be upwards of 20 zones (*e.g.*, rooms) with independent control and output. By way of example, instead of only playing one CD throughout the building, different songs can be played at the same time.") (emphasis added); *see also id.* at col. 10:3-5 (distinguishing between "multiple *zones or rooms* in a networked building," and "multiple *locations* traveling through a wide area network such as the Internet.") (emphasis added). It is axiomatic that claims should not be limited simply because a specific embodiment in the specification discloses only a portion of the potential claim scope. *See Phillips*, 415 F.3d at 1327 (holding that the claim was not limited to

only the preferred embodiment). The applicability of this doctrine in this instance is emphasized by the clear language of the specification, which explicitly lists rooms as simply *examples* of zones, *see* '757 Patent at col. 9:13-14 ("*e.g.*, rooms"), rather than as synonyms.

In further support of its construction, Apple argues that the term "zone" refers to a "fixed" location because "[o]ne of the purposes of the zone is to give a user substantially exclusive or reclusive enjoyment of information shared by zone specific storage and interface devices 706, 708, 710, as well as by central storage and interface device 702, and other devices." *Id*. at col. 9:47-51. However, the purpose of "exclusive or reclusive enjoyment" is not necessarily undermined by a device being mobile. For example, a person can listen to an intelligent MP3 player with headphones and benefit from "substantially exclusive or reclusive enjoyment" of shared data. Moreover, for purpose of multimedia enjoyment, a car is obviously quite similar to a room—it is simply a room on wheels, and often includes multimedia devices that are built into the car. Thus, it is not clear why a car should be treated any differently from a zone specific device located in a room within a house.[7]

However, the most persuasive argument raised by Apple as to why the "zone specific storage and interface device" must be fixed and bounded is the fact that the '757 specification describes "zone specific storage and interface devices" as "resid[ing] in" or "exist[ing]" in a single zone. *See id.* at col. 8:23-24 ("zone specific storage and interface devices 706, 708, and 710, each of which resides in a specific zone"); *id.* at 7:66-67 (referring to "devices residing in different zones"); *id.* at 9:44-47 (stating that "zone specific storage and interface devices 706, 708, 710 . . . can be located in separate zones respectively. Or, some can co-*exist* in a zone."). While the Court finds the specification's use of the term "reside" to reflect some degree of being contained within a certain location rather than moving around freely, the Court is concerned that the terms "fixed" and "bounded" may be overly limiting.

[7] Apple also construes the terms "exclusive or reclusive enjoyment" to mean that each zone must be exclusive, and therefore separate from, every other zone. Apple Br. at 10. However, the specification states that "zone specific storage and interface devices 706, 708, 710, or PC 712 *can be* located in separate zones respectively. Or, some *can* co-exist in a zone." '757 Patent at 9:44-47. Therefore, the specification does not clearly support Apple's construction.

Thus, while the Court concludes that the specification indicates that "zone specific storage and interface devices" are distinct from a "car and other mobile devices," the Court does not find support in the specification for defining "zone specific storage and interface devices" as fixed and bounded. At best, the specification supports concluding that zone specific devices "reside in" a room or similar location. In fact, during the claim construction hearing, Apple agreed with the Court's suggestion that the terms "resides" or "remains" better reflect the specification and should be used in place of Apple's proposed terms "fixed" and "bounded." *See* Tr. at 140:9-14.

c. Extrinsic Evidence

Apple contends that "zone" is a term of art in the home audio field, synonymous with room. *See* Apple Resp. at 12 (citing Mark Fleischmann, *Practical Home Theater: A Guide to Video and Audio Systems*, pg. 167 (2003 ed. 2001), for the proposition that the term "Multi-room" is defined as an "[a]udio system serving more than one room. *Also called multi-zone*."); *see also id.* (citing Danny Briere & Pat Hurley, *Home Theater for Dummies*, p. 127 (2003), for the proposition that "multizone" means multiple rooms with different audio sources). This use is consistent with specific examples listed in the specification.[8]

Samsung does not contest that "zone" is often related to a room, but argues that it need not be so limited. Rather, Samsung contends that the term "zone" is just a listening area where multimedia content from a particular source may be viewed or heard. *See* Samsung Br. at 16 (citing John Sciacca, *Sound All Around*, Sound & Vision, p. 95 July/August 2001, for the proposition that, "[w]ith a multizone system, you divide your home into *areas* that can each play a different source. Each zone can contain as many rooms or speakers as your electronics can sustain."); *see also id.* (citing Bose Corporation, *The Bose Lifestyle 11 Music System Overview 5* (Rev. 1, 1994), for the proposition that "[e]ach listening area, whether a room or a group of rooms (including outdoor areas), is referred to as a zone."). Therefore, Samsung states that "a portable

[8] Nevertheless, Apple's extrinsic evidence does not prove that the term must be "fixed" or "bounded." The Court is also concerned that these terms might be interpreted in an overly restrictive manner by a jury, such as interpreting the term "bounded" to require limitations such as walls, and the term "fixed" to require that a device be built in.

radio creates a listening zone that moves with the radio." Samsung Reply Claim Const. Br. ("Samsung Reply"), ECF No. 363, at 7.

