



record and now construes a limited number of the contested terms from the three patents at issue.<sup>2</sup>

## I. FACTS

The Patents arise in the technology of modern mobile telephony, *i.e.*, cell phones. The '216 Patent is titled, "Synchronization Method for a Mobile Radiotelephone." '216 Patent; *see* IPCOM's Opening Br., Jt. Ex. 2. It discloses "synchronization methods for mobile radiotelephones in a cellular, digital mobile radiotelephone system comprising a plurality of fixed stations and a plurality of mobile radiotelephones, for example operating according to what is known as the GSM Recommendation."<sup>3</sup> '216 Patent at 1:10-15.<sup>4</sup> Although the "invention is not necessarily limited to the GSM system . . . and is likely to be useful in more or less similar systems," *id.* at 8:53-55, the specification references characteristics of a GSM system.

The invention disclosed in the '216 Patent aimed "to provide a synchronization method that fulfills all requirements of digital information transmission with the least possible technical complication and expense." *Id.* at 3:5-8. To "take advantage of that more economical synchronization technique, there is performed for the mobile radiotelephone, first, an initial synchronization, then a normal synchronization and then, an extended synchronization as a

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<sup>2</sup> The parties proposed that the Court construe fifty terms from the three Patents at issue. The Court directed that they limit themselves to what were critical terms in dispute and the number of terms covered by this opinion is limited to those twenty-five.

<sup>3</sup> "The digital mobile telephone system which forms the basis for the so-called D-Network used in Germany is generically designated by the acronym GSM, which comes from the French phrase for mobile special group (GROUPE SPECIALE MOBILE). In this system the radio transmission is purely digital, hence the name D-Network. It is a cellular network in the sense that there are many fixed stations with which a mobile station can communicate sequentially as it moves from the cell of one station to the cell of the next." '216 Patent at 1:24-33.

<sup>4</sup> Pinpoint citations to the Patents at issue in this case are to column # : line #.

background procedure during normal operation.” *Id.* at 3:25-30. These three main steps include substeps, *see id.* at 3:30-43, and “[b]y this procedure it is possible to realize synchronization of higher precision with a relatively small complication and expense.” *Id.* at 3:44-46. The point of synchronization is, of course, the ability to operate the cell phone with clear transmission and without dropped calls.

The ’751 Patent is entitled “Method of Allocating Access Rights to a Telecommunications Channel to Subscriber Stations of a Telecommunications Network and Subscriber Station.” ’751 Patent; *see* IPCOM’s Opening Br., Jt. Ex. 3. In the ’751 Patent’s language, a “subscriber station” is a cell phone within a network. Because a broadcast channel cannot accommodate an unlimited number of cell phones, the ’751 Patent suggests a method to distinguish between phones. The ’751 Patent describes a cell phone that has a transceiver to receive information signals from a network and an evaluation unit that analyzes “access authorization data” within those signals to ascertain whether the cell phone is authorized to access the common channel. Only Claim Thirteen of the ’751 Patent is asserted by IPCom.

The ’830 Patent is entitled “Method for Handover, Mobile Station for Handover and Base Station for Handover.” ’830 Patent; *see* IPCOM’s Opening Br., Jt. Ex. 4. The “handover” in question occurs when a mobile cell phone moves from one base station (cell tower) to another; obviously, a smooth handover avoids dropped calls. The ’830 Patent discloses “a type of handover to be implemented that can be performed without network support,” or, if “the network is capable of supporting handover, that capability can be utilized.” ’830 Patent at 2:31-35. Another aspect involves a situation where the base station forces the cell phone to attempt a handover and, if it cannot succeed, “the mobile station [cell phone] can return to the original base station without any

problem.” *Id.* at 2:12-24.

## II. LEGAL STANDARDS

### A. Patent Claims Construction Principles Generally

The “claims” of a patent are those descriptions of the invention that are numbered and follow the introductory phrase, “[w]hat is claimed.” An understanding of a patented invention must start and end with the claims themselves which identify and distinguish the inventor’s invention. To determine whether a patent claim has been infringed, a court must undertake a two-step process. The court first construes or interprets each contested claim, or phrase or word within a claim, to determine its meaning and scope; only afterward are the claims compared to the accused device(s).<sup>5</sup> *O.I. Corp. v. Teckmar Co. Inc.*, 115 F.3d 1576, 1580 (Fed. Cir. 1997).

The interpretation of patent claims is exclusively a question of law. *Markman*, 517 U.S. 370. In claims construction, a court must interpret the words of each contested claim from the perspective of one skilled in the art at the time of invention, in light of the patent documents and the prosecution history. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005). Words in the claims of a patent are given their ordinary and customary meaning, that is, the meaning that the term would have had to a person of ordinary skill in the pertinent art at the time of the invention. *Id.* at 1312-13. “[T]he ‘ordinary meaning’ of a claim term is its meaning to the ordinary artisan after reading the entire patent.” *Id.* at 1314. Although words are generally given their ordinary meaning, “a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification or file history.” *Vitronics Corp. v. Conceptorics Inc.*, 90 F.3d 1576, 1582 (Fed. Cir.

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<sup>5</sup> This litigation is at the first stage of this process.

1996). When a specification expressly defines terms or defines terms by implication, the specification will be held to limit the claims accordingly. *Phillips*, 415 F.3d at 1321. *Phillips* discredited the approach of prior cases holding that claim terms were to be given the broadest possible ordinary meaning and that the specification should only be consulted for a clear disavowal of such meaning. *Id.* at 1319-21. The *Phillips* court reasoned that this approach resulted in unduly expansive claim construction and improperly restricted the role of the specification in claim construction. *Id.* (disavowing *Texas Digital Systems, Inc. v. Telegenix, Inc.*, 308 F.3d 1193 (Fed. Cir. 2002) and cases following its approach).

Claim construction should be undertaken independent of any consideration of how the claims may or may not be read on the accused product. *SRI Int'l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1118 (Fed. Cir. 1985). “[C]laims are not construed to ‘cover’ or ‘not to cover’ the accused device. That procedure would make infringement a matter of judicial whim.” *Id.*; see also *Wilson Sporting Goods Co. v. Hillerich & Bradsby Co.*, 442 F.3d 1322, 1326-27 (Fed. Cir. 2006) (the court should not prejudge the infringement analysis by construing claims with an aim to include or exclude a particular product, but knowledge of the accused product is helpful to provide context and focus).

In construing a claim, a court starts with the intrinsic evidence of its meaning — the claims, the specification, and the prosecution history. *Vitronics*, 90 F.3d at 1582; see *Pitney Bowes Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999) (the starting point for claim interpretation must be the claims themselves). The “prosecution history” of a patent is the complete public record of the proceeding before the U.S. Patent and Trademark Office (“PTO”). *Phillips*, 415 F.3d at 1317. The public record includes the original application and any claim amendments and

explanations made by the applicant. *Vitronics*, 90 F.3d at 1582. For example, a patent applicant may limit claims during prosecution by modifying claim language to overcome examiner rejection, by distinguishing a reference, or by disavowing claim coverage. *Omega Eng'g Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323-25 (Fed. Cir. 2003). The specification of a patent “must include a written description of the invention or discovery and of the manner and process of making and using the same, and is required to be in such full, clear, concise, and exact terms as to enable any person skilled in the art or science . . . to make and use the same.” PTO Rules § 1.71(a). “The specification must set forth the precise invention . . . in such a manner as to distinguish it from other inventions and from what is old.” *Id.* § 1.71(b). The specification is the “single best guide to the meaning of a disputed term.” *Vitronics*, 90 F.3d at 1582.

The Federal Circuit has recognized a fine line between reading a claim *in light of* the specification and reading *a limitation into a claim from* the specification. *Phillips*, 415 F.3d at 1323. The former is appropriate and necessary; the latter constitutes error. *Id.* For example, a discussion in a specification of a particular embodiment of an invention does not normally confine the invention to that particular embodiment. *Id.* (citing *Nazomi Comm., Inc. v. ARM Holdings, PLC*, 403 F.3d 1364, 1369 (Fed. Cir. 2005)); *see also DSW, Inc. v. Shoe Pavilion, Inc.*, 537 F.3d 1342, 1348 (Fed. Cir. 2008) (“when claim language is broader than the preferred embodiment, it is well-settled that claims are not to be confined to that embodiment.”). “To avoid importing limitations from the specification into the claims, it is important to keep in mind that the purposes of the specification are to teach and enable those of skill in the art to make and use the invention and to provide a best mode for doing so.” *Phillips*, 415 F.3d at 1323. Usually the specification clearly states whether it is setting out specific examples of the invention or whether the patentee intends the embodiments

in the specification to be coextensive with the claims. *Id.* A court does not improperly read a limitation into a claim where the claim contains the term and the court looks to the specification for a definition of the term, even if that definition is set forth in a preferred embodiment. *Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1378-80 (Fed. Cir. 2006) (claim limited by the term “adjustable” and specification defined term).

### **B. Avoidance of Redrafting Claims and Interpretations that Render a Term Superfluous**

A court may not redraft claims to make them operable or to sustain their validity. *Chef America, Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1374 (Fed. Cir. 2004). However, “[w]hen claims are amenable to more than one construction, they should when reasonably possible be interpreted so as to preserve their validity.” *Modine Mfg. Co. v. U.S. Int’l Trade Comm’n*, 75 F.3d 1545, 1557 (Fed. Cir. 1996).

