

United States District Court,  
D. Massachusetts.

**FREEDOM WIRELESS, INC,**  
Plaintiff.

v.

**BOSTON COMMUNICATIONS GROUP, INC., et al,**  
Defendants.

Civil Action No. 00-12234-EFH

**April 23, 2003.**

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### ***MEMORANDUM AND ORDER***

**HARRINGTON, Senior District Judge.**

#### ***Factual Background***

Plaintiff Freedom Wireless, Inc. ("Freedom") is the assignee of the two patents-in-suit, U.S. Patent No. 5,722,067 (the '067 patent) and U.S. Patent No. 6,157,823 (the '823 patent). The '823 patent issued from a continuation application of the '067 patent. Both patents disclose a cellular telecommunications system that permits cellular telecommunications providers to offer services to pre-paid subscribers, monitor each subscriber's cellular telecommunications usage in real time, and discontinue a subscriber's access to the cellular telecommunications services immediately upon exhaustion of a pre-paid account balance, even

during a call. Subscribers can send and receive calls. Their phones are pre-programmed with telephone numbers that allow transmissions to and from them to be recognized as involving subscribers to the service. Key to the invention is what is called in the summary in both patents a "pre-paid cellular system switch." At the pre-paid cellular system switch, a host computer authenticates information in a call that identifies the sender or the recipient as a pre-paid subscriber. The host computer also communicates with a remote computer database server that contains information about each pre-paid subscriber. Provided that the host computer finds in the database that the pre-paid subscriber has a positive credit balance, the host computer allows the subscriber to send or receive the call. During the call, the host computer reduces the account balance in the database based upon the elapse of time using a set time value for cellular telecommunications. If the balance is exhausted, the host computer terminates the call.

Freedom alleges the defendants infringe claims 10-18 of the '067 patent, and claims 1-3, 5, 9-12, 15-20, 24-25, 27-31, 34-39, 42, 53, 57 and 59 of the ' 823 patent.

### *Claim Construction Principles*

"An infringement analysis entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed. The second step is comparing the properly construed claims to the device accused of infringing." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed.Cir.1995) (internal citation omitted). It is the first step of the analysis which the Court takes up in this Memorandum and Order.

Claim construction, unlike infringement, is a question of law. *Id.* at 979. The words of the claim form the starting point of claim construction. *Prima Tek II, LLC v. Polypap, SARL*, 318 F.3d 1143, 1148 (Fed.Cir.2003) (citing *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1341 (Fed.Cir.2001)). "Generally, terms in a patent claim are given their plain, ordinary, and accustomed meaning to one of ordinary skill in the relevant art." *Id.* Upon determining the ordinary meaning of a disputed term, a court must examine the written description and drawings in the patent to determine whether the use of the term in the claim is consistent with the ordinary meaning. *Id.* (citing *Day Int'l, Inc. v. Reeves Bros., Inc.*, 260 F.3d 1343, 1348 (Fed.Cir.2001)). There is a "heavy presumption" that the ordinary meaning attached to a term by one of ordinary skill in the art will prevail, one that is rebutted only when "(1) the patentee has chosen to be his or her own lexicographer by clearly setting forth an explicit definition for a claim term; or (2) where the term chosen by the patentee so deprives the claim of clarity that there is no means by which the scope of the claim may be ascertained from the language used." *Id.* (citing *Johnson Worldwide Assocs., Inc., v. Zebco Corp.*, 175 F.3d 985, 990 (Fed.Cir.1999)).

The written description and drawings are also consulted to determine whether the patentee has disclaimed subject matter or has otherwise limited the scope of the claims. *Id.* (citing *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1344 (Fed.Cir.2001)). The use of the written description and drawings, however, does not extend to reading limitations from the written description into the claims themselves. *Id.* (citing *Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed.Cir.1998)). "It is entirely proper to use the specification to interpret what the patentee meant by a word or phrase in the claim. But this is not to be confused with adding an extraneous limitation appearing in the specification, which is improper." *E.I. Du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed.Cir.1988) (internal citation omitted); *see also Bayer AG. v. Biovail Corp.*, 279 F.3d 1340, 1348 (Fed.Cir.2002); *Renishaw PLC v. Marposh Societa' per Azioni*, 158 F.3d 1243, 1249 (Fed.Cir.1998). Precedent also makes it clear courts may not use the fact that patent drawings show a particular embodiment

of the patent to limit the claims to that specific configuration. *Prima Tek*, 318 F.3d at 1148 (citing *Hockerson-Halberstadt, Inc. v. Avia Group, Int'l, Inc.*, 222 F.3d 951, 956 (Fed.Cir.2000)). These cautions aside,

[t]he claims are always construed in light of the specification, of which they are a part.... The claims are directed to the invention that is described in the specification; they do not have meaning removed from the context from which they arose.... Although the specification need not present every embodiment or permutation of the invention and the claims are not limited to the preferred embodiment of the invention, neither do the claims enlarge what is patented beyond what the inventor has described as the invention.

*Networld, LLC v. Centraal Corp.*, 242 F.3d 1347, 1352 (Fed.Cir.2001) (internal citation omitted); *see also Biogen, Inc. v. Berlex Laboratories, Inc.*, 318 F.3d 1132, 1140 (Fed.Cir.2003).

The prosecution history of the patent-in-suit must also be examined to determine if the patentee intended something other than the ordinary meaning of the disputed term. *Prima Tek*, 318 F.3d at 1149 (citing *Rexnord*, 274 F.3d at 1343). In some instances, the patentee may have disclaimed a particular claim construction during prosecution. *Id.* (citing *Ballard Med. Prods. v. Allegiance Healthcare Corp.*, 268 F.3d 1352, 1361-62 (Fed.Cir.2001)). In others, prosecution statements may simply provide assistance to the interpreter. *Id.* (citing *Rheox, Inc. v. Entact, Inc.*, 276 F.3d 1319, 1325-27 (Fed.Cir.2002)).

Finally, in the rare instance when the meaning of a claim term remains ambiguous after consulting evidence internal to the patent and its prosecution history, a court may consider extrinsic evidence, such as expert testimony, inventor testimony, and technical articles. *Markman*, 52 F.3d at 980. However, "[e]xtrinsic evidence is to be used for the court's understanding of the patent, not for the purpose of varying or contradicting the terms of the claims." *Id.* at 981.

### ***The Disputed Limitations***

For purposes of this Memorandum and Order, the Court has divided the disputed claim limitations into five groups. The first group asks whether and how to define "pre-paid switching system" and "pre-paid service provider." It also considers whether and how to address the fact that those two devices comprise subelements that perform discrete tasks, whether the pre-paid switching system connects calls directly to the local exchange carrier, and whether the patents require voice and signaling data to travel in the same path. The second group addresses the terms "cellular switch" and "wireless switch," specifically whether Freedom's proposed broad definition or a narrower definition proposed by the defendants should prevail, and whether, in claims covering calls to a subscriber (the "incoming claims"), two wireless switches are required. In the third group, the Court considers the term "identifier" and variations thereof, first as it is used in the incoming claims and then in those claims addressing calls placed by subscribers (the "outgoing claims"). The fourth group deals with claim limitations related to the database containing subscriber information. This group raises several questions: whether the balance is reflected in currency or some other form; if the balance is initially in currency, whether it must be converted to units of time; and the frequency of validation. In the fifth group, the Court briefly explains its reasoning for rejecting defendants' proposed constructions of the following three limitations: "wireless telephone call" and related terms; "checking the ANI against each stored reserved pre-paid cellular telephone number"; and "receiving from a telecommunications service an identifier."

#### ***1. Pre-Paid Switching System and Pre-Paid Service Provider***

## A. *Pre-Paid Switching System*

Most of the asserted outgoing claims of the '067 and '823 patents refer to a "pre-paid switching system." FN1 For example, claim 10 of the '067 reads as follows:

FN1. '067 claims 15 and 16, both outgoing, refer to a "pre-paid service provider." For a discussion and construction of this term, see *infra* 1.B.