While Samsung's extrinsic evidence indicates that a zone may be defined more broadly than a "room" to include an "area," the phrase "zone" does appear connected to a particular geographical location. Moreover, nothing Samsung sets forth indicates that the "area" is construed to be mobile. Therefore, the extrinsic evidence does not appear to support construing the term "zone specific interface device" as necessarily including mobile phones. Moreover, the Court believes that Samsung's use of the term "associated" in its construction is ambiguous, and may potentially include highly transitory associations with an infinite series of locations, as with a mobile device, thereby evading the limitation of "zone specific." *Unique Concepts, Inc. v. Brown*, 939 F.2d 1558, 1562 (Fed. Cir. 1991) ("All the limitations of a claim must be considered meaningful."). Samsung's use of the term "particular" to describe the zone does not cure this defect, because "particular" does nothing to restrict the zone to one location as opposed to one amorphous transitory area. Similarly, the term "viewing or listening zone" is ambiguous, and again could incorporate an infinite series of locations, for example, the zone in which a personal mobile device is carried.

Thus, the Court adopts the following construction for a "zone specific storage and interface device" based on the intrinsic and extrinsic evidence set forth by the parties: "**a storage and interface device that resides in an area, such as a room or similar location**."

C. The '239 Patent

The parties dispute two means-plus-function terms in Samsung's '239 Patent. The '239 Patent, entitled "Remote Video Transmission System," discloses a "system for digitizing and compressing an audio/visual signal, transmitting that signal over low band width lines . . . decompressing the digitized data and converting it to an audio/visual signal for broadcast." '239 Patent Abstract. The '239 Patent addresses the need for broadcasters to capture and transmit "broadcast quality video" (*e.g.*, news coverage of a natural disaster) from a "remote location" to a network "host" station for immediate "real time" broadcast. '239 Patent at col. 1:14-col. 2:22.

The application for the '239 Patent was filed on February 16, 1994, and the '239 Patent issued on November 26, 1996. Samsung purchased the '239 Patent in 2011.

1. "Means for capturing, digitizing, and compressing at least one composite signal"

Samsung's Proposed Construction	Apple's Proposed Construction
Agreed function: "capturing, digitizing, and compressing at least one composite signal" Corresponding structure: "A video and/or audio capture module, and equivalents"	Agreed function: "capturing, digitizing, and compressing at least one composite signal" Corresponding structure: "An audio card, a video card having a video capture module, and a video capture software package, such as Video for Windows software using the software sequence set forth at 2:63-3:3, 4:39-63, 5:4-6:23, and 6:62-7:14."

The term "means for capturing, digitizing, and compressing at least one composite signal" appears in asserted independent claim 1 and dependent Claims 5 and 6 of the '239 Patent. Independent Claim 1 of the '239 Patent recites:

> An apparatus for transmission of data, comprising:
>
> a mobile remote unit including:
> a.) **means for capturing, digitizing, and compressing at least one composite signal**;
> b.) means for storing said composite signal;
> c.) means for transmitting said composite signal;
>
> a host unit including:
> a.) means for receiving at least one composite signal transmitted by the remote unit;
>
> a playback unit including:
> a.) means for exchanging data with said host unit;
> b.) means for storing the composite signal received by the host unit;
> c.) means for decompressing said composite signal.

'239 Patent at col. 13:4-17 (emphasis added).

The parties agree, as does the Court, that "means for capturing digitizing, and compressing at least one composite signal" is a means-plus-function limitation recognized by 35 U.S.C. § 112,

¶ 6. *See* 35 U.S.C. § 112, ¶ 6 (stating that means-plus-function terms are limited to structures disclosed in the specification that perform the claimed function, and equivalents of those structures).

A court must construct a means-plus-function limitation in two steps. "First, the court must determine the claimed function. Second, the court must identify the corresponding structure in the written description of the patent that performs the function." *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1311 (Fed. Cir. 2012) (quoting *Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 448 F.3d 1324, 1332 (Fed. Cir. 2006)). "A structure disclosed in the specification qualifies as a 'corresponding structure' if the specification or the prosecution history 'clearly links or associates that structure to the function recited in the claim.'" *Id*. (quoting *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997)). Moreover, the disclosure in the patent's specification must "show [] what is meant by that [claim] language. If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by . . . section 112[, ¶2]." *Id*. at 1311-12 (*quoting In re Donaldson Co.*, 16 F.3d 1189, 1195 (Fed. Cir. 1994) (en banc)).

Here, the parties agree that the claimed function is "capturing, digitizing, and compressing at least one composite signal." *See* Samsung Br. at 17 ("Apple and Samsung agree on the functions for both terms."). The parties disagree, however, as to what the corresponding structure is in the specification. Samsung argues that the corresponding structure is simply "a video and/or audio capture module, and equivalents." Samsung Br. at 18. In contrast, Apple adds three limitations to the construction of this claim. First, Apple argues that the corresponding structure must have components capable of dealing with both audio and video signals. Thus, Apple requires both an audio card and a video card. Second, Apple's construction requires cards, rather than merely modules. Third, Apple argues that the corresponding structure must include specific software operating as discussed in several columns of the specification. While the Court agrees with Apple that the corresponding structure for "means for capturing, digitizing, and compressing

at least one composite signal" must include an audio capture card[9] and a video card with a video capture module, the Court does not agree that the corresponding structure must also include specific software.

a. Audio and/or Visual vs. Audio and Visual

First, the parties dispute whether the corresponding structure must have components capable of dealing with *both* audio and visual signals or just one or the other. While the claim language and specification are ambiguous as to the proper construction of this expression, the prosecution history clarifies that the term "composite" requires that the structure have the ability to capture *both* audio and visual signals. Therefore, the Court agrees with Apple that the "means for capturing, digitizing, and compressing at least one composite signal" must be capable of capturing, digitizing and compressing both audio and visual components.

i. Claim Language

Independent Claim 1 does not specify the "means for capturing, digitizing, and compressing at least one composite signal," nor does it define the term "composite." *See* '239 Patent at col. 13:4-17. Nevertheless, Samsung argues that the claims support its construction that the corresponding structure need only have video or audio components. *See* Samsung Br. at 18. Specifically, Samsung relies on Claims 5 and 6, which depend from Claim 1, as evidence that the corresponding structure can have video and/or audio components. Notably, dependent Claim 5 claims only a video component, *see* '239 Patent at col. 13:25-28, whereas dependent Claim 6, which is dependent on Claim 5, claims both a video and audio component. *Id*. at col. 13:29-32.