Further, a court should avoid interpreting patent claims in a way that renders any term superfluous. *See Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006) (“claims are interpreted with an eye toward giving effect to all terms in the claim”); *Merck & Co., Inc. v. Teva Pharmaceuticals USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (a construction that gives meaning to all the terms of the claim is preferred over one that does not); *Cytologix Corp. v. Ventana Medical Sys., Inc.*, 424 F.3d 1168, 1173 (Fed. Cir. 2005) (if possible, a court should avoid an interpretation of one claim that renders another meaningless). A claim term is considered invalid for indefiniteness “only if reasonable efforts at claim construction prove futile.” *Exxon Research & Eng’g Co. v. United States*, 265 F.3d 1371, 1375 (Fed. Cir. 2001).

### **C. Dependent Claims**

“[A] claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.” 35 U.S.C. § 112. In other words, a dependent claim incorporates all of the limitations of the claim from which it “depends” and adds something new; thus, a dependent claim has a narrower scope than the claim from which it depends. Further, “the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.” *Phillips*, 415 F.3d at 1315.

### **III. ANALYSIS**

The Court construes the Patent Terms in the order in which they appear in the Joint Statement [Dkt. # 159], Ex. A, Chart of Claim Terms and Proposed Constructions (“Chart”).

#### **A. The ’216 Patent**

Claim One of the ’216 Patent contains most of the critical terms in dispute. In construing such terms, the nature of Claim One must be kept in focus: the Claim covers the steps of a method of synchronization between a cell phone (mobile station) and one or more cell towers (base station) but does not fully reveal how such steps are actually accomplished. Subsequent claims cover the “how” of Claim One’s method. HTC makes a fundamental error in its proposed constructions for Claim One — it argues for constructions that import into Claim One the specifics of one or more of the subsequent dependent claims of the ’216 Patent. As noted above, “the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.” *Phillips*, 415 F.3d at 1315.



Claim One is neither so precise nor so complex. Claim One states that the inventors

claimed:

A method of synchronizing a mobile radiotelephone in a cellular digital mobile radiotelephone network comprising a plurality of fixed radiotelephone stations and a plurality of mobile radio stations operating in accordance with a GSM standard or its equivalent, in which each communication frequency assignment is subdivided into interleaved time slots, a plurality of said time slots together comprising a frame, comprising the following steps which are carried out in the mobile radiotelephone:

(1) conducting an initial synchronization by means of a frequency correction burst substantially fully occupying a time slot with an unmodulated wave corresponding to repetition of bits of the same binary logic value;

(2) maintaining normal synchronization during communication by means of interspersed normal synchronization bursts, each normal synchronization burst containing a training sequence occupying less than a third of a time slot; and

(3) performing extended synchronization during communication as a background procedure by means of interspersed frequency synchronization bursts, each frequency synchronization burst containing an extended training sequence occupying less than an entire time slot and more than a third of a time slot, and wherein:

said step of conducting said initial synchronization comprises the substeps of:

(1.1) conducting a coarse frequency synchronization,

(1.2) conducting a coarse frame synchronization over a plurality of said time slots which comprise a frame,

(1.3) conducting a fine frequency synchronization, and

(1.4) conducting a fine frame synchronization over said plurality of time slots which comprise a frame;

said step of maintaining said normal synchronization comprises the

substeps of:

(2.1) conducting a frame synchronization with fine frequency synchronization, and

(2.2) carrying out preliminary data signal processing; and

said step of performing said extended synchronization comprises the substeps of:

(3.1) conducting a coarse frame synchronization, and

(3.2) conducting a fine frame synchronization with fine frequency synchronization.

'216 Patent 8:62-9:46.

The specification explains that the digital mobile telephone system used in Germany has traffic channels and control channels. *Id.* at 1:41-42. “The former were sub-divided into encoded speech traffic channels and data traffic channels.” *Id.* at 1:43-44. “The control channels include frequency correction channels for frequency correction of a mobile station, synchronization channels for a frame synchronization of the mobile station and identification of a base transceiver station and broadcast control channels for general information from a base station.” *Id.* at 1:45-50. The specification explains that “[o]ne radio frequency channel of the cell allocation is used to carry synchronization information, known as the BCCH carrier, and serves as the broadcast control channel.” *Id.* at 1:56-59. Further, “[a] radio frequency channel is partitioned into time slots, so that transmission takes place in time division multiple access (TDMA) frames. There are eight time slots to a TDMA frame, which has a duration of a little less than 5 ms.” *Id.* at 1:61-65.

The timing of time slots, TDMA frames, traffic channel frames and control channel frames are all related to a common set of counters which run continuously whether the mobile station and base station are transmitting or not. Thus once the mobile station has determined

the correct setting of these counters all its processors are synchronized to the currently serving base station.

*Id.* at 2:33-40.

The invention is a method of achieving synchronization between a mobile phone and a base station. Whereas at the time of the '216 Patent, synchronization was achieved through a “common set of counters,” *id.*, the method of the Patent allowed the use of frequency correction bursts and synchronization bursts from the base station to achieve synchronization more readily and with less expense. As the specification explains, “[i]t is an object of the invention to provide a synchronization method that fulfills all the requirements of digital information transmission with the least possible technical complication and expense.” *Id.* at 3:5-8. As noted above, Claim One describes the order of the process, but provides little detail as to how actually to achieve synchronization. Claim Two gives detail as to how to achieve synchronization as generally described in Claim One — by using continuous calculations of phase angles. The specification states, “[t]he synchronization method of the invention is based on the evaluation of a continuously running phase angle, which is calculated again and again from an in-phase component I and a quadrature component Q.” *Id.* at 3:9-12. “The method of the invention is based on evaluation of phase angle [sic] many times per bit interval.” *Id.* at 3:47-48. “For taking best advantage of evaluating phase angles by I, Q samples, it is important to utilize the various different transmitted synchronization bursts in accordance with the various steps that usefully make up the various aspects of the invention.” *Id.* at 8:47-52.

### **1. Synchronizing**

The parties ask the Court to construe “synchronizing” as used in Claim One of the

'216 Patent, where the inventors claimed “[a] method of synchronizing a mobile radiotelephone in a cellular digital mobile radiotelephone network.” ’216 Patent at 8:62-64. IPCom proposes that synchronizing means merely “[b]ringing the mobile station’s operation in step with the corresponding operation of a base station.” Chart at 1. HTC proposes that synchronizing means “[b]ringing a mobile station’s operation in step with the corresponding operation of a base station by performing processes that evaluate a continuously running phase angle calculated from burst signals received from the base station.” Chart at 1.

While HTC’s proposed construction finds support in the specification, *see* ’216 Patent at 3:9-1 (“The synchronization method of the invention is based on the evaluation of a continuously running phase angle . . . .”), it confuses Claim One and Claim Two and therefore cannot be adopted. *Phillips*, 415 F.3d at 1315. Claim Two of the ’216 Patent depends from Claim One and describes the “further steps of: calculating (continuous evaluation of) a phase angle from sequences of pairs of values . . . and thereafter performing a continuous evaluation of said calculated phase angle.” ’216 Patent at 9:49-54. Given the specificity of Claim Two’s disclosed method and the generality of Claim One, HTC’s proposed construction erroneously conflates the two.

HTC argues strenuously that the evaluation of phase angles is the only disclosed mechanism for every claimed substep. While this is a slight overstatement, since substep (1.1) does not evaluate phase angles, it remains basically accurate. The point is, however, that Claim One — the only independent claim in the ’216 Patent — does not reveal how to accomplish its method. Those particulars are in the dependent claims that follow. Indeed, the prosecution history reflects the understanding of the Patent and Trademark Office (PTO) that the invented method resided in the multiple steps, not in “phase course” analysis. IPCom’s Opening Br., Ex. 5, Prosecution History at

1194 (“none of the references teaches or suggests the arrangement of the steps of initial synchronization, normal synchronization and extended synchronization with the substeps of each respective step in order to form a method of synchronization”); *see also* Tr. 2/16/10 at 43 (IPCom).

HTC additionally argues that the inventors clearly limited the scope of the invention by three statements:

- The synchronization method of the invention is based on the evaluation of a continuously running phase angle, which is calculated again and again from an in-phase component I and a quadrature component Q. ’216 Patent at 3:9-12.
- The method of the invention is based on evaluation of phase angle many times per bit interval. *Id.* at 3:48-49.
- For taking best advantage of evaluating phase angles by I, Q samples, it is important to utilize the various different transmitted synchronization bursts in accordance with the various steps that usefully make up the various aspects of the invention. *Id.* at 8:47-52.

An inventor may disclaim or disavow the scope of a claim in the specification. *Phillips*, 415 F.3d at 1316. To limit the scope of his own patent, a patentee must have had “a clear intention to limit the claim scope using ‘words or expressions of manifest exclusion or restriction.’” *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (6th Cir. 2004). “In that instance . . . the inventor has dictated the correct claim scope, and the inventor’s intention, as expressed in the specification is regarded as dispositive.” *Phillips*, 415 F.3d at 1316.

While the specification in the ’216 Patent describes evaluation of phase angles, no expressly limiting language is used in Claim One. The focus of Claim One is the method of sequential steps and substeps, not the precise contours of how one practices the invention. Claim One is not bounded by the limitations of relying on evaluating phase angles, as these limitations appear in dependent claims and not in Claim One. Given the structure of the ’216 Patent, the Court

cannot conclude that Claim One is so limited.