A method for pre-paid cellular telephone service, said method comprising the steps of: forwarding to a *pre-paid switching system* a dialed number identification system code (DNIS) and an automated number identification code (ANI) representing a call from a cellular telephone; at the *pre-paid switching system*, verifying a positive balance in an account identified by the ANI; forwarding the call to an LEC; and decrementing the balance in the account at regular intervals during the call until the call is terminated or until the balance is no longer positive, whichever occurs first.  
(Emphasis added.)

In a typical usage from the '823 patent FN2, claim 29 reads as follows:

FN2. '823 claims 29, 30, 31 and 42 are outgoing claims and refer to a "pre-paid switching system." '823 claims 35, 36 and 39 refer to a "pre-paid service provider." For a discussion and construction of this term, see *infra* 1.B.

A method for pre-paid wireless telephone service, the method comprising: identifying an originator of a wireless telephone call as a subscriber to a pre-paid wireless telephone service; causing the call to be connected to a *pre-paid switching system*; and a wireless switch sending an identifier associated with the destination of the call and an identifier associated with a pre-paid account of the originator of the call to the *pre-paid switching system* that validates the balance in the account of the originator of the call, causes the call to be connected to the destination, sets a time limit based on the account balance, and causes the call to be terminated when the time limit is expired.  
(Emphasis added.)

The Court begins its analysis by asking whether the term "pre-paid switching system" has one or more meanings to a person of skill in the art. *Prima Tek II*, 318 F.3d at 1148. Freedom contends that the term has a plain and ordinary meaning, one encompassing the functions ascribed to it in a given claim. Defendants, meanwhile, argue for a particular definition to be imported from the specification and prosecution history, implicitly arguing that the term has no meaning to a person of skill in the art. Because the pre-paid switching system essentially *is* the invention described in these patents in that it performs the functions that provide the advantages over prior art, the Court concludes that the term would have had no ordinary meaning at the time the application was filed. Accordingly, the Court looks elsewhere in the patent for its meaning. *Johnson*, 175 F.3d at 989-90 (citing *J.T. Eaton & Co. v. Atlantic Paste & Glue Co.*, 106 F.3d 1563, 1568 (Fed.Cir.1997) (because "[the disputed claim term] is a term with no previous meaning to those of ordinary skill in the prior art[,][i]ts meaning, then, must be found [elsewhere] in the patent.")); *North Am. Vaccine, Inc. v. Am. Cyanamid Co.*, 7 F.3d 1571, 1576 (Fed.Cir.1993) (using the specification for guidance "[w]hen the meaning of a claim term is in doubt"). In this case, the specification discloses a meaning which the Court uses in its construction. The specification makes clear that a pre-paid switching system must

comprise a host computer and a remote computer database server and be connected to the local exchange carrier. '067 patent, col. 3, ll. 61-64; '823 patent, col. 3-4, ll. 67-3 ("Upon recognition of a valid ANI, the host computer establishes communications ... with a remote computer database server."); '067 patent, col. 5, ll. 29-31; '823 patent, col. 5, ll. 35-38 ("The service provider 14 has host computer 16 which is preferably networked through either a local area network (LAN) or wide area network (WAN) 21 to a remote server computer 18."); '067 patent, col. 5, ll. 25-27; '823 patent, col. 5, ll. 31-34 ("The cellular service provider 14 is electrically linked to the local exchange carrier 20 via T1 land lines FN3 17...."). The nature of the pre-paid switching system is also shown in Figure 1 of both patents. Figure 1 includes a box divided by a horizontal broken line and showing the words "service provider" and "host CPU" on different sides of the broken line, a line with arrows at both ends connecting this box to another box marked "server," and a line with arrows at either end indicating a database connected to the server. In addition, a similar line shows the connection between the service provider/host CPU and the local exchange carrier. Importantly, in the specification, the patentees describe Figure 1 as an "illustrat[ion]" of the "present invention," rather than one embodiment. '067 patent, col. 5, ll. 4-5; '823 patent, col. 5, ll. 10-11. *See Modine Mfg. Co. v. United States Int'l Trade Comm'n*, 75 F.3d 1545, 1551 (Fed.Cir.1996) ("[W]hen the preferred embodiment is described in the specification as the invention itself, the claims are not necessarily entitled to a scope broader than that embodiment."); *cf. SciMed*, 242 F.3d at 1343 ("[T]he characterization of the coaxial configuration as part of the 'present invention' is strong evidence that the claims should not be read to encompass the opposite structure."). This description, coupled with the novelty of a "pre-paid switching system," prompts the Court's interpretation.

FN3. The '823 patent uses the singular word "line."

The novelty of the term "pre-paid switching system" also leads to the conclusion that one skilled in the art would attach no ordinary meaning to the many instances in which certain functions are ascribed to the pre-paid switching system. This is because those functions are not ascribed to a particular element of the pre-paid switching system. For example, as noted above, claim 10 of the '067 patent states in part:

at the pre-paid switching system, verifying a positive balance in an account identified by the ANI; forwarding the call to an LEC; and decrementing the balance in the account at regular intervals during the call until the call is terminated or until the balance is no longer positive, whichever occurs first.

Claim 30 of the '823 patent reads:

A method for pre-paid wireless telephone service, the method comprising: at a pre-paid switching system, receiving from a wireless switch an identifier associated with a destination of a wireless telephone call, and an identifier associated with a pre-paid account of an originator of the call, the originator of the call being identified as being a subscriber to the pre-paid wireless telephone service; validating the balance in the account of the originator of the call; causing the call to be connected to the destination; and periodically validating the call based on the balance associated with the account and causing the call to be terminated if validation is unsuccessful.

The difficulty with such claims is that-accepting the Court's premise that one skilled in the art would not know what was meant by a "pre-paid switching system"-such a person also would not know which element of the system performs the various functions, such as the receipt of identifiers, validation of balances, and the connection and termination of calls. However, the Court draws on evidence intrinsic to the patent to

reach its conclusion that these functions are performed by the host computer. As to the receipt of identifiers and "information," the specification indicates in its description of Figure 1 that after a cellular transmission containing the ANI and DNIS is received at the cellular switch and the cellular switch determines that the call involves a subscriber, "[t]he transmission 5 is communicated to the service provider's host computer 16...." '067 patent, col. 5, ll. 56-58; '823 patent, col. 5, ll. 62-64. The written description of Figure 4, which illustrates call processing by the cellular switch, says much the same thing: "Upon recognition of the ANI as a unique ANI identifying a subscriber in the inventive pre-paid cellular system, the cellular switch routes the cellular call through a direct line to a host computer of the inventive cellular system...." '067 patent, col. 7, ll. 23-28; '823 patent, col. 7, ll. 28-33.

As to the authentication of the identifiers or information and the validation of account balances, the specification is no less clear as to what element of the pre-paid switching system performs this task. "The transmission 5 is communicated to the service provider's host computer 16, which then authenticates the ANI and DNIS by accessing the server computer 18 and database 19." '067 patent, col. 5, ll. 56-59; '823 patent, col. 7, ll. 62-65. Call processing at the host computer is shown in Figure 5. Describing Figure 5, the specification states, "The host computer accesses the subscriber database.... [and][t]he received ANI is validated against the database record ... as one belonging to a pre-paid subscriber at block 110." '067 patent, col. 7, ll. 51-56; '823 patent, col. 7, ll. 57-62. The host computer is evidently responsible for determining the sufficiency of the subscriber's account balance, as well. Immediately following the language describing the host computer's account authentication process, the specification states, "A check of the subscriber's account balance in the database 19 is made to validate the presence of a pre-paid balance sufficient to supply a pre-determined quantum of telecommunications...." '067 patent, col. 5, ll. 62-66; '823 patent, col. 6, ll. 1-5. To similar effect, Figure 5 shows that, "Upon ANI validation at block 110, the host computer then validates the subscriber's pre-paid balance based upon the DNIS and time of day rate, e.g., peak or offpeak time rates, at block 112." '067 patent, col. 7, ll. 56-59; '823 patent, col. 7, ll. 62-65. In these instances in the asserted claims where functions of the pre-paid switching system are not attributed to an element of the system, the Court has used the specification to interpret what the patentee meant by the words and phrases at issue. *See* E.I. Du Pont de Nemours, 849 F.2d at 1433 ("It is entirely proper to use the specification to interpret what the patentee meant by a word or phrase in the claim.").