According to Samsung, "[t]o require both to be read into claim 1 would render claims 5 and 6 superfluous." Samsung Br. at 20 (*citing Retractable Techs.*, 653 F.3d at 1312). However, the presence of a dependent claim reciting a structure does not override the requirements of § 112, ¶ 6. *See Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1538 (Fed. Cir.1991) (holding that the requirements for means-plus-function limitations cannot be avoided by adding a dependent claim reciting the corresponding structure).

[9] During the claim construction hearing, Apple clarified that their construction was for an "audio capture card" not an "audio card." *See* Tr. at 153:18-25.

Furthermore, both Claims 5 and 6 reference an audio or video capture device "installed in" said remote unit for capturing. Additionally, Claim 5 refers to capturing the composite signal "in real time." Thus, it is not clear from the claim language whether the differentiation between Claim 1 and Claims 5 and 6 is the presence of an audio versus a video card or, rather, that in Claim 1 the cards need not be installed *in* the remote capture unit or capture the composite signal "in real time."[10]

Samsung also notes that "[d]ependent claim 4 makes it clear that the signal can be video and/or audio." Samsung Br. at 20; *see* '239 Patent at col. 13:23-25 (Claim 4) ("An apparatus according to claim 3 further including means for splitting and organizing the digitized, compressed *audio and/or video signal* prior to transmission.") (emphasis added). Apple argues, however, that the doctrine of claim differentiation cannot apply to Claim 4, which adds requirements directed to a "means for splitting and organizing" limitation, not the "means for capturing, digitizing, and compressing" at issue here. Apple Resp. at 20. Just as it is unclear that the audio or visual component is the differentiating factor in Claims 5 and 6, it is not clear that this is the differentiating factor in Claim 4 either. Therefore, the Court does not find that the claims clearly support Samsung's proposed corresponding structure. As such, the Court turns to the specification for further guidance.

ii. Specification

The Court also finds the specification to be ambiguous as to whether the corresponding structure must have components capable of dealing with *both* audio and visual signals. The term "composite" is never used in the specification. Instead, the specification refers to an "audio/visual

[10] Apple also contends that dependent Claims 5 and 6 do not support Samsung's construction because they do not refer to the capture, digitization, or compression of an audio signal alone. According to Apple, this is significant because, "[i]f only audio was needed (as Samsung's 'video and/or audio' construction would permit), a reporter could simply make a traditional phone call." Apple Resp. at 19. While it is true that dependent Claims 5 and 6 do not mention solely capturing an audio signal, a proper corresponding structure could, in accordance with the claims' terms, involve only video signals or video and audio signals. However, as described above, Claims 5 and 6 introduce multiple additional limitations, and thus it is not clear from the claim language alone whether the "means for capturing, digitizing, and compressing at least one composite signal" requires the ability to capture both audio and visual components.

signal," *see, e.g.*, '239 Patent at col. 2: 28 ("audio/video signals"); col. 2:59 ("audio/visual signal"); col. 2:67 (same), or to a "video signal" and an "audio signal" separately, *see, e.g.*, *id.* at col. 2:47 ("video signal"); *id.* at col. 5:47 ("audio signal").

The specification also discloses one preferred embodiment in which an audio and visual signal is digitized and compressed. The specification further describes a situation where a user has the option of capturing only the video signal, enabling the video data to be transmitted more quickly than combined audio/video data. *Id.* at col. 5:39-60. This suggests that the captured, digitized, and stored composite signal need not include audio signal, and that therefore an audio card need not be a part of the structure required to perform the claim function of capturing, digitizing, and compressing a composite signal.

Apple argues, however, that this optional *function* in the embodiment is irrelevant to a proper construction of the claims because the means limitation at issue is found in an *apparatus* claim, and the specification describes that apparatus as requiring hardware and software capable of capturing, digitizing, and compressing *both* video and audio signals. *See* Apple Resp. at 19. Apple contends that the mere fact that the claimed device may be *used* to capture and transmit video alone in some situations is irrelevant. *Id.*; *see Paragon Solutions, LLC v. Timex Corp.*, 566 F.3d 1075, 1091 (Fed. Cir. 2009) (rejecting a construction that injected a use limitation into a claim written in structural terms because "apparatus claims cover what a device *is*, not what a device *does*.") (citing *Hewlett-Packard Co. v. Bausch & Lomb, Inc.*, 909 F.2d 1464, 1468 (Fed. Cir. 1990)). However, the patent does refer to the device capturing only a video signal, as opposed to capturing an audio/visual signal, and it is unclear from the specification whether this is merely a function, as Apple claims, or instead the entire structure for capturing a composite signal. Accordingly, the specification does not clearly resolve the parties' dispute.

iii. Prosecution History

Despite the ambiguity within the claims and the specification, the prosecution history indicates that the "means for capturing, digitizing, and compressing at least one composite signal" requires the means for capturing, digitizing, and compressing both an audio and a visual signal.