The Court construes “synchronizing” to mean “bringing the mobile station’s operation in step with the frame and frequency of a base station.”<sup>6</sup>

**2. “Conducting an initial synchronization by means of a frequency correction burst”<sup>7</sup>**

Claim One of the ’216 Patent provides for three steps to be carried out in the mobile radiotelephone: (1) initial synchronization; (2) normal synchronization; and (3) extended synchronization. ’216 Patent at 9:4-20. In step (1), Claim One provides for “conducting an initial synchronization by means of a frequency correction burst.” ’216 Patent at 9:4-5. The purpose of the initial synchronization is “to provide the initial connection between a mobile radiotelephone and a fixed station.” *Id.* at 5:23-24. The specification gives background information:

A base station sends signals on a broadcast control channel to enable a mobile station to synchronize itself to the base station and if necessary correct its frequency standard so as to put it in line with that of the base station. The signal[s] sent by the base station for these purposes are (a) frequency correction bursts and (b) synchronization bursts. A burst is defined as an interval within which the radio frequency carrier is modulated by a predetermined data stream.

*Id.* at 2:7-15.

The parties dispute whether the initial synchronization is conducted before or after

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<sup>6</sup> While IPCom proposed that synchronizing means “[b]ringing the mobile station’s operation in step with the corresponding operation of a base station,” *see* Chart at 1, at the *Markman* hearing, counsel for IPCom conceded that it is more accurate to define synchronizing as the Court defines it here. *See* Tr. 2/16/10 at 40 (IPCom).

<sup>7</sup> “The term ‘burst’ is used in the same sense as in GSM 05.02, signifying a transmission occupying a single time slot. . . . The frequency correction burst has 142 fixed identical bits which signify a phase course . . . .” ’216 Patent at 5:66-68.

the mobile station (*i.e.*, cell phone) has selected a carrier<sup>8</sup> frequency. HTC maintains that initial synchronization is conducted *after* the cell phone has selected a carrier frequency, asserting that the correct construction is: “[h]aving selected a carrier frequency, synchronizing during initial connection by performing the claimed steps (1.1), (1.2), (1.2), and (1.4) on frequency correction burst 12.” Chart at 1 (referring to Fig. 1).<sup>9</sup> IPCoM proposes a broader construction: “[c]ontrolling a process to achieve an initial, synchronized connection between a mobile station and a base station through use of one or more frequency correction bursts.” Chart at 1.

HTC’s definition will not suffice because it requires substep (1.1), *i.e.*, “conducting a coarse frequency synchronization,” *see* ’216 Patent at 9:24-25, while the specification explains that substep (1.1) is not always necessary. Once the receiver in the cell phone detects a carrier frequency, it immediately makes a “first frequency estimation” to determine “whether the frequency of the discovered carrier lies within or outside of a tolerance region TR (compare FIG. 3).” *Id.* at 5:34-39. “With sufficient precision of carrier frequency tuning[,] the coarse frequency determination which is burst-independent can be dispensed with; in consequence the synchronization steps designated 1.2, 1.3 and 1.4 above then suffice for the initial synchronization.” *Id.* at 5:48-52.

Moreover, HTC’s definition fails because it states that the four substeps are performed on “frequency correction burst 12” when in fact not all of the four substeps utilize a frequency correction burst. Substep (1.1.), course frequency synchronization, is “burst-independent.” *Id.* at 5:49-52. Substep (1.4), fine frame synchronization, also does not use a frequency correction

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<sup>8</sup> The “carrier” is the telephone service provider.

<sup>9</sup> At times, the specification refers to the components of the invention by numbers shown in Figures 1 and 2.

burst; instead it “takes place by the recognition and evaluation of the training sequence in the synchronization burst.” *Id.* at 7:22-24.

“Conducting an initial synchronization by means of a frequency correction burst” is construed to mean “controlling a process to achieve an initial synchronized connection between a mobile station and a base station through use of one or more frequency correction bursts and a synchronization burst.”

### **3. “Conducting a coarse frequency synchronization”**

This phrase comes from substep (1.1) and may not be needed if the cell phone detects a carrier’s signal that has “sufficient precision of . . . frequency tuning.” *Id.* at 5:48-49. If the carrier signal is lacking sufficient precision of frequency tuning, this substep entails a “first frequency estimation . . . by means of the high frequency reception portion 21 of the radio receiver.” *Id.* at 5:33-36 (referring to Fig. 3). “The result produces information of [sic] whether the frequency of the discovered carrier lies within or outside of a tolerance region TR (compare FIG. 3).” *Id.* at 5:36-39. “The tolerance region is variable,<sup>10</sup> so that the precision of the frequency estimation increases with a shrinking of the region for any particular data stream (compare FIG. 3 again).” *Id.* at 5:44-48. In laymen’s terms, this means that the stronger the frequency signal, the more likely that frequency tuning between the mobile station and the base station occurs without substep (1.1).

IPCom proposes that the term be construed to mean “[c]ontrolling a process to bring the mobile station’s frequency into at least approximate step with the base station frequency, such as by selecting and tuning to a carrier frequency.” Chart at 1. HTC counters with “[h]aving already

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<sup>10</sup> *See* ’ 216 Patent at 3:53-56 (“It is also possible . . . for the precision of the coarse frequency synchronization to be variable across the phase tolerance region (TR).”).



tuned (selected) a carrier frequency, controlling a first frequency synchronizing process that estimates and refines the mobile station's frequency to within a tolerance region so as to be in approximate step with the base station's frequency." *Id.*

According to the '216 Patent, coarse frequency determination and synchronization do not entail "refining" the mobile station's frequency but, instead, "determin[ing]," '216 Patent at 5:31, whether a detected frequency signal from a carrier has "sufficient precision" already, *id.* at 5:48, or is "within or outside of a tolerance region TR," *id.* at 5:38, to be usable for communication. "[T]uning the coarse frequency determination" is not necessary when there is "sufficient precision of carrier frequency." *Id.* at 5:48-49. The parties disagree over whether, in this context, "determining" and "synchronizing" are the same thing; HTC says they are and IPCom says they are not. The Court concludes that they convey different actions. The high frequency reception 21 of the cell phone first "determines" whether the signal it detects is sufficient and then, if need be, "tunes," or synchronizes, to that signal.

The Court construes the phrase "(1.1) conducting a coarse frequency synchronization" to mean "having detected a carrier frequency, controlling a process to bring the mobile station's frequency into approximate step with the base station frequency, such as by tuning to a carrier frequency."

**4. "(1.2) Conducting a coarse frame synchronization over a plurality of said time slots which comprise a frame"**

First, HTC contends that this "limitation is incapable of construction for failure to comply with paragraphs one and two of 35 U.S.C. § 112 because the phrase 'over a plurality of said time slots which comprise a frame' is insolubly ambiguous." Chart at 1-2. Section 112 provides:

The specification shall contain a written description of the

invention and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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35 U.S.C. § 112, ¶¶ 1 & 2.

“Because a claim is presumed valid, a claim is indefinite only if the “claim is insolubly ambiguous, and no narrowing construction can properly be adopted.” *Honeywell Int’l, Inc. v. Int’l Trade Comm’n*, 341 F.3d 1332, 1338-39 (Fed. Cir. 2003) (quoting *Exxon Research*, 265 F.3d at 1375). Claims are held to be indefinite only where a person of ordinary skill in the art could not determine the bounds of the claim. *Halliburton Energy Servs., Inc. v. M-1 LLC*, 514 F.3d 1244, 1249 (Fed. Cir. 2008). “[C]laims are not indefinite merely because they present a difficult task of claim construction.” *Id.* Finding a claim invalid on indefiniteness grounds requires “clear and convincing evidence that a skilled artisan could not discern the boundaries of the claim based on the claim language, the specification, and the prosecution history, as well as [the accused infringer’s] knowledge of the relevant art area.” *Id.* at 1249-50; accord *Budde v. Harley-Davidson, Inc.*, 250 F.3d 1369, 1377 (Fed. Cir. 2001).

The Court declines to find that the cited phrase is incapable of construction. The parties agree that a “plurality” means two or more. Tr. 2/16/10 at 51 (IPCom) & 52 (HTC); see also *Cybersettle Inc. v. Nat’l Arbitration Forum, Inc.*, 243 Fed. Appx. 603, 606 (Fed. Cir. 2007) (the term “plurality” means two or more). The inventors have instructed that “[t]here are eight time slots to

a TDMA frame.” ’216 Patent at 1:64-65. Thus, “a plurality of said time slots” means two or more of the eight time slots which comprise a TDMA frame.

IPCom proposes that the referenced terms be construed to mean “[c]ontrolling a process to bring the mobile station’s frame timing into at least approximate step with the base station’s frame timing, such as by identifying a range within which the beginning of a frame falls.” Chart at 1-2. As an alternative to its indefiniteness argument, HTC proposes “[c]ontrolling a first frame synchronizing process that utilizes a corrected phase course of a detected frequency correction burst to identify a range within which the beginning of a frame falls.” Chart at 2.

The ’216 Patent makes clear that it is necessary “to detect approximately the frame beginning for a particular channel” in order to achieve coarse frame determination and frame synchronization. ’216 Patent at 5:57-58. As described in the specification, a frequency correction burst is first recognized and converted to baseband; then the I and Q components are sent to the analog to digital converter, and thereafter to the synchronization processor. *Id.* at 4:66-5:15; *see also id.* at 6:44-45 (“[w]hen the I and Q components are measured [for coarse frame synchronization], the received signal has been converted to the baseband”). “All of the synchronization routines which take place with the help of the synchronizing processor 28 are based on the processing of the phase angles calculated from the I and Q components.” *Id.* at 5:11-15 (referring to Fig. 2); *see also id.* at 6:12-14 (“the corrected phase course of the received frequency correction burst 12 makes possible the determination of the beginning of a frame”) (referring to Fig. 1).