In the same way that the limitations regarding the receipt of identifiers and validation of balances are unclear as to which element of the pre-paid switching system performs those functions, other language, such as is found in '067 claim 11, which states, "The method as set forth in claim 10 wherein said verifying step includes the steps of: finding the ANI; and retrieving a balance associated with the ANI," would leave a person of ordinary skill in the art uncertain as to where the ANI and the associated balance are found. However, the specification makes the answer clear. Language already quoted above shows the ANI and balance are found in the database.FN4 Accordingly, the Court interprets such language to mean the ANI and the balance are found in the remote computer database server.

FN4. "The transmission 5 is communicated to the service provider's host computer 16, which then authenticates the ANI and DNIS by accessing the server computer 18 and database 19.... The database 19 will have records indicative of the subscriber's account balance. A check of the subscriber's account balance in the database 19 is made to validate the presence of a pre-paid balance sufficient to supply a pre-determined quantum of telecommunications...." '067 patent, col. 5, ll. 56-66; '823 patent, col. 5-6, ll. 62-5. Also, "[t]he host computer accesses the subscriber database from the remote server 11.... The received ANI is validated against the database record...." '067 patent, col. 7, ll. 51-55; '823 patent, col. 7, ll. 57-60.

Finally, regarding the pre-paid switching system, defendants urge the Court to require that outgoing calls be sent directly from the pre-paid switching system to a local exchange carrier. This argument implicates a number of claim limitations. First, '823 patent claims 29, 30, 31, 34 and 42 describe the system as causing the call "to be connected to the destination." Claims 36 and 39 of the '823 patent, which are outgoing claims dependent on claim 35, include the limitation "causing the call to be completed." In the '067 patent, claim 10 includes the limitation "forwarding the call to an LEC." And, claim 16, which is dependent on claim 15, requires "forwarding the call to a telecommunication service provider.FN5 As one of ordinary skill in the art would understand such phrases to encompass several means of call completion, the Court reviews the specification for interpretive assistance. "[W]here there are several common meanings for a claim term, the patent disclosure serves to point away from the improper meanings and toward the proper meaning." Renishaw, 158 F.3d at 1250. It is the defendants' position that the specification and prosecution history show these phrases should be interpreted to mean that the call is sent "directly to the local exchange carrier." Defendants contend that the only manner in which the specification describes an outgoing call being connected from the pre-paid switching system's host computer to the destination is through a direct T1 line from host computer to local exchange carrier. For example, in the description of Figure 1, the specification states that "[t]he cellular service provider 14 is electrically linked to the local exchange carrier 20 via land line FN6 17 to communicate cellular telephone calls from the service provider 14 to the local exchange carrier's regular network." '067 patent, col. 5, ll. 26-29; '823 patent, col. 5, ll. 32-35. Later in the same section of the specification, the patent explains that, "[u]pon account balance validation, the host computer validates the call and passes it to the local exchange carrier 20 via the T1 land lines 17." FN7 '067 patent, col. 6, ll. 2-4; '823 patent, col. 6, ll. 8-10. Similarly, it is noted that "[u]pon verification that the account has a positive credit balance, the host computer outpulses the dialed destination number to a local exchange carrier, such as one of the Regional Bell Operating Companies." '067 patent, col. 4, ll. 8-12; '823 patent, col. 4, ll. 15-19.

FN5. As discussed below, the Court interprets the term "pre-paid service provider" not to require a connection to a local exchange carrier. *Infra* 1.B. Nevertheless, the Court construes the two limitations at issue here (those in '823 patent claims 36 and 39 and '067 patent claim 16) that appear in claims referring to a "pre-paid service provider" to require that the calls be sent directly from the provider to a local exchange carrier. It is critical to the Court's conclusion that the limitations appear in dependent claims. To require that the pre-paid service provider in '823 patent claim 35 and '067 patent claim 15 (the independent claims on which the claims at issue here are dependent) be connected to a local exchange carrier would impose a limitation on those claims that is unnecessary to perform the tasks described in those claims. Claim 35 ends when the identifiers are sent to the pre-paid service provider. Claim 15 does the same for the call. Neither of these independent claims covers call completion, and hence, a connection to a local exchange carrier would be superfluous. On the other hand, the dependent claims at issue here include limitations that, in light of the specification, must be interpreted to require that identifiers or the call be sent directly to a local exchange carrier. The interpretation of these claims simply requires the Court to apply the doctrine of claim differentiation which, generally speaking, holds that a dependent claim has a narrower scope than the independent claim from which it depends and an independent claim has a broader scope than claims that depend from it. *See Dow Chem. v. United States*, 226 F.3d 1334, 1341 (Fed.Cir.2000); *Clearstream Wastewater Sys., Inc. v. Hydro-Action, Inc.*, 206 F.3d 1440, 1446-47 (Fed.Cir.2000).

FN6. The '067 patent uses the plural word "lines."

FN7. The '067 patent uses the plural word "lines." The '823 patent refers to "T1 land line 7, in an apparent typographical error.

Further, defendants point to three instances in the prosecution history they contend amount to disclaimers of any other method. First, in the initial drawing of Figure 1 sent with the application for what became the '067 patent, the two separate T1 land lines that connected the cellular switch to the local exchange carrier and to the pre-paid switching system were both marked "12." *U.S. Pat. Add. No. 364,479*, filed December 23, 1994, at Figure 1. The written description indicated that the outgoing call was connected by line 12, making it ambiguous as to whether outgoing calls were connected by going directly to the local exchange carrier or back to the cellular switch. The patentee amended the drawing, numbering the line from the switching system to the local exchange carrier 17 and the written description made clear that "the host computer 16 validates the call and passes it to the local exchange carrier 20 via T1 land line 17." FN8 '067 patent, col. 6, ll. 2-4; '823 patent, col. 6, ll. 8-10. It may be, as plaintiff contends, that the re-numbering was done only to comply with regulations requiring that the same reference character not be used to designate different parts of an invention. However, the written description does not support the idea that the inventors intended to claim a method of connection that involved the call going back to the wireless switch. Furthermore, in distinguishing the invention over prior art ( U.S. Pat. Nos. 5,265,155; 5,359,642; and 5,440,621; the "Castro patents"), the patentee echoed the language of the specification stating that the call is connected over line 17, which only connects the switching system and the local exchange carrier. "In applicant's system, a public telephone switching network is not aware of a call until it has been forwarded by the pre-paid service provider over line 17," patent counsel wrote to the examiner in a November 4, 1996 Response to Office Action. Later, in distinguishing the invention from different prior art ( U.S.Pat. No. 5, 291,543-"Freese") in a March 21, 1997 Response to Office Action, the patentee provided an illustration that showed outgoing calls originating with the subscriber, traveling to the Mobile Telephone Switching Office ("MTSO") FN9 and, if determined to be pre-paid, on to the service provider, which connected them to the local exchange carrier. The line in that diagram between the MTSO and the local exchange carrier was marked "calls," presumably meaning post-paid calls, as the line from MTSO to service provider was marked "pre-paid subscriber calls." Given that "[n]o other, broader concept" than a direct connection to the local exchange carrier "was described as embodying the applicant's invention, or shown in any of the drawings, or presented for examination [,]" the Court has construed the claims at issue to require such a connection. *Toro Co. v. White Consolidated Indus., Inc.*, 199 F.3d 1295, 1301 (Fed.Cir.1999).