Initially, Claim 1 referred to "audio and/or visual signal" rather than "composite signal." *See* Decl. of Peter J. Kovolos in Supp. Apple. Resp. ("Kovolos Decl."), ECF No. 350, Ex. 4, at 2-3 ("8/20/95 Office Action"). The Examiner objected to the expression "audio and/or visual signal" as covering "two different elements"—video and audio—and thereby found the claim to be "vague and indefinite." *Id*. Accordingly, the term was replaced with the term "composite signal," which the patent applicant explained "is generally known to mean a signal which includes *components* such as audio and/or visual." Decl. of Todd Briggs in Supp. Samsung Br. ("Briggs Decl."), ECF No. 335, Ex. I, at 6 ("2/2/96 Amend."). The applicant further explained that:

> With regard to the present invention, the composite signal which is captured by the remote unit *may* have both audio and video components as is commonly known to be a "composite signal." However, a "composite signal" having both audio and video information is necessarily a larger quantity of information and correspondingly has larger digitized file sizes. In instances where rapid transmission of a video segment is desired in order to reduce the size of the resultant digitized and compressed data file to be transmitted to the host unit, the remote unit may be instructed to capture the video portions of the composite signal only.

Id. (emphasis added).

Samsung emphasizes that the applicant stated only that the composite signal "may" have both audio and video components, meaning simply that the composite signal *may* be: (1) an audio signal, (2) a video signal, or (3) an audio and video signal. *See* Samsung Reply at 12. However, construing the term "composite signal" so broadly completely disregards the Examiner's reason for initially rejecting Claim 1, which was to avoid covering "audio and/or visual signal" and thereby render the claim "vague and indefinite." *See* 8/20/95 Office Action at 2-3.

Moreover, construing the expression "composite signal" as having multiple components is consistent with the basic linguistic understanding that something described as "composite" will have multiple parts. Importantly, the only two signal components disclosed in the specification are audio and visual. Therefore, to be a composite signal, presumably both are required. Furthermore, the patent applicant emphasized that, where the components of the composite signal are audio and visual signals, it may be desirable to capture only the video "portions" of the composite signal. *See* 2/2/96 Amend. at 6. If, as made clear by the applicant, a video signal alone is only a portion of a "composite signal," then the rest of the signal must be audio in order to actually be "composite."

Although the specification discloses the option of not capturing audio, the ability to capture the full composite signal, including audio, is still required by this claim term.

Therefore, the Court agrees with Apple that the structure corresponding to the claimed "means for capturing, digitizing, and compressing at least one composite signal" must have components capable of dealing with ***both* audio and visual signals** and not audio or visual signals as Samsung proposes.

b. Capture Module vs. a Card

Contrary to Samsung's proposed construction, which construes the "means for capturing, digitizing, and compressing at least one composite signal" as requiring "a video and/or audio *capture module*," the Court finds that the structure requires a video *card* having a video capture module and an audio capture *card*.

The parties agree that the claimed function requires "capturing, digitizing, and compressing." However, the specification never discloses a "capture module" that is capable of digitizing and compressing. Instead, the specification discloses a "video capture card," which "takes the audio/visual signal, digitizes it into a computer data file, and compresses that data file." '239 Patent at col. 2:66-col. 3:1. Only *after* the data file has been digitized and compressed by the video capture card is it captured in the computer's memory "by a capture module on the video capture card." *Id.* at col. 3:1-3. Thus, the corresponding structure in the specification that can perform the claimed function of "capturing, digitizing, and compressing at least one composite signal" is not a "capture module" but instead a "video card having a video capture module" as proposed by Apple.

Samsung argues that independent Claims 9 and 15, which recite apparatuses containing only a "video capture module to capture, digitize, and compress said composite signal into a data file" support Samsung's claim that the means in Claim 1 does not require a video card, but only a module.[11] *See* Samsung Reply at 9-10. Samsung notes correctly that the claims are a part of the

[11] Samsung also cites to the prosecution history of Claims 9 and 15, wherein the Examiner allowed the claims after the phrase "video card having a video capture module" was replaced with only "a video capture module" in support of its construction. However, as described above, the Court finds

specification and may be considered when determining the corresponding structure for a means-plus-function term. *See id*. (citing *In re Hayes MicroComputer Prods., Inc. Patent Litig.*, 982 F.2d 1527, 1543 (Fed. Cir. 1992)).

However, while Claim 1 comprises a "mobile remote unit including . . . means for capturing, digitizing, and compressing," Claims 9 and 15 recite a "remote unit *being a computer* comprising . . . a video capture module to capture, digitize, and compress" (Claim 9) and "a *computer* including a video capture module to capture and compress video in real time" (Claim 15). *Compare* '239 Patent at col. 13:4-9 (Claim 1), *with* col. 13:43-45 (Claim 9), *and* col. 14:17-20 (Claim 15). Claim 1 differs significantly from Claims 9 and 15 in that there is no requirement that the mobile unit in Claim 1 be "a computer." It is unclear from the claims or the specification whether a mobile unit which is not necessarily a computer, as Claim 1 recites, would require the same structure to capture, digitize, and compress a composite signal as would a mobile unit which is a computer. Thus, the Court agrees with Apple that, in the context of Claim 1, the specification requires the means to include a video card having a video capture module.[12]

Furthermore, the Court declines to adopt Samsung's proposed construction of "audio capture module" or "audio module." The specification only uses the term "audio capture card" and never uses the term "audio capture module." The Court agrees with Apple that it would be error to introduce a new and unidentified term into the claims. *See Cross Medical Prods. v. Medtronic*

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that the inherent differences between the two claims and Claim 1 prevent these claims from resolving the ambiguity.