The specification explains how to determine the beginning of a frame. First, the I/Q components’ incoming signals must be analyzed to locate the frequency correction burst and determine generally when the frequency correction burst began. The specification discloses that “a

simple criterion for the search algorithm for recognition of the beginning of the frequency correction burst 12 is provided, as shown in Fig. 5,” which “shows how the corrected phase course of the received frequency correction burst 12 makes possible the determination of the beginning of a frame.” *Id.* at 6:8-14 (referring to Fig. 1). Figure 5 depicts a “steadily rising line [that] can be calculated back to show that the burst began at the beginning of the interval marked 1 in Fig. 5,” with the time region shown below the graph. *Id.* at 6:36-40. “From the beginning of the burst, the beginning of a TDMA frame can be determined with reference to the time slot assigned to the mobile telephone, when necessary.” *Id.* at 6:40-43. Because the frequency correction burst occurs in a known time slot of a frame, knowing the beginning of that burst allows the mobile station to determine when the frame itself began.

From these statements in the specification, the Court concludes that HTC has offered the better construction. The phrase “(1.2) conducting a coarse frame synchronization over a plurality of said time slots which comprise a frame” is construed to mean “controlling a first frame synchronizing process that utilizes a corrected phase course of a detected frequency correction burst to identify a range within which the beginning of a frame falls.”

##### **5. “(1.3) Conducting a fine frequency synchronization”**

HTC asks that this term be construed. It suggests that it means “[c]ontrolling a second frequency synchronizing process that minimizes the difference between actual and reference phase courses to bring the mobile station’s frequency into precise step – within 0.1 ppm – with the base station frequency.” Chart at 2. IPCom offers its own construction: “[c]ontrolling a process to bring the mobile station’s frequency in step with a desired operating accuracy with the base station frequency, such as by producing a frequency offset parameter.” *Id.*

HTC's definition comes from the specification, which provides, "[a]fter a successful determination of the beginning of a frame, the oscillator frequency of the mobile telephone needs to be brought more precisely (0.1 ppm)<sup>11</sup> into step with the frequency of the base station." '216 Patent at 6:62-65. Accordingly, "(1.3) conducting a fine frequency synchronization" is construed to mean "controlling a second frequency synchronizing process to bring the oscillator frequency of the mobile telephone more precisely into step with the frequency of the base station, within a desired operating accuracy."

**6. "(1.4) Conducting a fine frame synchronization over said plurality of time slots which comprise a frame"**

The specification explains the need to achieve fine frame synchronization: to determine any "frame shift" resulting from delay in a signal reaching the mobile station. *See* '216 Patent at 2:33-42, 7:54-55, 8:20-25. "A bit accurate frame determination is possible by a pattern correlation procedure," *id.* at 7:24-26, which may be conducted by evaluating "the phase course of the training sequence within the synchronization burst 13." *Id.* at 7:35-37 (referring to Fig. 1). By matching the measured and expected phase courses of the synchronization burst, a "setting magnitude for bit synchronization" can be provided to "the central control unit 31." *Id.* at 7:33-34 (referring to Fig. 2); *id.*, Figs. 4A & 4B. These procedures produce "necessary synchronization parameters (frame . . . shift)." *Id.* at 8:23-25. By determining how much to "shift" bits encoded in the base station signals, the mobile station ensures it can properly decode the information.

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<sup>11</sup> HTC conceded at the *Markman* hearing that the reference to "0.1 ppm" could be deleted from its proposed construction. Tr. 2/16/10 at 126 (HTC) ("I actually would be fine with striking that out."). *See Conoco, Inc. v. Energy & Env'tl. Int'l, L.C.*, 460 F.3d 1349, 1358 (Fed. Cir. 2006) ("When a claim term is expressed in general descriptive words, [courts] will not ordinarily limit the term to a numerical range that may appear in the written description or in other claims.").

HTC first protests that this phrase is incapable of construction for failure to comply with paragraph 2 of 35 U.S.C. § 112 because the phrase “over said plurality of time slots which comprise a frame” is insolubly ambiguous. The Court rejects this argument as the claim can be construed as described below.

In the alternative, HTC proposes that the phrase be construed to mean “[c]ontrolling a second frame synchronizing process that conducts a pattern correlation of a measured phase course relative to a reference phase course to achieve a bit-accurate determination of the frame beginning.” Chart at 2. IPCom proposes, instead, that the proper construction is “[c]ontrolling a process to bring the mobile station’s frame timing into step with a desired operating accuracy with the base station’s frame timing, such as by producing bit synchronization setting parameters.” *Id.*

The Court finds its construction in the language of the specification provisions described above: “(1.4) conducting a fine frame synchronization over said plurality of time slots which comprise a frame” means “controlling a second frame synchronizing process that achieves bit-precision frame synchronization by recognizing and evaluating the training sequence within the synchronization burst.”

**7. “2.1 Conducting a frame synchronization with fine frequency synchronization”**

The parties jointly seek a construction of this phrase from Claim One of the ’216 Patent. *See* ’216 Patent at 9:37-38. It comes from Step 2 of the method, normal synchronization, substep 2.1, “frame synchronization with fine synchronization.” *Id.*; *see also id.* at 7:45-47. HTC suggests it means “[c]ontrolling a process that, by evaluating each normal burst, produces both frame and frequency shift synchronization parameters for that burst to bring the frame timing and frequency of the mobile station in step with the base station.” Chart at 2-3. IPCom prefers “[c]ontrolling a

process to monitor and maintain the mobile station and base station's frame timing in step while having the mobile station and base station's frequency in step with a desired operating accuracy, such as by producing frame shift and frequency correction parameters." *Id.*

The patent discloses that "continuous monitoring and maintaining of the frame and frequency synchronism by the evaluation of training [sic] sequence [sic] within the normal burst 14" assures "an error free decoding." '216 Patent at 7:49-52 (referring to Fig. 1). The "encrypted bits . . . serve to identify the training sequences." *Id.* at 7:53-54. "[A]ny frame shift is first determined" because the "value produced (timing pulse shift) is a necessary parameter in order to mark the pattern sequence with bit-accuracy within the data packet or sentence." *Id.* at 7:54-58. Because IPCom's proposal follows the specification more closely, the Court construes "(2.1) conducting a frame synchronization with fine frequency synchronization" to mean "controlling a process to monitor and maintain the frame timing in step between the mobile station and base station while also maintaining the frequency within a desired operating accuracy between the mobile station and the base station, by producing frame shift and frequency correction parameters."<sup>12</sup>

#### **8. "(2.2) Carrying out preliminary data signal processing"**

The phrase in question comes from Step 2 of the method, normal synchronization, and, in context, reads:

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<sup>12</sup> The Court does not adopt IPCom's proposal to use the phrase "such as," *i.e.* "such as by producing frame shift and frequency correction parameters." Chart at 2-3. As HTC pointed out at the *Markman* hearing, "when you put "such as" in there it doesn't have to be practiced so it doesn't mean anything. In order for it to be a limitation, in order for it to mean something for the claim you have to remove the "such as" . . ." Tr. 2/16/10 at 128 (HTC). This is distinguishable from the construction of "(1.1) [c]onducting a course frequency synchronization," above, where "such as" is appropriate because "tuning" may not be needed if the frequency signal has sufficient precision already.

[M]aintaining said normal synchronization comprises the substeps of:

(2.1) conducting a framed synchronization with fine frequency synchronization, and

(2.2) carrying out preliminary data signal processing.

'216 Patent at 9:34-40. Further, the specification discloses:

A frequency correction value produced by the central control unit 31 from the actual (current) frequency measurement is supplied to the synchronization processor 28. By means of this preprocessing of the data signal any impairment of error-free decoding in the case of frequency shifts exceeding 200 Hz is completely eliminated. Such frequency shifts are to be expected from the Doppler effect and from oscillator drift.

*Id.* at 7:63-8:2 (referring to Fig. 2). “The central control unit 31 prescribes to the synchronization processor 28 which synchronization step is to be activated. The control unit reads out the responses of the synchronization processor, interprets them and supplies the setting values to the corresponding components, as for example a correction for a local oscillator.” *Id.* at 5:16-21 (referring to Fig. 2).

HTC assails the lack of any real description of what “[c]arrying out preliminary data signal processing” means and where it is performed. HTC contends:

The specification merely discloses that “this preprocessing” results in “[a] frequency correction value produced by the central control unit 31.” [’216 Patent at 7:63-8:2]. The specification further discloses that, as a result of this *unknown* “processing,” the frequency correction value “completely eliminates . . . any impairment of error-free decoding in the case of frequency shifts exceeding 200 Hz.” [*Id.*] Thus, the ’216 patent only describes the goal of substep (2.2) — an ambitious goal at that. But neither the ’216 patent nor the claims specifies [sic] what acts implement that goal. . . . [T]he acts claimed by substep (2.2) are impossible to discern.

HTC’s Reply [Dkt. # 156] at 24. In the alternative, HTC proposed that the phrase be construed as “preprocessing a data signal to generate a frequency correction value to be used in further signal



processing of that data signal.” Chart at 3. IPCom proposes that the phrase means, “preprocessing data signals to account for frequency shifts during communication.” *Id.*

The Court disagrees with HTC’s contention that the phrase is incapable of construction. As the specification discloses, preliminary data signal processing is performed by the central control unit 31 when it analyzes the actual, or real-time, frequency signal received from the base station and produces a frequency correction value to the synchronization processor 28. Using that frequency correction value, the synchronization processor 28 can then perform whichever synchronization step the central control unit 31 orders. Because the central control unit 31 supplies a frequency correction value for each step of synchronization, frequency shifts do not impair the cell phone’s ability to decode the signals it receives.

The Court construes “(2.2) carrying out preliminary data signal processing” to mean “measuring the actual frequency from the base station and calculating a frequency correction value for use by the synchronization unit.”

