IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

SKYHOOK WIRELESS, INC.,

        Plaintiff and
        Counterclaim-Defendant,

    v.

GOOGLE INC.,

        Defendant and
        Counterclaimant.

Case No. 1:10-cv-11571-RWZ

SKYHOOK WIRELESS, INC.'S OPENING CLAIM CONSTRUCTION BRIEF

2494949

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I.   INTRODUCTION

Founded in 2003, Skyhook Wireless, Inc. ("Skyhook") pioneered Wi-Fi positioning systems for mobile devices and, today, provides location-based services to tens of millions of users. Skyhook owns nineteen patents that protect its innovative ideas. This action seeks to stop Google Inc.'s ("Defendant's") ongoing infringement of four of these patents: U.S. Patent Nos. 7,305,245 (the "'245 patent") (Ex. 1); 7,433,694 (the "'694 patent") (Ex. 2); 7,414,988 (the "'988 patent") (Ex. 3); and 7,474,897 (the "'897 patent") (Ex. 4) (collectively, the "patents in suit").

Defendant first asserts that a number of claim terms are indefinite. However, as discussed below, all of these claim terms can be construed using the intrinsic evidence identified by Skyhook. Indeed, Defendant offers up "alternative" claim constructions for some of these claim terms, contradicting the notion that Defendant can establish by clear and convincing evidence that these terms are "insolubly ambiguous" and "not amenable to construction."

In addition, as a matter of fairness, it should be noted that Defendant did not inform Skyhook of its intention to file a motion for summary judgment rather than a claim construction brief <u>until 8:53 A.M. this morning</u>. Thus, Skyhook's brief remains styled as an Opening Claim Construction Brief, focused on the parties' claim construction disputes as disclosed by Defendant (with some discussion of indefiniteness arguments for which Defendant provided more disclosure than a cursory statement that the claim term "does not apprise one skilled in the art of the bounds of the claim"). Skyhook will file a formal Opposition to Defendant's summary judgment motion with its Responsive Claim Construction Brief.

Defendant also contends that it does not infringe the patents in suit. But a review of Defendant's proposed claim constructions reveals that Defendant's non-infringement contentions are based on inserting as many extraneous and unsupported limitations into Skyhook's claims as

possible. These claim constructions ignore the Federal Circuit's repeated warnings against re-writing the plain and ordinary meaning of claim terms and confining claims to only the preferred embodiments disclosed in the patent specification.

In contrast, Skyhook proposes claim constructions based largely on the plain and ordinary meaning of the claim terms. Skyhook refers to the patent specification and other intrinsic evidence to confirm the plain and ordinary meaning of the claim terms, or, where necessary, to add clarity to the disputed claim terms without altering their scope or meaning.

II.   OVERVIEW OF THE TECHNOLOGY

Despite its small size, Skyhook is an industry leader in location-based services for mobile devices, which permit such devices to determine their current geographic position. All location-based services rely on radio signals coming from known reference points to mathematically calculate a user's position relative to these reference points.

As described in the Background section of the patents in suit, two common approaches for determining location in mobile devices are Global Positioning System (GPS) and cellular tower triangulation. However, these approaches suffer from shortcomings that result in mobile consumers receiving slow and often inaccurate location information. For example, GPS systems can take a very long time to acquire a location fix and they do not work well indoors. Cellular tower triangulation is notoriously inaccurate. As a result, location-based applications and services for mobile devices were niche products until Skyhook's Wi-Fi positioning technology came along.

Skyhook pioneered using the hundreds of millions of Wi-Fi access points located throughout populated areas to provide fast and accurate location information. Skyhook has compiled a massive reference database of the known locations of over 250 million Wi-Fi access

points. To build this database, Skyhook deployed drivers to survey streets in tens of thousands of cities, towns and other populated areas worldwide, identifying Wi-Fi access points and determining their geographic locations. In addition, Skyhook's database is continually improved with data that is gathered from user devices. Using this database, Skyhook's Wi-Fi Positioning System is able to quickly determine the location of a Wi-Fi enabled device. Under the right conditions, Skyhook is able to determine the location of a user device to within 10 to 20 meters.