[12] Samsung also argues that the doctrine of claim differentiation requires that independent Claim 1 be broader than dependent Claims 5 and 6, which recite audio and video capture "devices." However, the doctrine of claim differentiation may not be used to impermissibly expand the scope of a means-plus-function claim. *See, e.g., Nomos Corp. v. Brainlab USA, Inc.*, 357 F.3d 1364, 1368 (Fed. Cir. 2004) ("[O]ur interpretation of the corresponding structure comes from the written description, not from [the dependent claims] and, therefore, the prohibition against reading limitations from a dependent claim into the independent claim is not violated.") (internal quotations and citation omitted); *Laitram Corp.*, 939 F.2d at 1538 ("[T]he judicially developed guide to claim interpretation known as 'claim differentiation' cannot override the statute. A means-plus-function limitation is not made open-ended by the presence of another claim specifically claiming the disclosed structure which underlies the means clause or an equivalent of that structure."). The Court finds that adopting Samsung's construction would impermissibly expand the scope of Claim 1.

Sofamor Danek, Inc., 424 F.3d 1293, 1304 (Fed. Cir. 2005) (refusing to include structures not disclosed in the specification). Thus, the Court finds that the means for "capturing, digitizing, and compressing at least one composite signal" must include "**an audio capture card, and a video card having a video capture module.**"

c. Specific Software as Part of the Corresponding Structure

Finally, Samsung argues that the structure disclosed in the specification does not require specific software. Notably, Samsung has altered its proposed construction from "a video and/or audio capture module with associated software, and equivalents," as disclosed in the joint prehearing claim construction statement by dropping the phrase "with associated software." *See* Samsung Reply at n.6.

In contrast, Apple argues that the specification makes clear that software is part of the structure required to perform the claimed capturing, digitizing, and compressing functions. In support of this position, Apple notes that the "Detailed Description of the Preferred Embodiment" discloses: "A computer software program such as 'VIDEO FOR WINDOWS' . . . *operates with* the video card and capture module to capture, digitize, and compress the video signal into a data file." '239 Patent at col. 4:41-46 (emphasis added). However, other parts of the specification make clear that Video for Windows does not itself perform the capturing, digitizing and compressing. Instead, these functions are performed by the card and capture module. For example, the specification's "Summary of the Invention" discloses that "[c]omputer software loaded on a hard disk drive in the remote unit instructs it to capture the input signal to a video capture card within the remote unit." *Id.* at col. 2:63-66. Yet, it is the *video card* that digitizes and compresses the audio/visual signal, *id.* at col. 2:66-3:1, and the video capture module on the video capture card that captures the data file in the computer's memory, *id.* at col. 3:1-3. *See also id.* at col. 6:9-14 ("[T]he video card in the remote unit captures the input video signal to its memory. Capture includes digitizing the input video signal to form a binary data file and then compressing that file. The file is compressed in order to conserve memory space and reduce transmission time."). Thus, the software does not appear necessary to "capturing, digitizing, and compressing" the audio and visual signal.

Indeed, both Video for Windows and the "software sequence" discussed in the specification relate to ancillary functions not required for the video card and capture module. These ancillary functions include: (1) displaying images of the first frames of video clips that have not been captured, digitized, and compressed for selection on a user interface, *see id.* at col. 5:9-33; (2) allowing the user to input optional capture parameters such as whether the video should be captured with or without audio, *see, e.g., id.* at col. 5:49-col. 6:8; and (3) allowing editing of captured video clips, *see, e.g., id.* at col. 6:31-35. Accordingly, the specification makes clear that the additional software that "instructs," *id.* at col. 2:65, and "operates with" the video card and capture module to capture, digitize, and compress the video signal, *id.* at col. 4:43-44, is not required to enable the claimed "capturing, digitizing, and compressing." Thus, Video for Windows and the software sequence that Apple seeks to incorporate into the claim construction are not part of the structure in the specification that corresponds to the claimed functions of "capturing, digitizing, and compressing."

Section 112, ¶ 6, which governs means plus function claims, "does not permit incorporation of structure from the written description beyond that necessary to perform the claimed function." *Micro Chem., Inc. v. Great Plains Chem. Co., Inc.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999). Therefore, it is inappropriate to limit the claimed "means for capturing, digitizing, and compressing at least one composite signal" to require "Video for Windows software using the software sequence set forth at 2:63-3:3, 4:39-63, 5:4-6:23, and 6:62-7:14."

Having found that the claimed "means for capturing, digitizing, and compressing at least one composite signal" requires a video card having a video capture module and an audio capture card, but does not require additional software, the Court construes this term as: **"an audio capture card, and a video card having a video capture module."**

2. "means for transmitting said composite signal"

Samsung's Proposed Construction	**Apple's Proposed Construction**
Agreed function: "transmitting said composite signal"	Agreed function: "transmitting said composite signal"
Corresponding structure: "one or more cellular telephone transmitters, radio frequency	Corresponding structure: "one or more modems connected to a corresponding number of cellular

transmitters, telemetric frequency transmitters, and/or standard telephone line transmitters, and equivalents"	telephones or telephone lines and the run-time module of a communications software package, such as ProComm Plus for Windows software, using the software sequence set forth at 3:8-14, 6:36-61, 7:24-33, 7:60-10:2"

The term "means for transmitting said composite signal" appears in independent Claim 1 and dependent Claim 7 of the '239 Patent. Independent Claim 1 of the '239 Patent recites:

> An apparatus for transmission of data, comprising:
>
> a mobile remote unit including:
> a.) means for capturing, digitizing, and compressing at least one composite signal;
> b.) means for storing said composite signal;
> c.) **means for transmitting said composite signal**;
> a host unit including:
> means for receiving at least one composite signal transmitted by the remote unit;
> a playback unit including:
> a.) means for exchanging data with said host unit;
> b.) means for storing the composite signal received by the host unit;
> c.) means for decompressing said composite signal.