**9. “(3.2) Conducting a fine frame synchronization with fine frequency synchronization”**

This phrase is the second step of extended synchronization, which “provide[s] synchronization of a mobile radiotelephone to neighboring cells of a cellular mobile radio communication system as a cell boundary is approached and crossed.” ’216 Patent at 8:5-7. By this process, “it is basically assured that upon leaving one radio cell the base station of that cell will not interfere with the continuation of the connection.” *Id.* at 8:15-17. In other words, this process ensures that the on-going telephone call will not be dropped because the user is changing cell towers. Extended synchronization is provided as a “background procedure (process having lower priority) which produces the necessary synchronization parameters (frame and frequency shift) for the nearby

cell in contemplation of a crossing from one cell to another.” *Id.* at 8:21-27.

In particular, the synchronization procedure during normal operation performs a coarse frame synchronization (frequency burst beginning)<sup>13</sup> and a fine frame synchronization with fine frequency synchronization in which the synchronization burst 13 is used for the frame and frequency synchronization.

The relevant algorithms for the above steps correspond essentially to those designated 1.2, 1.3, 1.4 and 2.1 above, although more bits are involved in the extended training sequences.

*Id.* at 8:27-37.

HTC construes substep (3.2) to mean, “controlling a process that, by evaluating each of a neighboring cell’s synchronization bursts, produces both frame and frequency shift synchronization parameters for that burst in contemplation of crossing a cell boundary.” Chart at 3. IPCOM, in contrast, asserts that the limitation means “controlling a process to bring the mobile station and neighboring base station’s frame timing in step within a desired operating accuracy while bringing the mobile station and neighboring base station’s frequency in step within a desired operating accuracy, such as by producing frame shift and frequency correction parameters.” *Id.*

The specification for the ’216 Patent provides, “The relevant algorithms for [extended synchronization] correspond essentially to those designated 1.2, 1.3, 1.4, and 2.1 above, although more bits are involved in the extended training sequences.” ’216 Patent at 8:34-37. Since the two steps for extended synchronization “correspond essentially” to steps 1.2, 1.3, 1.4, and 2.1, the construction of the terms should also correspond. Accordingly, the Court construes “(3.2) conducting a fine frame synchronization with fine frequency synchronization” to mean “controlling a process to monitor and maintain the frame timing in step between the mobile station and

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<sup>13</sup> A “coarse frame synchronization” entails determining the beginning of a frequency burst.

neighboring base station while also maintaining the frequency within a desired operating accuracy between the mobile station and the neighboring base station, by producing frame shift and frequency correction parameters when crossing a cell boundary.”

### **B. The '751 Patent**

The '751 Patent is titled, “Method of Allocating Access Rights to a Telecommunications Channel to Subscriber Stations of a Telecommunications Network and Subscriber Station.” “The invention is based on a method of controlling or administering access to a telecommunications channel for a subscriber station.” '751 Patent at 1:9-11. The method disclosed by the '751 Patent involves sending information signals containing access authorization data from a base station to a subscribed cell phone; upon receipt by the cell phone, its “evaluation unit” determines whether the access authorization data include an access threshold value; if so, the access threshold value is compared with a random number or a pseudo-random number; access to the telecommunications channel is granted “as a function on [sic] the outcome of comparison, preferably on the condition that the random number or pseudo-random number is greater than or equal to the access threshold value.” *Id.* at 1:23-35. If the comparison fails, access to the telecommunications channel is denied and the subscribed cell phone must await new information signals.

The terms of Claim Thirteen of the '751 Patent are the only ones in contention here.

Claim Thirteen reads:

A subscriber station to which an [sic] access to at least one telecommunication channel usable by a plurality of subscriber stations in common can be granted, comprising means for receiving information signals; an evaluation unit (60) for asking when information signals with access authorization data means (65) as authorization data (45, 50, 55) are received, whether the access

authorization data (45, 50, 55) include an access threshold value (S) for comparison of the access threshold value (S) with a random number or a pseudo-random number (R), and for ascertaining, as a function of an outcome of a comparison whether an access of the at least one subscriber station (5, 10, 15, 20) to the at least one telecommunications channel is enabled.

*Id.* at 14:19-32. In plainer English, the '751 Patent discloses a cell phone with potential access to a telecommunications channel to which other cell phones have access; the cell phone receives information signals from the base station; the cell phone has an evaluation unit which asks whether access authorization data received by the cell phone contain an access threshold value to compare with a random number, and then ascertains, based on the comparison, whether access is enabled.

1. **“Means for receiving information signals”**

Both parties agree that this term is a “means-plus-function” term subject to the requirements of paragraph 6 of 35 U.S.C. § 112. That provision of the Patent Act states:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, ¶6. “Determining whether a claim is definite requires an analysis of whether one skilled in the art would understand the bounds of the claim when read in the light of the specification. If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more.” *Personalized Media Communications, LLC v. Int’l Trade Comm’n*, 161 F.3d 696, 705 (Fed. Cir. 1998). In other words, when a claim is expressed in means-plus-function language and it does not recite definite structure in support of its function, the claim must be construed to cover that which is described in the specification and equivalents. *Medtronic, Inc. v. Advanced Cardiovascular*, 248 F.3d 1303, 1311 (Fed. Cir. 2001).

“The first step in construing such a limitation is a determination of the function of the means-plus-function limitation. The next step is to determine the corresponding structure described in the specification and equivalents thereof.” *Id.* (citations omitted); *accord Lockheed Martin Corp. v. Space Systems/Loral, Inc.*, 324 F.3d 1308, 1318 (Fed. Cir. 2003). If no corresponding structure is described in the specification or equivalent and one skilled in the art would not understand the bounds of the claim by reading the specification, a claim that recites a means-plus-function element without setting forth a structure is indefinite. *See Halliburton*, 514 F.3d at 1249; *Personalized Media*, 161 F.3d at 705.

HTC describes the specified function as “[d]igitizing a received signal (25) and parsing out access authorization data (45, 50, 55) to pass to the evaluation unit (60).” Chart at 3. HTC argues, however, that the structure remains improperly indefinite because none is disclosed in the specification, contrary to the requirements of paragraph 6.<sup>14</sup> IPCom contends that the function at issue is “receiving information signals.” Chart at 3; *see Medtronic*, 248 F.3d at 1311 (the function of “means for connecting adjacent elements together” is “connecting adjacent elements together”). IPCom asserts that the corresponding structure is a transceiver or its equivalents. The specification backs up IPCom’s assertion. “The first<sup>15</sup> mobile station 5, by means of its transceiver unit 65, receives the information signals . . .” ’751 Patent at 5:16-17.

The Court agrees with IPCom. “Means for receiving information signals” has a function (receiving information signals) and a structure (a transceiver or its equivalents) and thus is

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<sup>14</sup> HTC also contends that this claim fails to meet the definiteness requirement of paragraph two of 35 U.S.C. § 112.

<sup>15</sup> The specification explains that it only describes the first mobile station, but that the second, third, and fourth have the same construction. ’751 Patent at 5:11-16.

not indefinite.

## 2. “Evaluation unit”/ “Evaluation unit for asking when . . . , whether . . . .”

IPCom neatly says that the ’751 Patent’s evaluation unit is simply a microprocessor. Chart at 4. Therefore, it does not agree with HTC that this claim limitation is written as a means-plus-function element subject to paragraph 6 of 35 U.S.C. § 112. HTC argues that the function is ambiguous because it is subject to multiple interpretations due to grammatical errors, and its structure is indefinite for failure to disclose such structure in the specification.

Again, the Court concludes that IPCom presents the much more compelling and logical construction, given the Claim, the specification and what would be known to one skilled in the art. “[A] claim term that does not use ‘means’ will trigger the rebuttable presumption that § 112 ¶ 6 does not apply . . . the presumption flowing from the absence of the term ‘means’ is a strong one that is not readily overcome.” *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1358 (Fed. Cir. 2004).

Here, the claim does not use the term “means” and HTC has not rebutted the presumption that it is not a means-plus-function term. Moreover, even if it were such a term, the specification describes the corresponding structure. Figure 2 of the ’751 Patent shows a mobile station (5) with a transceiver (65), and evaluation unit (60), antenna (70), and subscriber identity module (SIM) card (75). ’751 Patent, Fig. 2. The evaluation unit connects to the transceiver and accesses the SIM card. *Id.* at 5:4-10 (“The transceiver unit 65 is also connected to an evaluation unit 60, which accesses an access authorization card 75, such as a SIM card.”) It has memory, *id.* at 6:60, and performs the steps set forth in Figures 4a-4c of the Patent, determining for example whether certain data is in the received signals, obtaining a value from the SIM card or memory, drawing a

random number, and comparing values. *Id.* at 8:63-10:10. This description of the evaluation unit and its interaction with other components reveals that it is a microprocessor. Thus, the Court construes “evaluation unit” to mean a “microprocessor.”

**3. “Asking when information signals with access authorization data means (65) as authorization data (45, 50, 55) are received . . . .”**

HTC contends that the phrase “an evaluation unit (60) for *asking when* information signals with access authorization data means (65) as authorization data (45, 50, 55) are received, *whether* the access authorization data (45,50,55) include an access threshold value (S)” is insolubly ambiguous and fails to comply with paragraph 2 of 35 U.S.C. § 112. Chart at 4; *see* ’751 Patent at 14:23-27 (emphasis added). Section 112, paragraph 2, provides that the specification “shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.” 35 U.S.C. § 112, ¶ 2. IPCom proposes that the limitation be construed to mean “the microprocessor is programmed to examine, after information signals having access authorization data have been received by the transceiver . . . .” Chart at 4.