FN8. The '067 patent uses the plural word "lines." The '823 patent refers to "T1 land line 7, in an apparent typographical error.

FN9. Plaintiff argues that the "cellular switch" and "wireless switch" appearing in the claims should be construed as a MTSO. *See infra* 2.A.

## ***B. Pre-Paid Service Provider***

In most of the asserted incoming claims, the patentee does not refer to a "pre-paid switching system," but rather to a "pre-paid service provider" or a "pre-paid wireless service provider." Claim 9 of the '823 patent is typical:

A method of completing wireless telephone call requests to a subscriber to a pre-paid wireless telephone service comprising: receiving at a wireless switch an identifier corresponding to a pre-paid wireless subscriber to whom a wireless telephone call is directed; forwarding the identifier to a *pre-paid wireless service provider* associated with the pre-paid wireless subscriber that validates an account associated with the pre-paid wireless subscriber based on the forwarded identifier, and if the validation is successful, passes the identifier to a wireless switch and causes the call to be completed, performs periodic real-time validation of the account while the call is in progress, and causes the call to be interrupted while the call is in progress if the periodic validation fails.

(Emphasis added.)

As one can see, the pre-paid wireless service provider performs many of the same functions as the pre-paid switching system: it receives identifiers, validates accounts, causes calls to be completed, performs validation during the call, and causes calls to be terminated. Little is said in the specification about how the invention handles incoming calls. However, the note in the specification indicating that for incoming calls "the operation and construction of the cellular switch, host computer, CO and local exchange carrier are identical to that for outgoing calls made by the pre-paid subscriber" allows the Court to determine that the pre-paid service provider also "comprises a host computer and a remote computer database server." '067 patent, col. 9, ll. 24-27; '823 patent, col. 9, ll. 31-34. Despite this similarity to the pre-paid switching system, an examination of the incoming claims themselves and the specification leads the Court to conclude that, unlike the pre-paid switching system, the pre-paid service provider need not be connected to a local exchange carrier. The incoming claims typically describe the pre-paid service provider as "causing [or 'causes'] the call to be completed." '823 patent, claims 9, 10, 15, 16. As one of ordinary skill in the art could understand such phrases to encompass several methods of call completion, the Court will not limit it to one such method—through a direct connection to the local exchange carrier—unless it finds the patentee has disclaimed all other methods. The Court found such a disclaimer as to the pre-paid switching system based on the specification and prosecution history. However, the specification suggests no such disclaimer regarding the incoming claims. The patent's written description of Figures 8A and 8B, "alternative embodiments of the system adapted to monitor and control incoming calls," provides the basis for the Court's conclusion. '067 patent, col. 9, ll. 22-23; '823 patent, col. 9, ll. 29-30. Figure 8A describes one embodiment in which "the cellular switch 156 ... routes the call to the cellular subscriber at block 158." '067 patent, col. 9, ll. 50-51; '823 patent, col. 9, ll. 57-58. In Figure 8B, "the host computer at block 166 directs the cellular switch to pass the call to the subscriber at block 168." '067 patent, col. 9, ll. 66-67; '823 patent, col. 10, ll. 6-7. The written description of both embodiments, therefore, makes it clear that the pre-paid service provider could function without a connection to the local exchange carrier because the cellular switch can perform the task of sending the call to the subscriber. One could, however, read the specification's note that for incoming calls "the operation and construction of the cellular switch, host computer, CO and local exchange carrier are identical to that for outgoing calls" to mean that incoming calls also could go directly from the host computer to the local exchange carrier. '067 patent, col. 9, ll. 24-27; '823 patent, col. 9, ll. 31-34. As this suggests a further meaning for "causing [or 'causes'] the call to be completed," in addition to the route through the cellular switch, the Court is persuaded that this limitation need not be construed. The patentee has not disclaimed any of the ordinary meanings the phrase has for one of skill in the art.

As in the outgoing claims, the Court also has construed the incoming claims in a way that indicates which elements of the pre-paid service provider perform various functions ascribed to it. To do so, the Court relies

on both the instruction noted above, which permits the Court to adopt the references in the specification noted in the discussion above regarding various pre-paid switching system functions, and the written description of Figures 8A and 8B. In general, the Court's decision simply amounts to attributing various functions in the claims specifically to the host computer. As the relevant portions of the written description of Figures 8A and 8B are brief, the Court reprints here most of this section of the specification:

The call is handed to a CO at block 152 and redirected to the host computer based upon the dialed number matching a pre-paid subscriber's telephone number. The host computer is initialized in a wait for CO off-hook state and waits for an incoming off-hook signal from the CO at block 154. Upon receiving an incoming call at block 154, the host computer validates the dialed number against the pre-paid subscriber database and determines whether a sufficient account balance exists for the pre-determined minimum time value for a telecommunications event.... Upon validation of the dialed number and the available account balance, the host computer outpulses the dialed number to the cellular switch 156 which routes the call to the cellular subscriber at block 158. Upon occurrence of an off-hook condition at the cellular subscriber at block 158, the cellular switch returns 157 the off-hook condition to the host computer and call accounting as described above with reference to FIG. 7 occurs.

In accordance with a second embodiment for incoming call handling in accordance with the present invention, and as illustrated in FIG. 8B, the originating party at block 160 and the CO at block 162 function identically as described above with reference to FIG. 8A. However, in this second embodiment, the CO outpulses the mobile identifier directly to the cellular switch at block 164, and the cellular switch passes 165 the mobile identifier to the host computer at block 166 to enable the host computer to validate both the mobile identifier and the available balance. Upon such validation, the host computer at block 166 directs the cellular switch to pass the call to the subscriber at block 168. Again, upon occurrence of an off-hook condition at the subscriber, the host computer executes call accounting as previously described with reference to FIG. 7.

'067 patent, col. 9-10, ll. 37-3; '823 patent, col. 9, ll. 44-62.

Finally, with respect to the pre-paid service provider, defendants charge that the numerous claim limitations that describe the wireless switch and the pre-paid service provider or the host computer communicating, or in communication with each other, require a construction that shows such communication involves the voice and signaling information traveling in the same path, so-called "in-band" signaling. Claims 1 and 17 of the '823 patent are illustrative. Claim 1 includes the limitation "communicating between a computer with access to the database and the wireless switch." Claim 17 refers to "a pre-paid wireless service provider, in communication with the wireless switch." Claims 11, 18, 19, 20, 24, 25, 27 and 28 all employ similar limitations. The Court finds that the language itself—specifically the words "communicating" and "in communication with"—and the context of the claims fail to convey a meaning to one of ordinary skill in the art. Therefore, it consults the specification, particularly the written description of Figures 8A and 8B that describe the incoming claims. Figure 8A shows that in one embodiment of the invention for incoming calls, voice and signaling information do travel in the same path. The Court finds this to be the case because the written description refers throughout to "the call." "*The call* is handed to a CO at block 152.... Upon receiving an incoming *call* at block 154, the host computer validates the dialed number.... Upon validation of the dialed number and the available account balance, the host computer outpulses the dialed number to the cellular switch 156 which routes *the call* to the cellular subscriber at block 158." '067 patent, col. 9, ll. 37-51; '823 patent, col. 9, ll. 44-58. While reference to the call suggests voice and data traveling in the same path, different language in the description of Figure 8B suggests this is not a requirement, and that out-of-

band signaling is possible.

[I]n this second embodiment, the CO outpulses *the mobile identifier* directly to the cellular switch at block 164, and the cellular switch passes 165 *the mobile identifier* to the host computer at block 166 to enable the host computer to validate both *the mobile identifier* and the available balance. Upon such validation, the host computer at block 166 directs the cellular switch to pass the call to the subscriber at block 168.