'239 Patent at col. 13:4-17 (emphasis added).

The parties agree that "means for transmitting said composite signal" is a means plus function term. As discussed previously, means plus function terms are limited to structures disclosed in the specification that perform the claimed function, and equivalents of those structures. 35 U.S.C. § 112, ¶ 6. The parties also agree that the claimed function is "transmitting said composite signal." *See* Samsung Br. at 22 ("As with the first disputed '239 means plus function claim term, the parties agree that the function for this term is 'transmitting the composite signal.'").

The parties disagree as to what the corresponding structure is in the specification. Samsung's proposed structure is "one or more cellular telephone transmitters, radio frequency transmitters, telemetric frequency transmitters, and/or standard telephone line transmitters, and equivalents." Samsung Br. at 22. In contrast, Apple's proposed structure is "one or more modems connected to a corresponding number of cellular telephones or telephone lines and the run-time module of a communications software package, such as ProComm Plus for Windows software, using the software sequence set forth at 3:8-14, 6:36-61, 7:24-33, 7:60-10:2." *See* Apple Resp. at 21.

Apple's proposed construction limits the corresponding structure in three ways. First, Apple limits the means of transmission to cellular and conventional telephones, excluding radio frequency and other telemetric means of transmission. Second, Apple requires the use of modems. Third, Apple requires specific software: the run-time module of a communications software package, such as ProComm Plus for Windows software, using the software sequence set forth at col. 3:8-14; col. 6:36-61; col. 7:24-33; and col. 7:60-10:2. The Court agrees with Apple that the structure for transmitting requires modems, but the Court also finds that the structure may include cellular telephone transmitters, standard telephone transmitters, and radio transmitters. Additionally, the Court agrees with Apple that software is necessary structure, but disagrees as to the actual algorithms required.

a. Radio Frequency and Other Telemetric Means

First, the parties disagree about whether the required structure for performing the "means for transmitting" includes "cellular telephone transmitters, radio frequency transmitters, telemetric frequency transmitters, and/or standard telephone line transmitters," as Samsung contends, or merely cellular telephones and telephone lines, as Apple argues.

Samsung notes correctly that the claims themselves strong imply that "telephone lines, cellular, radio, or other telemetric frequencies" may be used to transmit the claimed signal. Dependent Claim 3 recites, "[a]n apparatus according to claim 1 wherein the composite signal is transmitted over telephone, cellular, *radio or other telemetric frequencies*." '239 Patent at col. 13:20-22 (emphasis added). In contrast, Apple's proposed construction would exclude the use of radio or other telemetric frequencies from both independent Claim 1 and its dependent Claim 3, contrary to the plain language of Claim 3. *But see InterDigital Communications, LLC v. International Trade Com'n*, 690 F.3d 1318, 1324-1325 (Fed. Cir. 2012) (finding that the presumption of claim differentiation was "especially strong" where a party was urging that a limitation in a dependent claim be read into the independent claim) (quoting *SunRace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003)).

Samsung's position is further supported by the fact that the specification repeatedly states that the transmitted data may be sent over radio or other telemetric frequencies. For example, the "Background of the Invention" explains that:

> A need also exists for a capture and transmission apparatus over cellular, land lines, *or radio or other frequencies*. Additionally, with the current FCC limitations regarding cellular transmissions from airborne craft an additional need is evidenced for video *over the radio or other telemetric frequencies*.

'239 Patent at col. 2:17-22 (emphasis added). Similarly, in the "Detailed Description of the Preferred Embodiment," the specification discloses that "[f]iles may be transmitted using telephone lines, cellular, radio and other telemetric frequencies," *id.* at col. 9:25-26, and that, "[i]n areas which are inaccessible to standard telephone lines and outside cellular telephone 'cell,' files can be transmitted using radio frequencies," *id.* at col. 9:38-40. *See also* 2/2/96 Amend. at 7 (confirming that "other telemetric frequencies" are contemplated for transmission and include "any frequency over which data may be transmitted").

Apple responds by pointing out that Samsung's arguments do not answer the question before the Court: whether the specification discloses a structure capable of transmitting over radio or other telemetric frequencies. Specifically, Apple contends that "the specification does not even mention a 'cellular telephone transmitter,' 'telemetric frequency transmitter,' or 'standard telephone line transmitters,' or otherwise explain what those things are, how they work, or how they might be involved in transmitting (and it only contains a passing mention of 'radio transmitters,' with no explanation of what they are or how they are connected to the 'remote unit.')." Apple Resp. at 24. Consequently, Apple argues that "Samsung's construction should be rejected because it would render the claims indefinite." *Id.* (citing *Blackboard, Inc. v. Desire2Learn Inc.*, 574 F.3d 1371, 1382 (Fed. Cir. 2009), for the proposition that failure to provide adequate disclosure of structure renders claim indefinite).

The Court partially disagrees with Apple as to the adequacy of the disclosure within the specification. As to radio frequencies, the Court finds that the patent discloses that, when using radio rather than cellular frequencies, "the cellular telephones in the remote [broadcasting unit] are replaced with radio transmitters." '239 Patent at col. 9:40-42. "Corresponding radio receivers are

then installed in the host unit to receive the signal transmitted from the remote. Each transmitter operates using a different frequency so as to keep each signal segregated." *Id.* at col. 9:42-45. The Court finds that this constitutes an adequate disclosure showing what is meant by language in the claim. *See In re Donaldson Co.*, 16 F.3d 1189, 1195 (Fed. Cir. 1994) (en banc).