While this claim limitation is clumsy, it can be construed. “Access authorization data means,” is “a means to analyze access authorization data” to determine whether such data include an access threshold value for comparison with a random or pseudo-random number. In Figure 2 of the ’751 Patent, 65 indicates a transceiver, and 60 is the evaluation unit or microprocessor. With this understanding, “an evaluation unit (60) for asking when information signals with access authorization data means (65) as authorization data (45, 50, 55) are received, whether the access authorization data (45, 50, 55) include an access threshold value (S)” means “a microprocessor for asking, when information signals with access authorization data are received by the transceiver, whether the access authorization data include an access threshold value . . . .”

**4. “Asking . . . whether access authorization data (45, 50, 55) include an access threshold value (S) for comparison of the access threshold value (S) with a random or pseudo-random number (R)”**

Within the context of the '751 Patent, HTC says that this clause is in plain English and needs no construction from the Court. IPCOM suggests it means that “the microprocessor is programmed to examine . . . the access authorization data to identify an access threshold value for comparison of the access threshold value with a random (or pseudo-random) number.” Chart at 4.

Since the inventors indicated that the microprocessor asks “whether” the data include an access threshold value, it must be anticipated that some access authorization data would not include an access threshold value, or at least not one that the microprocessor could recognize. Therefore, the Court rejects IPCOM’s use of the word “identify” because that verb presumes that there will always be an access threshold value subject to identification by the microprocessor. The remainder of IPCOM’s proposed construction unnecessarily restates the plain meaning of the limitation.

The Court finds that this phrase is construed according to its plain and ordinary meaning, and no further definition is required. “Asking . . . whether access authorization data include an access threshold value for comparison of the access threshold value with a random or pseudo-random number” means just what it says.

**5. “Ascertaining as a function of an outcome of a comparison whether an access of the at least one subscriber station (5, 10, 15, 20) to the at least one telecommunications channel is enabled”**

HTC contends that this clause should be construed mostly according to its plain meaning as “comparing (S) to (R) to determine whether access to the common telecommunications channel is allowed, or whether the subscriber station (cell phone) must wait for and check the next



transmission of access authorization value.” Chart at 5. IPCom asserts that it means, “the microprocessor is programmed . . . to determine, based on an outcome of a comparison of the access threshold value and the random (or pseudo-random) number, whether to authorize the particular subscriber station access rights to the common telecommunications channel.” *Id.*

IPCom contends that HTC’s construction improperly imports the concept of waiting for and checking the next transmission. But this concept is fully supported by the specification, which states, “[a]fter the end of the program, the mobile station informs the user that the access to the r30 was not possible, and waits for further inputs from the user. Alternatively, by means of a waiting loop embodied in the mobile station, the program is executed over again, so there is a wait for the next information signal with the next bit pattern, and the information signal is then evaluated . . . .” ’751 Patent at 10:3-10; *see also* HTC’s Resp. [Dkt. # 151], Ex. D. (Dep. of Martin Hans) at 175-76 (inventor testified that once the mobile station attempts to gain access and has been denied authorization, it will not immediately seek re-access).

The Court concludes that HTC’s construction is the better one, as it more closely follows the claim terms and the specification. The phrase “ascertaining as a function of an outcome of a comparison whether an access of the at least one subscriber station (5, 10, 15, 20) to the at least one telecommunication channel is enabled” is construed to mean “comparing an access threshold value to a random or pseudo-random number to determine whether access to the common telecommunications channel is allowed or whether the subscriber station (cell phone) must wait for and check the next transmission.”

#### **6. “Access authorization data”**

IPCom defines “access authorization data” as “access rights information that must

at least include either (1) information indicating whether access is to be authorized based on an access threshold value or access class information, and at least one of an access threshold value or access class information or (2) access threshold value and access class information.” Chart at 5. HTC asserts that this phrase means “bit patterns (45, 50, 55) which may include an access threshold value or alternatively different information from which the mobile station can determine whether it has access rights or must wait until access authorization data are transmitted again.” *Id.*

The specification to the ’751 Patent indicates that access to the RACH (random access channel), by which a plurality of mobile stations/cell phones communicates with a single base station/cell tower, can be restricted to “certain user classes” or each mobile station can “be provided with its own user class.” ’751 Patent at 4:14, 21. “User classes with different numbers of mobile stations can also be provided. . . . The network operator can now enable access to the RACH by the individual mobile stations as a function of their membership in one of the . . . user classes.” *Id.* at 4:22-27. “By means of information signals,” the network operator “informs the various mobile stations which rights for transmitting on the RACH are granted to the applicable mobile station.” *Id.* at 4:32-36 (numerical references to Fig. 1 omitted).

At predetermined times, the base station transmits information signals to the first mobile station [as an example for all the mobile stations]. The information signals can be transmitted, as shown in FIG. 1, via a signaling channel 25, hereinafter embodied as an example as a broadcast control channel or BCCH. . . .

Since the bit pattern sent from the base station is sent not only to the first mobile station 5 but also to all the other mobile stations 10, 15, 20, and likewise over the signaling channel 25, which as described is embodied as a BCCH, that is, a point-to-multiple-point channel, so

that all the mobile stations receive the same ink<sup>16</sup> [*i.e.* information] at the same time, the bit pattern includes the access rights granted to each user class, 35, 40, for the sake of informing the mobile stations of the RACH access rights they have been allowed.

*Id.* at 4:41-45, 59-67. A random distribution of access authorization occurs because the base station also sends an access threshold value S. The access threshold value S is “delivered” to the evaluation unit in the mobile station. *Id.* at 5:19. Then, the evaluation unit “draws a random or pseudo-random number R and asks whether the random or pseudo-random number R is at least as great as the access threshold value S.” *Id.* at 5:21-24. “Only then is an [sic] access to the r30 [RACH] allowed.” *Id.* at 5:24-25.

However, some classes of users may be enabled to access the RACH even when, “on the basis of the random distribution by means of the access threshold value [such users] are not authorized access.” *Id.* at 1:56-58. “For instance, subscriber stations of emergency services, such as the police or fire department are assigned to a predetermined user class of this kind and can then access the telecommunications channel with priority by means of appropriate access threshold value ink, independently of the random distribution.” *Id.* at 1:59-64.

From these descriptions, it is evident that the term “access authorization data” represents two different kinds of information sent by a base station: access rights granted to each user class *and* an access threshold value *unless* the subscriber is, for instance, an emergency service in which event its user class has priority and its access threshold value is not dependent on random distribution. Notably, even emergency services must have both a user class and an access threshold

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<sup>16</sup> The word “ink” is a typographical error in the ’751 Patent, a place holder accidentally left behind by the person who translated the Patent from German into English. Tr. 1/26/10 at 115 (IPCom). “Ink” represents the English word “information.” *Id.*

value to gain access to the network.

HTC thus proposes that access authorization data is confined to three particular bit patterns described as preferred embodiments in the specification. There is nothing in the specification, however, that suggests that authorization data is limited to these three specific bit patterns. To the contrary, the specification expressly states that these three bit patterns are set forth as mere examples:

The numbers of bits used for the access threshold value S, the access channel [information] Z0, Z1, Z2, Z3, the priority threshold value P and the telecommunications service [information] D0, D1, D2 are understood to be merely examples, and they can also be increased, for example for more extensive signaling, and reduced, for the sake of bandwidth reduction. In this case, the total length of the bit patterns 45, 50, 55 may change as well. Individual components of the [information] can optionally also be omitted entirely.

'751 Patent at 8:54-62. Further, HTC's proposal that the bit patterns "may include an access threshold value *or alternatively different information*," Chart at 5, fails to appreciate that access authorization data include both access threshold values and access rights granted to each user class. Similarly, IPCom's proposed construction would present an either/or scenario: "information indicating whether access is to be authorized based on an access threshold value *or* access class information . . . ," *id.*, which is not consistent with the specification.

The Court construes "access authorization data" to mean "access rights granted to each user class and an access threshold value."

#### **7. "Access threshold value"**

HTC suggests "a numerical value optionally included in access authorization data that is transmitted at periodic intervals for controlling network access. If a mobile phone determines that the numerical value was transmitted, it will directly compare the value with a random/pseudo-

random numerical value generated within the mobile phone to determine whether it can gain access rights or must wait until access authorization data are transmitted again.” Chart at 5-6. ICom offers “a value used to determine whether the subscriber station is authorized to access the common telecommunications channel.” *Id.* at 5.

Part of HTC’s definition states that “[i]f a mobile phone determines that the numerical value was transmitted, it will directly compare the value with a random/pseudo-random numerical value generated within the mobile phone to determine whether it can gain access rights or must wait until access authorization data are transmitted again.” There is no need to import this limitation again here. It can be found in the “ascertaining” limitation discussed above. *See* Section III.B.5 of this Opinion. The Court adopts ICom’s straightforward definition: “access threshold value” is “a value used to determine whether the subscriber station is authorized to access the common telecommunications channel.”

### **C. The ’830 Patent**

The ’830 Patent is titled Method for Handover, Mobile Station for Handover and Base Station for Handover. It describes a method for handing over a link between a cell phone and a network from a first base station to a second base station of the same network. At the time of the ’830 Patent, handover methods “require[d] that the backbone network be able to support the handover. However, in the future this cannot be taken for granted, as a number of different backbone networks may be connected. . . . [T]he present invention has the advantage that handover is also possible with networks in which communication between individual base stations is limited.” ’830 Patent at 1:57-2:3.

The inventors defined some of their terms in the specification:

Soft handover: Handing off without the loss of individual data.