'067 patent, col. 9, ll. 60-67; '823 patent, col. 9-10, ll. 67-7. Here the implication is that the mobile identifier travels from cellular switch to host computer during the communication between the two, but the voice aspect of the call remains at the cellular switch. Because the written description of the illustrations explaining incoming calls allows for the possibility of both in-band and out-of-band signaling, the Court declines to adopt defendants' proposed construction of these limitations.FN10

FN10. Defendants also contend that various limitations in the outgoing claims should be construed to require in-band signaling. For example, they contend that the limitation "forwarding to a pre-paid switching system a dialed number identification system code (DNIS) and an automated number identification code (ANI) representing a call" in claim 10 of the '067 patent should be construed to require in-band signaling. Defendants make the same argument about the limitation "a wireless switch sending an identifier associated with the destination of the call and an identifier associated with a pre-paid account of the originator of the call to the pre-paid switching system" in claim 29 of the '823 patent. The Court finds that limitations such as these, which indicate explicitly what information is sent to the pre-paid switching system, need no construction. The question was closer on the incoming claims because those limitations merely required communication between the wireless switch and the pre-paid service provider, without indicating what, if anything, was sent between the two.

## **2. "Wireless Switch" and "Cellular Switch"**

### **A. Definition**

Virtually all of the asserted claims, outgoing and incoming, refer to a "wireless switch." Claim 15 of the '067 patent, also asserted, uses the term "cellular switch" in a similar manner. As indicated in an earlier Memorandum and Order in this case, the terms "wireless" and "cellular" are synonymous in the context of this technology. *Freedom Wireless, Inc. v. Boston Communications Group, Inc.*, 198 F.Supp.2d 11, 13 n. 2 (D.Mass.2002). Further, and more specifically, the parties agree that "wireless switch" and "cellular switch" mean the same thing. *Freedom Wireless' Mem. of Law in Supp. of Claim Construction of U.S. Patent Nos. 5,722,067 and 6,157,823* at 22; *Defs.' Markman Br.* at 11 n. 17.

In some or all of the outgoing claims, the wireless switch receives ANIs, DNIs, or other identifiers representing calls, determines whether those identifiers are associated with pre-paid subscribers, and sends those identifiers or the calls to the pre-paid switching system. Claim 35 of the '823 patent is representative:

A method for pre-paid wireless telephone service comprising: receiving an identifier associated with a pre-paid account of an originator of a call at a *wireless switch*; at the *wireless switch*, determining whether the identifier is associated with a pre-paid account; and if the identifier is associated with a pre-paid account, communicating with a pre-paid service provider and causing the identifier associated with the pre-paid account and an identifier associated with a destination of the call to be sent to the pre-paid service provider.

(Emphasis added.)

In some or all of the incoming claims, a wireless switch receives identifiers and wireless call requests, recognizes them as associated with pre-paid subscribers, communicates with a computer with access to the database, forwards identifiers to the pre-paid wireless service provider, potentially receives those identifiers back from the pre-paid wireless service provider, and causes calls to be completed. Claim 9 of the '823 patent is typical:

A method of completing wireless telephone call requests to a subscriber to a pre-paid wireless telephone service, comprising: receiving at a *wireless switch* an identifier corresponding to a pre-paid wireless subscriber to whom a wireless telephone call is directed; forwarding the identifier to a pre-paid wireless service provider associated with the pre-paid wireless subscriber that validates an account associated with the pre-paid wireless subscriber based on the forwarded identifier, and if the validation is successful, passes the identifier to a *wireless switch* and causes the call to be completed, performs periodic real-time validation of the account while the call is in progress, and causes the call to be interrupted while the call is in progress if the periodic validation fails.

(Emphasis added.)

Plaintiff seeks to persuade the Court that "wireless switch" should be construed as "Mobile Telephone Switching Office (MTSO)." It offers the following definition of a MTSO: "a cellular carrier switching system which includes switching equipment needed to interconnect mobile equipment with land telephone networks and associated data support equipment." *Freedom Wireless' Mem. of Law in Supp. of Claim Construction of U.S. Patent Nos. 5,722,067 and 6,157,823* at 23 (citing Lawrence Hart, *Animated Telecom Dictionary* 317). Meanwhile, defendants wish the Court to interpret the phrase to mean "a device that completes, breaks or selects the path for a call to or from a cellular telephone."

The Court begins the interpretation process by noting that the term "wireless switch" has more than one ordinary meaning to a person of skill in the art, as shown by technical dictionary definitions highlighted by the parties. "Dictionaries and technical treatises, which are extrinsic evidence, hold a 'special place' and may sometimes be considered along with the intrinsic evidence when determining the ordinary meaning of claim terms." *Bell Atl. Network Servs., Inc. v. Covad Communications Group, Inc.*, 262 F.3d 1258, 1267 (Fed.Cir.2001) (citing *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1584 n. 6 (Fed.Cir.1996)). Technical, rather than non-technical dictionaries are favored. *Id.* Defendants cite several technical dictionaries that define "switch," though not "cellular switch" or "wireless switch." Those definitions tend to support the narrow definition for "wireless switch" the defendants advance here. For example, one text defines a "switch" as a "mechanical, electrical or electronic device which opens or closes circuits, completes or breaks an electrical path, or selects paths or circuits." Harry Newton, *Newton's Telecom Dictionary* 662 (17th ed.). Another defines "switch" as "a mechanical, electro-mechanical, or electronic device for making, breaking, or changing the connections in or among circuits." Technology and Standards Division, National Communications System, *Telecommunications: Glossary of Telecommunications Terms* S-34 (August 7, 1996). This second authority, however, also notes that "switch" is a "*deprecated synonym for central office, switching center.*" *Id.* Thus, it is possible that one of ordinary skill in the art might interpret "wireless switch" as encompassing the MTSO. In fact, the deposition testimony of defendants' own expert, Dr. David Goodman, makes this clear. Asked if he was aware of any definitions of "cellular switch" other than the one proposed by defendants, he responded:

In my opinion that isn't a precise term of art. It is-it's a convenient term to use. And, when I say it's not precise, I would say that, of all the functions I-1 stated or alluded to, when you said what does an MSC do, I think different people depending on the context might include some of the functions in the cellular switch and then other people would define it more narrowly and other people a bit more broadly.

"MSC" stands for "mobile switching center," another term for a MTSO.

In keeping with settled principles of claim construction, the Court turns to the intrinsic record, namely the specification and the prosecution history, "to identify which of the different possible dictionary meanings of the claim terms in issue is most consistent with the use of the words by the inventor." *Texas Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1203 (Fed.Cir.2002) (citing *Dow Chem. Co. v. Sumitomo Chem. Co.*, 257 F.3d 1364, 1372-73 (Fed.Cir.2001); *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1478 (Fed.Cir.1998)).

Plaintiff points to several instances in the patents in which the wireless switch is described as doing more than simply completing, breaking, or selecting the path for a call to or from a cellular telephone. In claim 35 of the '823 patent, for example, in addition to receiving an identifier and sending it to the pre-paid service provider, a characteristic switch function, the wireless switch also "determin[es] whether the identifier is associated with a pre-paid account." Although it appears from extrinsic evidence offered by defendants that switches can sometimes perform such intelligent tasks, it is also true that such a capability suggests the presence of data support equipment inherent in a MTSO. In fact, the specification notes that the "reserved cellular telephone numbers are stored in a switch computer resident at switch 8." '067 patent, col. 5, ll. 23-25; '823 patent, col. 5, ll. 29-31.

Additionally, the written description of Figure 1 states that the "cellular switch 8[ ] governs the operation of the cellular telecommunications switched network 2," a task more in keeping with the MTSO than a mere switch. '067 patent, col. 5, ll. 12-14; '823 patent, col. 5, ll. 18-20.