However, the Court agrees with Apple that the specification does not disclose any transmitter using any "other telemetric frequency." Moreover, during prosecution, the applicants admitted that the phrase "other telemetric frequencies" means "*any frequency on which data may be* transmitted." 2/2/96 Amend. at 7 (emphasis added). Thus, lacking any disclosed structures in the specification for transmissions via "other telemetric frequencies" the Court concludes that the means of transmission includes **"one or more cellular telephones, telephone lines, and/or radio transmitters."**

b. One or More Modems

Apple and Samsung also disagree as to whether the corresponding structure disclosed in the specification includes one or more modems.

Samsung contends that "modem" is not part of the structure for "transmitting the composite signal" because the modem is for "interfacing each communication port.'" Samsung Br. at 23 (citing '239 Patent at col. 8:61-63 ("The modems interfacing each communication port execute the dialing directory file . . . and obtain a connection with the telephone line on the host unit.")). Samsung appears to argue that, because the modem is interfacing between the remote unit and the signal hardware, it cannot be a part of the transmission structure. However, the very section cited by Samsung indicates that the modem is in fact a necessary structure for transmission. In the embodiments which utilize a cell phone connection, for example, a successful transmission requires that there be "a cellular connection with each cellular telephone to the host unit." '239 Patent at col. 8:27-28. As cited by Samsung, the modem performs the function of "obtain[ing] a connection with the telephone line on the host unit." *Id*. at col. 8:62-63. Thus, in the telephone and cell phone embodiments, the means for transmitting requires that a connection to the host unit be made, and the modem is the structure responsible for making that connection.

Apple argues that the required structure includes one or more modems because the specification repeatedly discloses the use of modems as the sole interface between the remote unit and the signal hardware. For example, the "Detailed Description of the Preferred Embodiment," discloses a modem as one example of an interface. *See id*. at col. 4:25-27 ("The remote unit also has up to four *computer interfaces such as modems*, each connected to a cellular telephone."); *see also id*. at col. 8:40-41 ("Each modem interfaces through a different communications port."); *id*. at col. 8:61-63 ("The modems interfacing each communication port . . . obtain a connection with the telephone line on the host unit").

The Court agrees with Apple in that, for all three of the possible transmission modes discussed in the previous section (telephone, cell phone, and radio), the specification refers to a modem connecting the signal hardware to the remote unit. For instance, the specification discloses that, in certain circumstances, "the cellular telephones [may be] omitted from the remote, and the modems connected to standard telephone jacks, using standard telephone connectors and wiring." *Id*. at col. 9:34-37. Similarly, the specification discloses that "cellular telephones in the remote [may be] replaced with radio transmitters," but makes no mention of replacing or omitting the modems discussed in the previous paragraph of the specification. *Id*. at col. 9:41-42. The specification never discloses any interface structure other than a modem.

Finally, the Court notes that Samsung's claim term differentiation argument that the claimed means of transmitting cannot include an interface because Claim 3 adds an interface as a limitation is not persuasive. Claim 3 clearly adds the use of cellular transmission as a limitation to the means of transmitting, and this cellular limitation is sufficient to render Claim 3 distinct from Claim 1.

Accordingly, the Court concludes that the means for transmitting requires **"one or more modems."**[13]

[13] This conclusion is supported by the Court's understanding that an interface such as a modem is necessary to transform digital data into analog before transmission over analog frequencies, such as traditional phone lines, cellular frequencies, and radio frequencies in existence at the time the '239 Patent was filed. Although equivalents to the corresponding structures disclosed in the specification infringe a means plus function claim, such equivalents must have been in existence at the time the patent was filed. *See Welker Bearing Co. v PHD, Inc.*, 550 F.3d 1090, 1099-1100 (Fed. Cir. 2008) ("[A]n equivalent structure under § 112, ¶ 6 'must have been available at the time

c. Software as Part of the Corresponding Structure

Finally, the parties disagree about whether the corresponding structure for the transmitting means must include software and, if so, whether the software includes the specific software algorithms listed in the specification. While the Court agrees that the corresponding structure must include certain software procedures, the Court does not find that the corresponding structure requires the specific software algorithms suggested by Apple. Rather, the Court finds that the transmitting means requires software procedures that must merely be capable of: (1) performing a software sequence of initializing one or more communications ports on the remote unit; (2) obtaining the stored data file; and (3) transmitting the stored data file. Additionally, the Court finds that these sequences are not limited to the specific brand of software mentioned in the specification.

First, Samsung argues that the corresponding structure does not need to include any software because the means for transmitting relates only to the actual hardware "transmitter," and "does not even include any processor element." *See* Samsung Br. at 24. In support of this position, Samsung relies on *Aristocrat Techs. Australia Pty Ltd. v. Int'l Game Tech*, 521 F.3d 1328 (Fed. Cir. 2008), for the proposition that, since the means does not include a "general purpose processor," it cannot be limited to a specific algorithm listed in the specification. Samsung Br. at 24; *see Aristocrat Techs.*, 521 F.3d at 1333 (holding computer-implemented means-plus-function limitations of a claim lacked sufficient disclosure of structure without an algorithm because "general purpose computers can be programmed to perform very different tasks in very different ways" and, therefore, "simply disclosing a computer as the structure designated to perform a particular function does not [sufficiently] limit the scope of the claim . . . as required by section 112 paragraph 6."). In *Aristocrat Techs.*, however, the Federal Circuit also stated that the relevant inquiry into whether a specification has adequately disclosed sufficient structure is whether, based on "the *disclosure* of the patent . . . one of skill in the art would have understood that *disclosure* to encompass software [to perform the function]." *Id.* at 1337 (quoting *Medical Instrumentation &*

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of the issuance of the claim,' whereas the doctrine of equivalents can capture after-arising 'technology developed after issuance of the patent.'") (quoting *Al-Site Corp. v. VSI Int'l, Inc.*, 174 F.3d 1308, 1320 (Fed. Cir. 1999)).