Hard handover: Handing off in which individual data are lost.

Forward handover: The mobile station seeks its target base station itself and registers there directly.

Backward handover: The mobile station registers HO [handover]<sup>17</sup> at the old base station, which then performs the search for a suitable new base station.

Non-network supported: (forward HO only) When registering at the new base station, the mobile station itself is responsible for ensuring that all link parameter settings and link settings are modified.

Network supported: The network ensures that the two base stations involved can communicate directly. In this case, the old base station sends the new base station all relevant information regarding the mobile station and its links.

Mobile-station-initiated handover: The mobile station determines that an HO is required and initiates this process.

Base-station-initiated handover (forced HO): The base station wants to free up capacity or it determines that the radio link is deteriorating and informs the MS [mobile station]<sup>18</sup> that it is to carry out an HO.

*Id.* at 1:34-57.

The '830 Patent proposed “[n]ew methods that solve some of the existing problems relating to forward HO.” *Id.* at 2:24-25. “The first method allows network-supported and non-network-supported handover. The second method allows base-station-initiated and forward HO to be combined.” *Id.* at 2:25-28. “The first part of the present invention allows a type of handover to be implemented that can be performed without network support” or with network support if the

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<sup>17</sup> The specification abbreviates “handover” as “HO.” ’830 Patent at 1:27.

<sup>18</sup> The specification abbreviates “mobile station” as “MS.” ’830 Patent at 1:20.

network is capable of providing support, which the network indicates by sending an additional signal from the base station. *Id.* at 2:33-36. “The second part relates to a method in which a forced forward HO is performed for which it is much less likely that the [mobile station] will have to clear its link.” *Id.* at 2:39-41.

Claim One claims:

A mobile station for use with a network including a first base station and a second base station that achieves a handover from the first base station to the second base station by:

storing link data for a link in a first base station,

holding in reserve for the link resources of the first base station, and

when the link is to be handed over to the second base station:

initially maintaining a storage of the link data in the first base station,

initially causing the resources of the first base station to remain held in reserve, and

at a later timepoint determined by a fixed period of time predefined at a beginning of the handover, deleting the link data from the first base station and freeing up the resources of the first base station, the mobile station comprising:

an arrangement for reactivating the link with the first base station if the handover is unsuccessful.

'830 Patent at 8:12-32. Claim Eighteen is almost identical to Claim One.<sup>19</sup>

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<sup>19</sup> Claim Eighteen, '830 Patent at 10:61-12:6, is identical to Claim One, *id.* at 8:12-32, except that the phrase in Claim One that states, “at a later timepoint determined *by a fixed period of time predefined at a beginning of the handover*, deleting the link data from the first base station and freeing up the resources of the first base station . . . .” is modified in Claim Eighteen to state, “at a later timepoint determined *based on a message from one of the mobile station and the second base station regarding a successful completion of handing over the link*, deleting the link data from the first base station and freeing up the resources of the first base station . . . .” *Compare* '830 Patent at 8:25-28 (Claim One) with *id.* at 11:7-12:4 (Claim Eight).

### 1. “Arrangement for reactivating” (Claims 1 and 18)

The parties are in agreement that the term “arrangement for reactivating” is a means-plus-function term that is subject to the requirements of paragraph 6 of 35 U.S.C. § 112, which requires each described function to also have a structure. The function of “arrangement for reactivating” is “to recommence communications with the first base station over the traffic channel that already was allocated and used prior to the handover attempt” (as asserted by HTC) or, more briefly, “to reactivate the link with the first base station if the handover is unsuccessful” (as described by ICom). As explained previously, when a claim is expressed in means-plus-function language and it does not recite a definite structure in support of its function, the claim must be construed to cover that which is described in the specification and equivalents, *Medtronic*, 248 F.3d at 1311, and if one skilled in the art could not determine the bounds of the claim by reading the specification and equivalents, the claim is indefinite. *See Halliburton*, 514 F.3d at 1249.

HTC asserts that this claim is indefinite under paragraphs two and six of § 112. “[C]lear and convincing evidence that a skilled artisan could not discern the boundaries of the claim based on the claim language, the specification, and the prosecution history, as well as [the accused infringer’s] knowledge of the relevant art area” is required to find a claim invalid on indefiniteness grounds. *Halliburton*, 514 F.3d at 1249-50. HTC fails to meet this standard.

An analysis of whether one skilled in the art would understand the bounds of the claim when read in the light of the specification is necessary to determine whether a claim is definite. *See Personalized Media*, 161 F.3d at 705. “If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more.” *Id.* Thus, the question is whether the “arrangement” is either identified or obvious to one skilled in the art.



In considering whether a claim term recites sufficient structure to avoid application of section 112 ¶ 6, we have not required the claim term to denote a specific structure. Instead, we have held that it is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function.

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Thus, while it is true that the term “connector assembly” does not bring to mind a particular structure, that point is not dispositive. What is important is whether the term is one that is understood to describe structure, as opposed to a term that is simply a nonce word or a verbal construct that is not recognized as the name of structure and is simply a substitute for the term “means for.”

*Lighting World*, 382 F.3d at 1359-60.

IPCom says that the structure represented by the “arrangement for reactivating” is “a processor connected to a transceiver and programmed to formulate and send messages to reactivate the link, if the handover is unsuccessful.” Chart at 6 (citing ’830 Patent at 6:30-44; 7:48-52; 7:65-83; Fig. 1 & Fig. 5 (steps 406-410)). IPCom argues that one skilled in the art would understand what is “plainly understood to be present in a mobile station” and that “the descriptions in the patent of receiving messages over a radio link (*see, e.g., . . .* Fig. 1; 1:20-21), interpreting the messages (Figs. 2-6; 6:34-36), making decisions based on the messages (Fig. 5; 6:37-38), formulating messages based on the decisions (Fig. 5; 6:37-38), and sending messages back over a radio link (Fig. 5, ref. 408; 6:37)” would indicate to one skilled in the art the required transceiver and properly programmed processor. IPCom’s Resp. [Dkt. # 150] at 49. HTC’s expert, Dr. Christopher Rose, conceded this point:

Indeed, Dr. Rose’s concessions that a mobile station “has to be able to talk to the network so you’ve got to have a transceiver” and would be understood to have “some sort of processor. Something has to

handle the data” ends this dispute as they establish exactly the same point IPCom made in opening – skilled persons would understand the specification to disclose sufficient structure. (Ex. 160B at 15:25-16:14.)<sup>20</sup> Dr. Rose’s concessions are devastating to HTC’s position.

*Id.*

The Court agrees. The word “arrangement” by itself has no common or special meaning that one skilled in the art of telephony would know meant a processor and transceiver. But in the context of the ’830 Patent and the art, the Court has no doubt that one skilled in the art would immediately deduce that a processor with a transceiver was the structure indicated by the term. The Court construes “arrangement for reactivating” in Claims 1 and 18 as meaning “a processor connected to a transceiver and programmed to formulate and send messages to reactivate the link, if the handover is unsuccessful.”

**2. “Mobile station . . . that achieves a handover by: storing . . . the mobile station comprising” (Claims 1 and 18)**

Claims One and Eighteen recite a “mobile station for use with a network . . . that achieves a handover from the first base station to the second base station by: [performing six steps, including storing link data, holding link resources in reserve, and later deleting the link data], the mobile station comprising: an arrangement for reactivating the link with the first base station if the handover is unsuccessful.” ’830 Patent at 8:12-25 (Claim One); *id.* at 10:61-12:6 (Claim Eighteen). HTC contends that these Claims are indefinite under paragraph 2 of 35 U.S.C. § 112 — that they improperly denote both an apparatus (the mobile station) and six method steps (storing, holding, and later deleting). Paragraph 2 requires that the “specification shall conclude with one or more claims

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<sup>20</sup> The relevant portion of the deposition of Dr. Rose was filed with IPCom’s Response [Dkt. # 150], as attachment 21.

particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.” 35 U.S.C. § 112, ¶ 2. Further, § 2173.05(p)(II) of the Manual of Patent Examining Procedure provides that “a single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C. § 112, second paragraph.” MPEP § 2173.05(p)(II) (8th ed., Aug. 2001, revised July 2010).

Again, a claim is indefinite only if the claim is insolubly ambiguous and no narrowing construction can be applied, *Honeywell*, 341 F.3d at 1338-39, and only when a person of ordinary skill in the art could not determine the metes and bounds of the claim. *Halliburton*, 514 F.3d at 1249. Clear and convincing evidence is required to find a claim invalid on indefiniteness grounds. *Id.* at 1249-50. HTC has met this burden.

A single patent may include claims directed to one or more of the classes of patentable subject matter, but no single claim may cover more than one class of subject matter. *Microprocessor Enhancement Corp. v. Texas Instruments Inc.*, 520 F.3d 1367, 1374 (Fed. Cir. 2008). Thus, a claim covering both an apparatus and a method of using that apparatus is invalid for indefiniteness. *IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005). In *IPXL*, the Federal Circuit examined a patent claim stating, “[t]he system of claim 2 [ ] wherein the predicted transaction information comprises both a transaction type and transaction parameters associated with that transaction type, and the user uses the input means to either change the predicted transaction information or accept the displayed transaction type and transaction parameters.” *IPXL*, 430 F.3d at 1384 (emphasis in original). The court held that the claim was invalid for indefiniteness because it recited a system (“the system of claim 2”) and a method step (“the user uses the input means”). The court deemed this language indefinite because it resulted in confusion as to whether

infringement would occur when someone *created* such a “system” or when a user actually *used* such “input means.” *Id.* “[A]s a result of the combination of two separate statutory classes of invention, a manufacturer or seller of the claimed apparatus would not know from the claim whether it might also be liable for contributory infringement because a buyer or user of the apparatus later performs the claimed method of using the apparatus.” *Id.* at 1384. The *IPXL* court held that the patent claim was invalid under section 112, paragraph 2, because it recited both a system and the method for using that system and thus it did not apprise a person of ordinary skill in the art of its scope. *Id.*; accord *Ariba, Inc. v. Emptoris, Inc.*, No. 07-90, 2008 WL 3482521, at \*6-7 (E.D. Tex. Aug. 7, 2008) (finding a patent claim indefinite and thus invalid because it covered an apparatus (a bidding device) as well as a method step (“wherein a bid submitted by the potential seller operating the bidding device *is compared to* the corresponding bid ceiling”) (emphasis added)); see also *Rembrandt Data Techs., LP v. AOL, LLC*, 673 F. Supp. 2d 420, 426 n.3 (E.D. Va. 2009) (parties agreed that an apparatus claim that included a method step was drafted in error).