III.   RELEVANT CLAIM CONSTRUCTION PRINCIPLES

A.   Claim Terms Should Be Given Their Ordinary And Accustomed Meaning

"The terms used in the claims bear a 'heavy presumption' that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art." *Tex. Digital Sys. Inc. v. Telegenix Inc.*, 308 F.3d 1193, 1202 (Fed. Cir. 2002). As the Federal Circuit emphasized, "claim terms take on their ordinary and accustomed meanings unless the patentee demonstrated an intent to deviate from the ordinary and accustomed meaning of a claim term by redefining the term or by characterizing the invention in the intrinsic record using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1327 (Fed. Cir. 2002). Terms that "are not technical terms of art" simply "do not require elaborate interpretation." *Brown v. 3M*, 265 F.3d 1349, 1352 (Fed. Cir. 2001).

B.   Limitations From The Specification Must Not Be Imported Into The Claims

The Federal Circuit has repeatedly "cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification." *Ekchian v. Home Depot, Inc.*, 104 F.3d 1299, 1303 (Fed. Cir. 1997); *see also Prima Tek II, LLC v. Polypap, S.A.R.L.*, 318 F.3d 1143, 1149-52 (Fed. Cir. 2003) (refusing to read limitation into claim because patentee did not "unambiguously limit[] the scope of the claimed invention" in written description); *Teleflex*, 299

F.3d at 1328 (refusing to limit claim based on single preferred embodiment because "record is devoid of clear statements of scope" disavowing ordinary meaning of term).

"Even when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using 'words or expressions of manifest exclusion or restriction.'" *Gemstar-TV Guide Int'l, Inc. v. Int'l Trade Comm'n*, 383 F.3d 1352, 1366 (Fed. Cir. 2004). The reason for this is the following: "Specifications teach. Claims claim." *SRI Int'l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1121 n.14 (Fed. Cir. 1985) (en banc).

C. Only Claims That Are Insolubly Ambiguous Are Indefinite

"[B]ecause claim construction frequently poses difficult questions over which reasonable minds may disagree, proof of indefiniteness must meet 'an exacting standard.'" *Haemonetics Corp. v. Baxter Healthcare Corp.*, 607 F.3d 776, 783 (Fed. Cir. 2010). "A claim is not indefinite merely because parties disagree concerning its construction. An accused infringer must thus demonstrate by <u>clear and convincing evidence</u> that one of ordinary skill in the relevant art could not discern the boundaries of the claim based on the claim language, the specification, the prosecution history, and the knowledge in the relevant art." *Id.* "Only claims 'not amenable to construction' or 'insolubly ambiguous' are indefinite." *Id.*

D. Extrinsic Evidence Carries Less Significance Than The Intrinsic Evidence[1]

All evidence external to the patent and prosecution history is considered "extrinsic" evidence. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) (en banc). The Federal Circuit has repeatedly confirmed that extrinsic evidence is less significant than the patent and

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[1] Skyhook offers a number of dictionary definitions and a few treatises to support its claim constructions. This extrinsic evidence is not offered to override the intrinsic evidence, but rather to provide additional evidence consistent with the intrinsic record.

prosecution history in determining "the legally operative meaning of claim language." *Phillips*, 415 F.3d at 1317. Indeed, "[i]n those cases where the public record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996).

While Courts may rely on dictionary definitions in construing claim terms, they "must ensure that any reliance on dictionaries accords with the intrinsic evidence: the claims themselves, the specification, and the prosecution history." *Free Motion Fitness, Inc. v. Cybex Int'l, Inc.*, 423 F.3d 1343, 1348 (Fed. Cir. 2005). Thus, the Court's "task is to scrutinize the intrinsic evidence in order to determine the most appropriate definition." *Id.* at 1349. On the other hand, expert "opinion testimony on claim construction should be treated with the utmost caution, for it is no better than opinion testimony on the meaning of statutory terms." *Vitronics Corp.*, 90 F.3d at 1585.

IV. DISPUTED TERMS IN MULTIPLE PATENTS

A. "target area" ('245/1; '694/1, 2; '988/1)

Skyhook's Proposed Construction	Defendant's Proposed Construction
A targeted geographic area.	A pre-identified geographic region throughout which a shortest route is planned along all drivable roads.

Both Skyhook and Defendant recognize that an "area" refers to a geographic area or region. (Though it is unclear why Defendant insists upon substituting "region" for "area.") The only remaining dispute is the meaning of the modifier "target."