These suggestions of MTSO-like capabilities are bolstered by the prosecution history of the '067 patent. First, in a November 4, 1996 Response to Office Action, the patentee's counsel wrote to the PTO to distinguish the '067 from prior art. In that correspondence, patent counsel stated: "The only people who have access to line 15 are the MTSO ('base') and the pre-paid service provider." An examination of Figure 1 makes clear that only cellular switch 8 and the pre-paid service provider use line 15, suggesting the patentee used "MTSO" to refer to the figure described elsewhere in the patent as the cellular switch. Further, in the same correspondence, patent counsel wrote: "Claim 16 recites the operation within the MTSO; i.e. checking the ANI against a list and forwarding the call either one way or another depending upon whether or not the ANI belonged to a pre-paid subscriber." Finally, on March 14, 1997, in preparation for a telephone interview, patent counsel sent the patent examiner a diagram distinguishing patentee's invention from prior art. The diagram showed calls flowing from a box marked "subscriber" to a box marked "MTSO 8" and from the MTSO to either the local exchange carrier or the service provider. In light of the fact that this correspondence put the examiner on notice that the applicants viewed their cellular switch as synonymous with a MTSO, we must presume the examiner would have required a limitation like the one sought here by defendants if a definition of "cellular switch" that encompassed a MTSO was objectionable. *See Amgen, Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1327 (Fed.Cir.2003) ("We must presume the examiner did his job, and if he truly thought that the specification taught or enabled only the use of [a mere switch], the asserted claims would not have issued.").

The Court concludes that the description of the cellular switch in the '067 specification and the prosecution history require that it construe the term "cellular switch" as a MTSO. As noted earlier, the parties agree that the terms "cellular switch" and "wireless switch" are interchangeable. This agreement brings the construction of "wireless switch" within the rule that "[w]hen multiple patents derive from the same initial application, the prosecution history regarding a claim limitation in any patent that has issued applies with equal force to subsequently issued patents that contain the same claim limitation." *Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 980 (Fed.Cir.1999); *see also* *Jonsson v. The Stanley Works*, 903 F.2d 812, 818 (Fed.Cir.1990). Accordingly, "wireless switch" is also so construed.FN11

FN11. Defendants seek to stave off the MTSO construction by arguing that during prosecution of the '823 patent, the patentee disclaimed such a construction when it did not object to correspondence from the patent examiner showing that the examiner allowed certain claims in the '823 patent because, to the extent they showed the wireless switch performing various functions, they could be distinguished from a prior art reference (U.S.Pat. No. 5,826,185) in which the MTSO performed many of the same functions. In fact, defendants note, the patentee responded to this letter by amending other claims to make it plain various functions were attributed to the wireless switch. However, defendants have pointed to no authority-and the Court has found none-for the proposition that the prosecution of *subsequent* patents is relevant to the construction of limitations in *earlier*, related patents. Nor is such a proposition as logical as the rule that binds subsequent patents to the meaning of limitations in earlier patents. As a result, defendants' argument fails.

## ***B. Second Switch in Incoming Claims***

A second issue regarding the wireless switch is whether, in the incoming claims, the wireless switch to which the identifier is eventually passed must be a different wireless switch than the one at which the identifier is initially received. Defendants contend that it must. A typical manifestation of this question is presented in claim 9 of the '823 patent, which states in relevant part: "receiving at a wireless switch, an identifier ... forwarding the identifier to a wireless service provider ... and if the validation is successful, pass[ing] the identifier to a wireless switch and caus[ing] the call to be completed ...." The Court concludes that no construction is necessary for such language. The United States Court of Appeals for the Federal Circuit "has repeatedly emphasized that an indefinite article 'a' or 'an' in patent parlance carries the meaning of 'one or more' in open-ended claims containing the transitional phrase 'comprising.'" *KCJ Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351, 1356 (Fed.Cir.2000) (citing *Elkay*, 192 F.3d at 977; *Abtox, Inc. v. Exitron Corp.*, 122 F.3d 1019, 1023 (Fed.Cir.1997); *North Am. Vaccine* 7 F.3d at 1575-76). Here, the original wireless switch could be among the "one or more" wireless switches the wireless service provider may pass the identifier to if validation is successful.

## ***3. " Identifier" and Related Terms***

In general terms, most of the asserted claims require the pre-paid service provider or pre-paid switching system to identify the sender or recipient of a call as a subscriber based on data it receives. As the Court considers the language that describes this data inherently non-specific, it consults intrinsic evidence for its interpretation. As it has in other instances, it evaluates the language in incoming and outgoing claims separately, following the patentee's lead in the specification.

### ***A. The Incoming Claims***

Claims 9, 10, 11, 15 and 16 of the '823 patent, all incoming, use the term "identifier" to indicate the data on which the service provider makes call authorization decisions. Typical among these is claim 9, which states in relevant part:

receiving at a wireless switch an *identifier* corresponding to a pre-paid wireless subscriber to whom a wireless telephone call is directed; forwarding the *identifier* to a pre-paid wireless service provider associated with the pre-paid wireless subscriber that validates an account associated with the pre-paid wireless subscriber based on the forwarded *identifier*, and if the validation is successful, passes the *identifier* to a wireless switch....

(Emphasis added.)

Several other asserted incoming claims indicate that the pre-paid wireless service provider selectively authorizes wireless calls requests based on "information in the wireless call request that identifies a pre-paid wireless subscriber to whom the call is directed." '823 patent, claims 17, 18, 19, 20, 24, 25, 27, 28. The Court finds that both "identifier" and "information ... that identifies" are inherently non-specific terms that would have had no ordinary meaning to one of skill in the art at the time the patent application was filed. As a result, the Court looks elsewhere in the patent for their meaning.<sup>FN12</sup> Johnson, 175 F.3d at 989-90. Keeping in mind that these phrases are used only in the incoming claims, the Court considers the written description of Figures 8A and 8B. In describing Figure 8A, the first incoming embodiment, the specification suggests that the "information" or "identifier" at issue is the dialed number. '067 patent, col. 9, ll. 35-51; '823 patent, col. 9, ll. 42-57. It states:

FN12. The parties treated these limitations together and the Court follows suit. *See Freedom Wireless Mem. of Law in Supp. of Claim Construction of U.S. Patent Nos. 5,722,067 and 6,157,823* at 29-34; *Defs. Responsive Markman Br.* at 18-20.

The initiated call consists of the pre-paid subscriber's *telephone number* unique to the pre-paid cellular system. The call is handed to a CO at block 152 and redirected to the host computer based upon the *dialed number* matching a pre-paid subscriber's telephone number.... [T]he host computer validates the *dialed number*.... Upon validation of the *dialed number* ... the host computer outputs the *dialed number*....  
Id.

In describing Figure 8B, the second incoming embodiment, the specification uses the term "mobile identifier," rather than "dialed number." '067 patent, col. 9, ll. 60-65; '823 patent, col. 10, ll. 1-5. It states: "[T]he CO outputs the *mobile identifier* directly to the cellular switch at block 164, and the cellular switch passes 165 the *mobile identifier* to the host computer ... to enable the host computer to validate both the *mobile identifier* and the available balance." Id. Based on language in non-asserted claims 44, 45, and 46 FN13, the Court interprets the "dialed number" and the "mobile identifier" to be two separate things. Accordingly, it interprets "identifier" and "information ... that identifies" in the asserted claims to mean "the dialed number or mobile identifier."

FN13. Claims 44, 45 and 46 are dependent claims related to asserted claim 42, an outgoing claim. Claim 44 states: "The method of claim 42 wherein the identifier associated with the pre-paid account is a mobile identifier." Claim 45 states: "The method of claim 42 wherein the identifier associated with the pre-paid account is a telephone number." Claim 46 states: "The method of claim 42 wherein the identifier associated with the pre-paid account is an automated number identifier."