Even though no single patent claim may cover more than one class of subject matter, a method claim is not necessarily indefinite when it uses structural language and an apparatus claim is not necessarily indefinite when it uses functional language. *Microprocessor*, 520 F.3d at 1374-75. For example, in *Microprocessor* the court found an apparatus claim to be valid even though it contained some functional language. The claim at issue recited, in part, “a pipelined processor for executing instructions comprising: . . . fetching means for fetching source operands specified by said operand specifiers; operating means for performing the operation specified by said opcode; . . . .” The court held that the claim was “clearly limited to a pipelined processor possessing the recited structure and capable of performing the recited functions” and was thus not indefinite under *IPXL*.

*Id.* at 1375.

IPCom argues that *Microprocessor* applies, that the method steps in Claims One and Eighteen are mere functional language used to describe the apparatus itself. IPCom also relies on *Intellect Wireless Inc. v. Kyocera Comm'ns, Inc.*, No 08C1350, 2009 WL 3259996, at \*5 (N.D. Ill. Oct. 8, 2009), where the court rejected an allegation of indefiniteness. The patents at issue in *Intellect Wireless* claimed a “wireless portable communications device for use by a message recipient for receiving a picture from a message originator” including a “receiver” that is “operably coupled to receive a message from a message center over a wireless connection.” *Id.* at \*4. The claims described the message the receiver was capable of receiving as “the message including a non-facsimile picture supplied by the message originator and a caller ID automatically provided by a communication network that identifies the telephone number of the message originator, *the message originator sending the caller ID with the picture to the message center.*” *Id.* (emphasis in original). The defendant contended that the italicized phrase recited a method step in an apparatus claim and was indefinite. The court rejected this argument, explaining that the alleged method language (1) did not directly relate to the functionality of the claimed apparatus and (2) described an act by a third party, the message originator, in sending a message to a message center. *Id.* at \*5.

HTC relies on *IPXL* and *Ariba* and argues that Claims One and Eighteen of the '830 Patent are indefinite since they purport to cover an apparatus but also recite a list of steps for achieving handover from one base station to another. HTC's Opening Br. [Dkt. # 134] at 16. “The claim language does not clearly demarcate the invention, and a mobile station manufacturer is left to wonder whether infringement occurs when the mobile station is manufactured or when the mobile station performs the steps recited . . .” *Id.*

HTC has the better argument. The patent claim in *Microprocessor* was limited to a pipelined processor described as having certain structure to enable it to perform certain tasks, such as “fetching means for fetching source operands specified by said operand specifiers” and “operating means for performing the operation specified by said opcode.” The functional language of the claim was intended to define and limit the recited structure. In contrast, Claims One and Eighteen of the ’830 Patent recite an apparatus, a “mobile station,” that achieves a handover from the first base station to the second base station by performing six method steps such as storing link data, holding link resources in reserve, and later deleting the link data. The claim describes the apparatus as actually performing the method steps; it does not merely define the apparatus as a structure has certain means enabling it to perform certain steps. The claim in the *Intellect Wireless* case is also distinguishable. There, the alleged method language did not directly relate to the functionality of the claimed apparatus at all. The method language instead described an act by a third party.

The prosecution history supports the assertion that Claims One and Eighteen are apparatus claims containing method steps. In response to the PTO Examiner’s question regarding how the ’830 Patent could be distinguished from prior art, the inventors relied on the method steps, the claimed process, as follows, “[T]he Examiner once again cites [the prior art reference] for teaching ‘a handover from the first base station to the second base station.’ However, the cited section of [the prior art reference] clearly describes a process that is completely different from *the claimed process*: [The prior art reference] describes a so-called ‘semi-hard handoff,’ which occurs within one and the same base station.” HTC’s Reply [Dkt. # 156], Ex. 1 (Oblon Decl.), Ex. C (Jan. 30, 2004 Resp. to Office Action at 8 (emphasis added)).

Claims One and Eighteen recite an apparatus and six method steps that the apparatus

performs, directly relating to the functioning of the apparatus and not relating to any act performed by a third party. In sum, Claims One and Eighteen improperly claim both an apparatus and method steps and thus are indefinite and invalid.

### **3. “Link data” (Claims 1 and 18)**

HTC asks that this term be construed and suggests that it means “the data required for a link that both the first base station and the mobile station are capable of sending to a second base station to achieve a handover.” Chart at 6. IPCOM offers “data describing the identity and features of the mobile station and the call in which the mobile station is engaged.” *Id.*

Dr. Rose, HTC’s expert, testified that link data is a “generic term” that would “describe a number of different types of information, including . . . a session link, a fixed link, a data rate or information regarding channelization, timing, timing offset, frequencies, etc.” IPCOM’s Resp. [Dkt. # 150] at 52-53 (citing Rose Decl. ¶ 23). It is critical to transfer “connection information” as part of a handover. *Id.* (Rose Decl. ¶ 14). HTC errs by proffering a construction that defines the term by using the same term — “data required for a link” — and then focusing on its use, not its meaning. As a “generic term,” “link data” covers many kinds of data necessary to maintain a call and necessary to a successful handover. “Link data” is construed to mean “data describing the identity and features of the mobile station and the call in which the mobile station is engaged.”

### **4. “Holding in reserve . . . ; Initially causing the resources of the first base station to remain held” (Claims 1 and 18)**

Claim One states that what is claimed is a “mobile station for use with a network . . . that achieves a handover from the first base station to the second base station by: storing link data . . . , holding in reserve for the link resources of the first base station, and when the link is to be handed over to the second base station: . . . initially causing the resources of the first base station

to remain held in reserve . . . .” ’830 Patent at 8:12-25. HTC asks that the Court find this limitation incapable of construction because “holding in reserve” is indistinguishable from “initially causing the resources of the first base station to remain held.” IPCom argues that “holding in reserve” means “temporarily keeping back resources of the first base station” and that “initially causing the resources of the first base station to be held” means “at least temporarily keeping back the resources of the first base station.” Neither is correct.

What is claimed, of course, is a cell phone that works within a network that includes at least two base stations. Therefore, the actions of “holding” and “initially causing” must occur within the mobile station as it implements its handover algorithms, which are the focus of the ’830 Patent and are described at length in the specification. The structure of the Patent makes it clear that the first base station responds to messages (signals) from the mobile station to “hold in reserve” certain resources and the mobile station “initially cause[s]” the first base station to continue to hold those resources in reserve during the actual handover to the second base station. Claim One states that what is claimed is a mobile station that achieves a handover in a network by “holding in reserve for the link resources of the first base station, and . . . initially causing the resources of the first base station to *remain held in reserve* . . . .” ’830 Patent at 8:12-25 (emphasis added). These messages from the mobile station to the base station occur at slightly different times during a handover. The mobile station first causes the first base station to store link data and to hold resources in reserve for the link; ever so slightly later, “when the link is to be handed over to the second base station,” the mobile station tells the first base station to maintain the storage of the link data and causes the resources of the first base station “to remain held in reserve” until a fixed period of time expires and then the link data is deleted from the first base station. *See id.* at 8:19-27.



Thus, HTC incorrectly argues that these are the same limitation. IPCom incorrectly gives them the same construction. “Holding in reserve” is construed to mean “causing a first base station to preserve resources for a link.” “Initially causing the resources of the first base station to remain held in reserve” is construed to mean “causing a first base station to continue to hold link resources while a handover to a second base station is attempted.”

**5. “At a later timepoint determined by a fixed period of time predefined at a beginning of the handover” (Claim 1)**

The full phrase of this limitation states: “at a later timepoint determined by a fixed period of time predefined at a beginning of a handover, deleting the link data from the first base station and freeing up the resources of the first base station . . . .” ’830 Patent at 8:25-29. The specification explains:

It is therefore proposed that in the case of a handover the base station initially continue to hold the data and resources. To accomplish this a timer, for example, is started when the old base station asks the mobile station to look for a new base station (or when the mobile station confirms this). The base station holds the resources of the mobile station in reserve until it receives the request to redirect the links or until the timer runs out. During this time the mobile station has time to look for a new base station that is capable of carrying the traffic. If the search for a new base station is unsuccessful, the [mobile station] re-registers at its old [base station] and keeps its previous settings. If the [mobile station] does not [re-]register within the time defined by the timer the old base station frees up the resources and deletes the [mobile station] from its lists.

*Id.* at 7:41-54.

HTC proposes that the cited limitation be construed to be “the base station deleting the link data and freeing up the link resources if a predetermined time passes after the mobile station began searching for a new base station.” This defines more than the limited phrase, quoted above. IPCom prefers, “when the time, which has been preset and initiated before handover, expires.” The