"When construing claims, a court must begin by 'look[ing] to the words of the claims themselves . . . to define the scope of the patented invention.'" *Stumbo v. Eastman Outdoors, Inc.*, 508 F.3d 1358, 1362 (Fed. Cir. 2007). The words used in a claim "are generally given their ordinary and customary meaning." *Phillips*, 415 F.3d at 1312. Where, as here, "the ordinary meaning of claim language as understood by a person of skill in the art [is] readily apparent even

to lay judges, . . . claim construction . . . involves little more than the application of the widely accepted meaning of commonly understood words." *Id.* at 1314.

Skyhook's construction is supported by a straightforward reading of the term target. "Target" simply means "[t]o mark out or identify (a place . . .) as a target." Ex. 5 (*Compact Oxford English Dictionary* (2d ed. 1991)) at 2011, subpage 642. Skyhook's proposal accurately construes the claim language because an area that is targeted is, by definition, a target area. This language is readily apparent – no further elaboration of the term is required.

Defendant's awkward, long-winded construction departs from the plain and ordinary meaning and impermissibly ignores the Federal Circuit's mandate that "a court may not read a limitation into a claim from the specification." *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1117 (Fed. Cir. 2004). Defendant attempts to impose arbitrary and confusing limitations into its claim construction. Nothing in the claim language suggests that a "target area" be "pre-identified" (whatever that means). Nor does the claim language require a target area to contain a "shortest route planned along all drivable roads."

Defendant is blatantly attempting to import limitations from the patent specification into its definition of "target area," specifically, the requirements of the Chinese Postman routing algorithm. *See* Ex. 1 ('245), 8:27-54, and identical disclosures in '694 and '988 patents. While the patent describes "routing algorithms," plural, that may be used to "avoid arterial bias," the Chinese Postman algorithm is only one possible routing algorithm. *Id.* 8:24-27. Indeed, the Chinese Postman algorithm is described as "an optimized routing algorithm . . . [that is used] to calculate the most efficient driving route for covering every single street in a target area." *Id.* 7:27-30. Thus, the intrinsic evidence describes the Chinese Postman algorithm as a preferred embodiment of the invention, *id.* 8:36-39, and there is no evidence that the claims are limited

only to this preferred embodiment.

B. **"calculated locations" ('245/1,2), "calculated position information" ('694/1; '988/1), "calculated positions of the Wi-Fi access points" ('988/3), and "recorded location information" ('897/1,3)**

Skyhook's Proposed Construction	Defendant's Proposed Construction
Estimated physical location(s) of Wi-Fi access points calculated using characteristics of signals transmitted by such Wi-Fi access points. and Estimated physical position(s) of the observed Wi-Fi access points calculated using characteristics of their transmitted signals.	The physical location (*i.e.*, latitude and longitude) attributed to each Wi-Fi access point determined mathematically from readings recorded along a shortest planned route throughout all drivable roads in the target area (*i.e.*, by following the Chinese Postman routing algorithm). The "calculated position information" cannot be based on randomly, or non-systematically, collected readings of Wi-Fi access points.

For the convenience of the Court, Skyhook addresses these claim terms as a group, even though there are minor variations in the claim language. As described below, Skyhook's claim constructions are supported by the plain meaning of the claim language and the patent specifications.

Skyhook's claim construction imposes the following requirements on "calculated/recorded" "locations/positions:" the locations are (1) estimated (2) physical (3) locations of observed Wi-Fi access points (4) calculated using characteristics of signals transmitted by such access points.[2, 3] Skyhook's claim construction is consistent with the plain and ordinary meaning of the claim language which, on its face, requires that (3) the locations or positions of the observed Wi-Fi access points be (4) calculated.

The patent specification provides additional clarity to the claim terms, including the fact that the locations of the Wi-Fi access points are (2) "the actual physical location of the access points." Ex. 1 ('245), 8:58-63, and identical disclosures in '694, '988 and '897 (incorporating '988

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[2] The inclusion of the word "observed" in this construction is explained in Section VI.A.

by reference). The patent specification also clarifies that (4) the calculating is performed using scanning data comprising "the radio characteristics of [an] access point signal along with the GPS location of the scanning vehicle." *Id.* 7:46-49. And, finally, because the location information is calculated rather than measured, such location data can only be (1) an estimation of location information. *Id.* 8:64-66 ("[i]n order to produce the most accurate calculated location for a particular access points [sic]") and Ex. (2) ('694) Figure 4 (showing that calculated locations of Wi-Fi access points do not exactly match physical locations).