## **B. *The Outgoing Claims***

Many of the asserted outgoing claims also use the term "identifier." '823 patent, claims 29, 30, 31, 34, 35, 42. Each of these claims refer to two identifiers, one associated with the destination of the call and another associated with the originator of the call. Claim 29 is typical. It states in relevant part: "a wireless switch sending an identifier associated with the destination of the call and an identifier associated with a pre-paid account of the originator of the call to the pre-paid switching system...."

As it did with the terms "identifier" and "information ... that identifies" in the context of the incoming claims, the Court finds that the term "identifier" in the outgoing claims also would have no ordinary meaning to a person of skill in the art at the time the '823 patent application was filed. As a result, the Court looks elsewhere in the patent for its meaning. Johnson, 175 F.3d at 989-90. In the summary of the invention, the patentee appeared to narrow the definition of these identifiers to an automated number identification code and a dialed number identification system code, representing the originator and the destination respectively. The summary states that the telephones used by subscribers are pre-programmed with pre-selected telephone numbers and ANIs and that the telephones transmit the "ANI and a dialed number identification system code (DNIS)." '067 patent, col. 3, ll. 41-51; '823 patent, col. 3, ll.47-57. It continues: "At the cellular switch, the ANI is recognized as one reserved to the pre-paid cellular system and is re-directed, along with the DNIS, to the pre-paid cellular system...." '067 patent, col. 3, ll. 55-58; '823 patent, col. 3, ll. 61-64. However, later in the specification, the patentee rebuts any suggestion that it has acted as its own lexicographer.

Those skilled in the art will understand ... that different cellular service providers may use alternative signals to represent the dialed number and the subscriber's cellular radiotelephone. For example, the cellular radiotelephone's electronic serial number (ESN) may be transmitted instead of the ANI. The ANI is referenced, herein only by way of example.

'067 patent, col. 7, ll. 60-67; '823 patent, col. 7-8, ll. 66-6.

Defendants counter by arguing that the identifier must be the ANI because during the prosecution history the patent examiner distinguished the invention over prior art (U.S. Pat. No. 5,592,535; "Klotz") by noting that where Klotz recognizes the caller as a pre-paid subscriber on the basis of a "digital word," the patentee's invention did so on the basis of the subscriber's telephone number, or ANI. The Court is unpersuaded. The Klotz reference was not discussed during the prosecution history of the '823 patent, though it was before the patent examiner. Instead, the Klotz discussion, which was ambiguous at best, took place during the prosecution of the '067 patent. As the limitation at issue here—the use of the term "identifier"—does not exist in the '067 patent, whatever the patent examiner might have said about Klotz could not be used to limit the scope of the '823 patent claims. *See* *Advanced Cardiovascular Sys., Inc. v. Medtronic, Inc.*, 265 F.3d 1294, 1305 (Fed.Cir.2001) ("The prosecution history of a related patent can be relevant if, for example, it addresses a limitation in common with the patent in suit."); *Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1315 (Fed.Cir.2001) ("[N]one of the claims of the '732 patent contain the same limitation that we are construing from the '727 patent. Accordingly, we decline Medtronic's invitation to consider the 732 patent's prosecution history for the purpose of construing the limitation in question."); *cf.* *Elkay*, 192 F.3d at 980 ("When multiple patents derive from the same initial application, the prosecution history regarding a claim limitation in any patent that has issued applies with equal force to subsequently

issued patents that contain the same claim limitation."). Accordingly, the Court does not construe the term "identifier" in claims 29, 30, 31, 34, 35 and 42 of the '823 patent.

#### ***4. The Database Limitations***

Numerous asserted claims discuss subscriber accounts and the balances within them, as well as the process by which those balances are decremented during calls. The Court addresses four issues that arise repeatedly in the claims: (A) whether the "account balance" is initially reflected in a currency amount or units of time and, if in monetary terms, whether there must be a conversion to time; (B) where the "account balance" is stored; (C) what information is in the database; and (D) the frequency of "periodic validation."

##### ***A. The Account Balance: Initially and Upon Conversion***

Numerous asserted claims in the '067 and '823 patents make reference to an account balance. For example, claim 10 of the '067 patent describes "verifying a positive balance in an account identified by the ANI." '823 claim 1 refers to a "subscriber having a pre-paid subscriber account balance stored in a database." Claim 29 of the '823 patent requires a "pre-paid switching system that validates the balance in the account of the originator of the call...." The Court concludes that in each claim where it appears, the relevant language would leave a person of ordinary skill in the art unclear as to whether the balance is reflected in time or money when it is first validated or verified, and thus, these limitations would have no ordinary meaning to such a person. However, the specification shows that the terms are properly interpreted to reflect that the balance is initially reflected in terms of currency and eventually converted to a time limit or value. For example, the balance is first described as "pre-paid." '067 patent, col. 4, ll. 2-3; '823 patent, col. 4, ll. 8-9. As one cannot pre-pay with anything other than money, this suggests the balance is initially reflected in monetary terms. Furthermore, in the summary of the invention, the term "credit balance" is used. '067 patent, col. 4, ll. 8; '823 patent, col. 4, ll. 15. As the term "credit" in conjunction with "balance" typically means a sum of money owed or available, it is fair to read it as doing so here. This notion is further supported by the written description of Figure 7, which illustrates the call accounting flow. "[T]he account balance in memory is decremented by a predetermined value, corresponding to a minimum time rate based FN14 upon the DNIS and the time of day rate, e.g., \$0.02 for each six seconds of telecommunications time at an off-peak, i.e., after 7:00 p.m. local time." '067 patent, col. 8, ll. 32-36; '823 patent, col. 8, ll. 39-42 (emphasis added). Clearly, this language envisions reductions in monetary units for a particular unit of calling time, leading to the conclusion that "account balance" should be interpreted as "account currency balance" or similar language where appropriate in the asserted claims.FN15

FN14. The '823 patent uses the word "base," rather than "based."

FN15. Defendants ask that the Court's construction of "account balance" incorporate the notion that it is a single value. However, the Court declines to do so. Plaintiff accurately notes that in conventional English usage, a "balance" may itself be made up of multiple balances.

Various asserted claims in the '823 patent also refer in some fashion to terminating the call when a time limit based on the account balance is expired. Among them are claims 5, 11, 16, 31 and 39 ("causing the [or "a"] call to be terminated when a time limit based on the account balance is expired"); claim 15 ("sets a time limit based on the account balance, and causes the call to be terminated when the time limit is expired"); claim 20 ("causing a call is caused to be [sic] terminated when a time limit based on a balance in the

account is expired"); and claims 29 and 34 ("sets a time limit based on the account balance"). The Court's earlier conclusion that the initial account balance is reflected in currency requires it to construe these claims to make clear that the currency account balance is translated into a time value.

### ***B. Where the Account Balance is Stored***

Among the asserted claims, there are several that refer to a verification or validation of the balance in the subscriber's account but fail to indicate where the account is located. For example, claim 16 of the '067 patent describes the pre-paid service provider "verifying a positive balance in an account associated with the ANI...." Claim 9 of the '823 patent requires "a pre-paid wireless service provider associated with the pre-paid wireless subscriber that validates an account associated with the pre-paid wireless subscriber...." The Court finds that one of ordinary skill in the art would not be able to attach a meaning to these limitations without knowing where the database is stored. The specification again provides the necessary assistance. For example, according to the summary of the invention, "[a]t the remote computer database server, a database is maintained with pre-paid subscriber information." '067 patent, col. 3, ll. 64-66; '823 patent, col. 4, ll. 3-5. Further, the summary states that "[t]he host computer validates the received ANI by comparison to the ANI information *in the database*." '067 patent, col. 4, ll. 4-5; '823 patent, col. 4, ll. 11-12 (emphasis added). The written description of Figure 5, which illustrates call processing at the host computer, explains: "The host computer accesses the subscriber database from the remote server 11 and loads the database record corresponding to the received ANI to memory at block 109. The received ANI is validated against the database record in memory as one belonging to a pre-paid subscriber at block 110." '067 patent, col. 7, ll. 51-56; '823 patent, col. 7, ll. 57-62. FN16 Accordingly, the Court has construed these claims to require that the account is found in the database.