Diagnostics Corp. v. Elekta AB, 344 F.3d 1205, 1212 (Fed. Cir. 2003). Therefore, *Aristocrat Techs.* does not foreclose construing the transmitting means to require software algorithms as Samsung proposes. Instead, it merely requires that, *if* software is required by the means-plus-function claim, that software must be described by an algorithm and not an abstract idea or concept.

As such, whether software algorithms are a required structure depends on whether the software included in the specification is required for the hardware to perform the claimed function of transmitting. Apple argues that it must be required, because the '239 Patent specification repeatedly describes the structure for performing the "means for transmitting" as including the run-time module of a communications software package. Samsung disputes that there is any basis to incorporate Apple's proposed limitation into the construction.

The specification does appear to support finding that the corresponding structure must include software as a "means for transmitting said composite signal." The specification discloses a preferred embodiment of the invention which includes software:

> Transfer *software sequence B enables the remote unit* to communicate with the host unit *to transmit* a stored data file using the system hardware. *Transfer software* sequence B contains all of the instructions *necessary* to [1] initialize the communications ports on the remote, [2] obtain a cellular connection with each cellular telephone to the host unit, [3] obtain the stored data file, [4] initiate file splitting sequence C, and [5] transmit the split data file.

'239 Patent at col. 8:23-30 (emphasis added).

However, not all of the five software algorithms listed above for the preferred embodiment are necessary for performing the basic function of transmitting. For example, the specification states that the step of splitting and organizing the file may occur *prior* to transmission. *See* '239 Patent at col. 3:22-23 ("In an alternate embodiment, a basic one, the signal is not divided before it is transmitted."); *see also id.* at col. 9:66-col. 10:2 ("In order to decrease transmission time of the data file, it *may* be split into 10K files and [then] transmitted over multiple land telephone lines, cellular telephones, or radio frequencies.") (emphasis added); *see also id.* at col. 13:23-25 (Claim 4) (describing an additional means for "splitting and organizing the digitized, compressed . . .

signal *prior to* transmission) (emphasis added). Thus, the software sequence for "initiating file splitting sequence C" is not required for the basic embodiment of "transmitting."

Furthermore, as discussed above, the transmission may take place using a radio transmitter instead of a traditional phone or cell phone. Thus, the software algorithm of "obtain[ing] a cellular connection with each cellular telephone" relates only to a particular embodiment of the invention using cell phones, and is not necessary for the embodiments using a radio transmitter.

However, the other steps performed by software sequence B—initializing communication ports, obtaining the stored data file, and transmitting the stored data file—all appear to be necessary for any transmission because they are never described as optional or elective operations by the specification.

Thus, the Court finds that three software algorithms are required for the means for transmitting: (1) software that initializes the communication ports on the remotes, (2) software that obtains the stored data file, and (3) software that transmits the data file.

While Apple requests that the exemplar software in the specification, "ProComm Plus for Windows," be required as part of the corresponding structure, the Court finds that limiting the corresponding structure to the specific brand name software package would be unduly narrow. Moreover, a construction naming this software package would risk misleading the jury, even if the construction explicitly includes "equivalents." Instead, the Court's construction is based upon the specification's disclosure of the actual processes performed by "software sequence B," as disclosed in the specification's "Detailed Description of a Preferred Embodiment."

Accordingly, the Court construes the corresponding structure as follows: **"one or more modems connected to one or more cellular telephones, telephone lines, and/or radio transmitters, and software performing a software sequence of initializing one or more communications ports on the remote unit, obtaining the stored data file, and transmitting the stored data file."**

IV. CONCLUSION

In summary, and for the reasons stated herein, the Court construes the parties' disputed terms as follows:

Patent	Disputed Term	Court's Construction
5,666,502	"history list"	"a list of previously used entries"
	"field class"	"a category of information associated with a field"
5,946,647	"action processor"	"program routine(s) that perform the selected action on the detected structure"
7,761,414	"concurrently with"	"the synchronization thread and the non-synchronization thread are both active during an overlapping time interval"
8,014,760	"Completely substitut[e/ing] display of the list [of interactive items] with display of contact information"	"Displaying at least two contact objects in place of the display of the list of interactive items"
7,756,087	"non-scheduled transmission"	"Transmission of data using non-scheduled transmission information to indicate possible transmission time intervals (TTIs)"
7,577,757	"zone-specific storage and interface device"	"a storage and interface device that resides in an area, such as a room or similar location"
5,579,239	"means for capturing, digitizing, and compressing at least one composite signal"	"an audio capture card, and a video card having a video capture module"
	"means for transmitting the composite signal"	"one or more modems connected to one or more cellular telephones, telephone lines, and/or radio transmitters, and software performing a software sequence of initializing one or more communications ports on the remote unit, obtaining the stored data file, and transmitting the stored data file"

IT IS SO ORDERED.

Dated: April 10, 2013

Lucy H. Koh

LUCY H. KOH
United States District Judge