Defendant's claim construction dramatically departs from the simplicity of the language being construed. Again, in an obvious attempt to narrow the scope of Skyhook's claims, Defendant adds a legion of limitations that are not otherwise part of the claim language, including: (1) "*i.e.*, latitude and longitude," (2) "determined mathematically," (3) "from readings recorded along a shortest planned route throughout all drivable roads in the target area," (4) "*i.e.*, by following the Chinese Postman routing algorithm," and (5) "cannot be based on randomly, or non-systematically, collected readings of Wi-Fi access points." The Federal Circuit consistently forbids the importation of illustrative details from the specification into the claims under the pretense of claim construction. *See Ekchian*, 104 F.3d at 1303.

Furthermore, Defendant's use of words such as "attributed," "mathematically," "planned," "randomly," and "non-systematically" add ambiguity to the claim terms that would require further construction. Such constructions have consistently been rejected by the courts. *See, e.g., Funai Elec. Co., Ltd. v. Daewoo Elecs. Corp.*, 616 F.3d 1357, 1366 (Fed. Cir. 2010) (emphasizing that the criterion in evaluating whether a claim construction is appropriate is

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[3] While the '897 patent refers to "recorded location information" rather than "calculated location information," it is clear from the specification that the location information that is recorded is "the calculated location for each access point." Ex. 4 ('897, 7:31-34).

"whether the explanation aids the court and the jury in understanding the term as it is used in the claimed invention").

V.   DISPUTED TERMS IN THE '245 PATENT

A.   "a user-device having a Wi-Fi radio"

Skyhook's Proposed Construction	Defendant's Proposed Construction
Does not need to be construed. But if construed: A user device having a Wi-Fi radio.	An end user or consumer device having a Wi-Fi radio.

The phrase "a user-device having a Wi-Fi radio" does not need further construction. Defendant admits as much because its proposed claim construction includes these exact words. But Defendant attempts to narrow the plain and ordinary meaning of this plain and ordinary claim language by adding limitations without any basis for doing so.

For example, the term "consumer" does not appear anywhere in specification or the claims of the patent, and is thus wholly unsupported by the intrinsic evidence. Additionally, limiting the word "user" to mean "end user" would impermissibly "add a narrowing modifier before an otherwise general term that stands unmodified in a claim." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998). The claim drafters did not modify the noun "user" with the adjective "end," and Defendant cannot now rewrite the claims to do so.

B.   "providing a reference database of calculated locations of Wi-Fi access points in a target area"

Skyhook's Proposed Construction	Defendant's Proposed Construction
Does not need to be construed. But if construed: Providing a database of calculated locations of Wi-Fi access points in a target area. The database is used to locate a user device having a Wi-Fi radio.	A database that contains calculated locations for all the Wi-Fi access points collected in the pre-identified target area by scanning a shortest planned route along all drivable roads. The database does not include information about Wi-Fi access points gathered using random or end-user based collection methods.

The parties have already proposed constructions for the terms "calculated locations,"

"Wi-Fi access points," and "target area." The remaining words in this claim term are straightforward and do not require further construction. But should the Court find an express construction to be necessary, it should adopt Skyhook's proposed construction. This construction is supported by the surrounding claim language, that makes it clear that the "reference database" is used to "locat[e] a user-device having a Wi-Fi radio." Ex. 1 ('245), 14:4-5.

Defendant's construction should be rejected because it again attempts to restrict the scope of the claim, without any justification. Nothing in the claim language mentions or requires Defendant's proposed new limitations that (1) "all the Wi-Fi access points collected" be included in the reference database, (2) the target area be "pre-identified" by "scanning a shortest planned route along all drivable roads," or (3) the database "not include information about Wi-Fi access points gathered using random or end-user based collection methods." Defendant's citations to preferred embodiment in the patent specification are unavailing.

C.   "in response to a user application request to determine a location of a user-device having a Wi-Fi radio"

Skyhook's Proposed Construction	Defendant's Proposed Construction
In response to a request made by an application running on a user-device having a Wi-Fi radio to determine the location of the user-device.	In response to a request made by an end-user facing application, *i.e.*, not by the operating system, to determine the location of an end user-device using a Wi-Fi radio.

Skyhook's proposed claim construction is based on the plain and ordinary meaning of the claim language, but uses the patent specification to clarify what is meant by "a user application:"

> Typically there is an application . . . that utilizes location readings to provide some value to an end user . . . . This location application makes a request of the positioning software for the location of the device at that particular moment.