FN16. Although this language might suggest the further limitation that the database record corresponding to the pre-paid subscriber be loaded into the host computer's memory, the Court does not so construe the claims. The specification later makes clear that this method is only a preferred embodiment. "While at present time it is preferable to use memory, those skilled in the art will understand that future improvements in LAN and WAN communication speeds and database read-write speeds may obviate the desirability of loading the account balance to memory to facilitate subsequent call accounting processing." '067 patent, col. 8, ll. 5-9; '823 patent, col. 8, ll. 11-16. The '823 patent uses the term "rad-write speeds" in an apparent typographical error.

### ***C. The Information in the Database***

Three claims refer to "information" about the subscribers stored in the database. Specifically, claims 27 and 28 in the '823 patent include the language "a database of pre-paid wireless subscribers, comprising account information for the pre-paid wireless subscribers" and claim 34 includes "database of information pertaining to subscribers to the pre-paid wireless telephone service." As the Court finds the term information is inherently non-specific and would have no meaning to one of ordinary skill in the art, it again turns to the specification, which provides a ready definition. According to the summary, "[e]ach subscriber record in the database includes ... at least the ANI assigned to that pre-paid subscriber, a pre-paid account balance and a time rate for telecommunications charges." '067 patent, col. 4, ll. 1-4; '823 patent, col. 4, ll. 7-10. "At least" is the sort of "manifest exclusion or restriction" that represents a "clear disavowal of claim scope." *See* *Teleflex, Inc. v. Ficosa North America Corp.*, 299 F.3d 1313, 1324, 1325, 1327 (Fed.Cir.2002). The Court has construed these claims as requiring "for each subscriber at least their automated number identification code (ANI), a pre-paid currency account balance, and a time rate for telecommunications charges."

## ***D. The Frequency of Periodic Validation***

'823 patent claims 2, 9, 10, 17, 18, 19, 30, 36 and 37 refer to "periodically validating" or "periodic real-time validation" of the subscriber's account balance, or use similar terms. To one of ordinary skill in the art, this periodic validation might take place at regular intervals or randomly during the call. To determine whether the claims should be construed to cover one or the other, or both, the Court turns to the specification. As in the case of the subscriber information in the database, the patentee provided an explicit answer in the specification. According to the summary of the invention, "[i]t is important to note the time value is deducted from the account balance at regular intervals of time while the call is in progress." '067 patent, col. 4, ll. 16-18; '823 patent, col. 4, ll. 23-25. Accordingly, the Court has construed the claims that refer to "periodic real-time validation" or "periodically validating" or use similar terms to mean the validation occurs at regular intervals.

Given that the patentee declared validation at regular intervals to be an "important" part of the invention, the Court has also incorporated this concept into the limitation "causing the [or "a"] call to be terminated when a time limit based on the account balance is expired," which appears in claims 5, 11, 15, 16, 20, 29, 31 and 34 of the '823 patent. It is the periodic validation, after all, which permits the host computer to determine if the time limit has expired.

## ***5. Rejected Constructions Proposed by the Defendants***

Defendants have requested that the Court construe the limitations "wireless telephone call[s]" and several related terms, "checking the ANI against each stored reserved pre-paid cellular telephone number," and "receiving from a telecommunications service an identifier." For the reasons explained below, the Court has rejected defendants' proposed constructions. These limitations are treated together because the Court finds it necessary to treat each of them only briefly.

### ***A. "Wireless Telephone Call[s]" and Related Terms***

In claims 1, 9, 10, 15, 16, 29, 31, 34 and 42 of the '823 patent, the patentee uses the term "wireless telephone call[s]." In the same patent, in claims 17, 18, 19, 20, 24, 25, 27 and 28, the patentee uses the term "wireless call request." In claim 11 of the '823 patent, the term "wireless telecommunications event" is used. On each occasion, the term essentially refers to the call that the invention will be handling. For example, claim 1 states in relevant part: "A method of completing pre-paid *wireless telephone calls* to a subscriber...." (emphasis added). Similarly, claim 17 includes the limitation "a wireless switch at which a wireless call request is received." Defendants insist that these terms must be construed as telephone calls originating only from wireless telephones, to the exclusion of calls from land line phones. The Court declines to so construe these claims because the ordinary meaning of the terms would encompass any call in which either party uses a wireless telephone. Furthermore, the written description of Figure 8A, explaining a preferred embodiment for incoming calls, addresses how the invention works when "an originating party initiates a land line telephone call." '067 patent, col. 9, ll. 34-35; '823 patent, col. 9, ll. 41-42. Defendants' proposed construction, therefore, would result in a claim that did not cover a preferred embodiment. "Such claim constructions are 'rarely, if ever, correct.'" *Abbott Laboratories v. Torpharm, Inc.*, 300 F.3d 1367, 1372 (Fed.Cir.2002) (quoting *Vitronics*, 90 F.3d at 1583).

### ***B. "Checking the ANI Against Each Stored Reserved Pre-Paid Cellular Telephone Number"***

Claim 15 of the '067 patent contains the limitation "at the cellular switch checking the ANI against each stored reserved pre-paid cellular telephone number identifying a pre-paid subscriber...." Defendants contend these words should be interpreted to mean that the cellular switch checks the caller's number against every stored number, regardless whether, for example, the first number against which the ANI is checked identifies a subscriber. Bearing in mind that "claims should be construed in a rational and practical manner" and interpretations "should lead to neither absurd nor unjust results [,]" the Court concludes this limitation needs no such construction. *See* Am. Cyanimid Co. v. U.S. Surgical Corp., 833 F.Supp. 92, 109 n. 27 (D.Conn.1992). Correspondence from patent counsel to the patent examiner dated November 4, 1996 regarding claim 16, which is dependent on claim 15, makes plain how the claim language should be interpreted. "Claim 16 recites the operation within the MTSO; i.e. checking the ANI against a list and forwarding the call either one way or another depending upon whether or not the ANI belonged to a pre-paid subscriber."

### ***C. "Receiving from a Telecommunications Service an Identifier"***

Claims 10 and 16 of the '823 patent include the limitation "at a pre-paid wireless service provider ... receiving from a telecommunications service an identifier corresponding to the pre-paid wireless subscriber." Defendants argue that the phrase "receiving from a telecommunications service" should be construed to mean "receiving the call from a local exchange carrier or central office," effectively limiting the definition of "telecommunications service" to land line providers. They contend that the use of "telecommunications service" and "wireless switch" in the same claim means that the two elements are not the same and "telecommunications service" must mean a land line switch, such as a local exchange carrier or a central office. Defendants also note that the written description of Figure 8A shows an incoming call beginning when "an originating party initiates a land line telephone call." '067 patent, col. 9, ll. 34-35; '823 patent, col. 9, ll. 41-42. Further, it states that "[t]he call is handed to the CO at block 152 and redirected to the host computer." '067 patent, col. 9, ll. 37-38; '823 patent, col. 9, ll. 44-45. Nevertheless, the Court concludes that because Figure 8A is merely a preferred embodiment and the term "telecommunications service" would signify land line *and* wireless providers to one of ordinary skill in the art, it will incorporate no such limitation into the claim. *See* Laitram Corp. v. NEC Corp., 163 F.3d 1342, 1347 (Fed.Cir.1998) ("[A] court may not import limitations from the written description into the claims."); *Electro Med. Sys. SA v. Cooper Life Sci.*, 34 F.3d 1048, 1054 (Fed.Cir.1994) ("[P]articular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments").

SO ORDERED.

D.Mass.,2003.

*Freedom Wireless, Inc. v. Boston Communications Group, Inc.*

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