Ex. 1 ('245), 6:12-16. It is obvious from the specification that "a user application" is simply an application that runs on a user-device.

In contrast, Defendant attempts to limit "a user application" to "an end-user facing

application, *i.e.*, not by the operating system." Nothing in the patent restricts "a user application" to what Defendant calls "end-user facing applications." (Indeed, the phrase "end-user facing" is not even mentioned in the patent.) Moreover, by substituting further technical terms such as "end-user facing" and "operating system" into the claim language, Defendant's construction does nothing to provide clarity or understanding to the Court or jury, thus undermining the purpose of claim construction.

D. **"said chosen algorithm being suited for the number of identified Wi-Fi access points"**

Skyhook's Proposed Construction	Defendant's Proposed Construction
Does not need to be construed. But if construed: The chosen location-determination algorithm is suited for the number of Wi-Fi access points that are identified.	Indefinite under 35 U.S.C. § 112, ¶ 2.

This phrase does not need construction because it is straightforward and unambiguous. "Suited" has a widely-understood definition of "[t]o be fitted or adapted to." Ex. 5 (*Compact Oxford English Dictionary* (2d ed. 1991)) at 1956-57, subpage 149. The intrinsic evidence supports this definition. It clearly states that "[d]ifferent algorithms perform better under different scenarios," and that the algorithm decision is "based on," or "driven by," the number of identified access points. Ex. 1 ('245), 5:45-48, 7:11-13. In other words, the chosen location-determination algorithm is suited for or selected based on the number of Wi-Fi access points that are identified.

In spite of this clear meaning, Defendant contends the phrase is indefinite because it "fails to apprise the person of ordinary skill in the art <u>which</u> algorithm(s) is (are) 'suited' for a particular number of identified access points." This contention misstates the relevant inquiry. The claims need not identify exactly *which* algorithms are suited for each number of identified access points, only that the algorithm is suited for or selected based on the number of identified

access points. For example, when a patent claimed a structure that was "*so dimensioned* as to be insertable through the space between the doorframe of an automobile and one of the seats thereof," the Federal Circuit explained: "The patent law does not require that all possible lengths corresponding to the spaces in hundreds of different automobiles be listed in the patent, let alone that they be listed in the claims." *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1575-76 (Fed. Cir. 1986).

Because this claim element can be construed using the plain and ordinary meaning of the claim language, which is confirmed by the patent specification, Defendant cannot meet its heavy burden of showing by clear and convincing evidence that the claim is "insolubly ambiguous" or "not amenable to construction." *Young v. Lumenis, Inc.*, 492 F.3d 1336, 1346-47 (Fed. Cir. 2007).

E.   "a simple signal strength weighted average model"

Skyhook's Proposed Construction	Defendant's Proposed Construction
An algorithm that includes taking a simple average of the calculated locations of identified Wi-Fi access points weighted according to a function of their received signal strengths.	A calculated average of signal strength measurements resulting from the multiplication of each measurement by a numeric or algebraic factor to weight stronger signal readings more than weaker signals. Used to determine the location of a user device.

Skyhook proposes the Court construe this claim term as (1) "an algorithm that includes" (2) "taking a simple average of" (3) "the calculated locations of identified Wi-Fi access points" (4) "weighted according to a function of their received signal strengths."

Skyhook's proposed claim construction is supported by both the plain meaning of the claim language as well as by the patent specification. Elements (1) and (3) of Skyhook's claim construction come directly from independent claim 1, from which this claim depends. The "plurality of location determination algorithms" recited in independent claim 1 is further limited by dependent claim 6 to a "simple signal strength model." Thus, (1) a "model" must be an

"algorithm." The basis for element (3) and part of element (4) can be found in independent claim 1 as well, which recites that the algorithms (3) "us[e] the calculated locations for the identified Wi-Fi access points" and (4) "[use] the signal strengths of said received messages." Ex. 1 ('245), 14:24-27. The basis for element (2), "simple averaging," and the remainder of element (4), "weighted according to a function of their received signal strengths" come from the plain and ordinary meaning of the claim language: "simple signal strength weighted average."

Consulting the patent specification confirms the meaning of a "simple signal strength weighted average." The patent specification teaches that "[t]he client software compares the list of observed access points [and their locations from the reference database] along with their calculated signal strengths to weight the location of user to determine precise location of the device user." *Id.* 6:65-7:3.

Additionally, a "weighted average model" has a well-known meaning. *Webster's Third New International Dictionary Unabridged* 2593 (2002) defines "weighted average" as "an average of the values of a set of items to each of which is accorded a weight indicative of its frequency or relative importance." Ex. 6. This is consistent with Skyhook's claim construction in which (2) an average of (3) the calculated locations of identified Wi-Fi access points ("a set of items") is (4) weighted according to a function of their received signal strengths ("accorded a weight indicative of its . . . relative importance").

Defendant's proposed claim construction should be rejected because it makes no sense. Skyhook's definition weights the position information of reference Wi-Fi access points by a function of their received signal strengths to calculate a user position. By the way of an example, two received Wi-Fi access points, a first located at (1,1) with a signal strength weighting of 1 and a second located at (5,5) with a signal strength weighting of 20, would result

in a simple weighted average calculated position of the user at (4.8, 4.8). This is because, although two signal strengths from two Wi-Fi access points are received, the location of the second Wi-Fi access point (which has a higher signal strength weighting and is presumably located closer to user) is weighted by 20 while the location of the first Wi-Fi access point is weighted by 1 before a simple average is taken. Defendant's definition, however, is a "<u>calculated average of signal strength measurements</u>" <u>(weighted by numeric or algebraic factors)</u> – not position information.

Defendant's proposed construction should also be rejected because it increases ambiguity. The words "measurement," "numeric," and "algebraic" in Defendant's proposed construction do not add clarity to the claim language, which is contrary to the central purpose of claim construction. Moreover, these terms appear nowhere in the specification.

F.   "a triangulation technique"

Skyhook's Proposed Construction	Defendant's Proposed Construction
An algorithm that includes (1) estimating the distances from the user device to at least two identified Wi-Fi access points using their received signal strengths and (2) determining a location based on the estimated distances.	Calculating the physical location of a user device by using the strength of signals received from two or more Wi-Fi access points whose locations have been calculated, by the formation of triangles having the user device and each such Wi-Fi access point as the vertices.

Skyhook and Defendant agree that a triangulation algorithm calculates the location of a user device based on the received signal strength of at least two Wi-Fi access points. However, Defendant argues that this calculation requires the formation of triangles. The extrinsic evidence is conflicting on this point. Defendant will undoubtedly cite to definitions of triangulation that require the formation of triangles. But Skyhook's definitions make clear that while *some* applications of triangulation rely on the formation of triangles, such reliance is not universal. *See* Ex. 7 (*The American Heritage Science Dictionary* (2005)) at 640 ("A method of determining the relative positions of points in space by measuring the distances, and <u>sometimes</u> angles,

between those points and other reference points whose positions are known. Triangulation often involves the use of trigonometry."); *see also* Ex. 8 (John R. Vacca, *Wireless Data Demystified* (2003)) at 73-74 (describing "triangulation" as "calculating a[n object's] position by measuring its distance from two or more known points," without mentioning formation of triangles).

Thus, there are two competing meanings for "triangulation:" the general case (not requiring angles and triangles) and the specific case (requiring angles and triangles). Skyhook's broader definition should be chosen. *See Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 ("[I]f a[] . . . claim recites a general structure . . . without limiting that structure to a specific subset of structures . . ., we will generally construe the claim to cover **all** known types of that structure that are supported by the patent disclosure.") (emphasis added).

Furthermore, the intrinsic evidence is dispositive on this point. The type of triangulation that Defendant argues for is not disclosed in the patent specification. The embodiments that are disclosed in the patent specification do not measure angles. Instead, the "client positioning software . . . calculates the location of the computing device using characteristics" that include "the strengths of the signal reaching the client device." Ex. 1 ('245), 5:58-64. The signal strength is used to estimate *distance*, *id.* 9:29-31, which is then used to calculate location, *id.* 9:35-39. Thus, the preferred embodiment is not covered by Defendant's proposed construction. Skyhook's broader construction should be adopted because an interpretation of claim language that excludes the preferred embodiment "is rarely, if ever, correct." *Vitronics*, 90 F.3d at 1583.

VI. DISPUTED TERMS IN BOTH THE '694 AND THE '988 PATENTS

A. "substantially all Wi-Fi access points"

Skyhook's Proposed Construction	Defendant's Proposed Construction
Substantially all observed Wi-Fi access points.	All but an insignificant number of Wi-Fi access points in the target area.

Skyhook's construction adopts the meaning of the term "substantially all" as reflected in

the patent specification. The patent specification shows that the number of Wi-Fi access points that can be recorded in the database is limited by the capabilities of the devices used to collect Wi-Fi signals. *See, e.g.*, Ex. 2 ('694), 6:63-65 ("These vehicles are equipped with scanning devices [202] designed to record the locations and characteristics of 802.11 signals while traversing the coverage area.").[4] These devices can only detect Wi-Fi signals within range. *Id.* 7:1-2. It is clear that the Wi-Fi access points referred to in the claims are those that are capable of being "observed" by the device used to collect Wi-Fi signals. *Id.* 7:63-66 (". . . ensuring that all observable access points are detected and mapped by the system." (emphasis added)).

Defendant's construction neither comports with the intrinsic evidence, nor does it do anything to elucidate the meaning of the claim language. First, Defendant's construction seems to require that "substantially all Wi-Fi access points" must include Wi-Fi access points that are within a "target area" but, for whatever reason, are not observable. As described above, this is directly contradicted by the patent specification. Second, Defendant's construction merely substitutes one phrase, "substantially all," for another, "all but an insignificant number," that is more ambiguous, thus defeating the purpose of claim construction.

B.   "reference symmetry"

Skyhook's Proposed Construction	Defendant's Proposed Construction
From the perspective of a user whose location is being calculated, the calculated positions of observed Wi-Fi access points in range of the user tend to be distributed around the user with reduced arterial bias.	Indefinite under 35 U.S.C. § 112, ¶ 2. The balanced or symmetrical distribution of numerous access points on all sides of the user device and within range of the user device's WiFi radio.

Skyhook's proposed construction for "reference symmetry" has the following elements: (1) "[f]rom the perspective of a user whose location is being calculated," (2) "the calculated

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[4] The '988 patent includes a nearly identical specification to the '694 patent. For brevity, Skyhook has not included corresponding citations to the '988 patent.

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positions of observed Wi-Fi access points in range of the user" (3) "tend to be distributed around the user" (4) "with reduced arterial bias."

The plain and ordinary meaning of "reference symmetry" does not shed sufficient light on the meaning of this claim term. Thus, the patent specification must be consulted. *See Vitronics Corp.*, 90 F.3d at 1582 (noting that the specification "is the single best guide to the meaning of a disputed term"). Here, the inventors have provided a definition for the term "reference symmetry" in the section of the patent titled "Reference Symmetry." *See Teleflex, Inc.*, 299 F.3d at 1325 ("[A]n inventor may choose to be his own lexicographer. . . .'").

Per the section of the patent specification defining "reference symmetry," this term refers to (1) "the distribution of reference points around the end user" that are used "to calculate the [end user] device's current location." Ex. 2 ('694), 9:4-7, 9:14. (2) These reference points are "access point locations . . . within the range [604] of the device's 802.11 radio." *Id.* 9:18-20. (3) As shown by the comparison of Figure 5 (no reference symmetry) with Figure 6 (reference symmetry) and the accompanying text, the access points tend to be distributed around the user. *Id.* 9:3-23. (4) The resulting location calculation has reduced "arterial bias." *Id.* 9:7-13.

Defendant's proposed alternative construction is flawed for at least two reasons. First, it will not help the Court or the jury to understand the term "reference symmetry." It is unclear what is meant by "balanced," "symmetrical," "numerous," and "all sides." Second, Defendant's proposed construction would improperly add limitations that are not otherwise part of the claim: (1) "balanced," (2) "numerous," and (3) "on all sides."

Defendant also argues that this claim term is indefinite, but has proffered a construction for it. A claim is indefinite only if the claim is "insolubly ambiguous" or "not amenable to construction." *See Young*, 492 F.3d at 1346-47. This is not the case here because the claim term

can be properly construed as Skyhook proposes, and even Defendant has offered a competing

claim construction.

C. "arterial bias"

Skyhook's Proposed Construction	Defendant's Proposed Construction
The deviation of the calculated position information for a Wi-Fi access point towards heavily trafficked roads and away from the actual geographic location of the access point.	The deviation of the calculated position information for a Wi-Fi access point toward heavily trafficked roads and away from the actual geographic location of the access point due to the tendency of random scanning to result in a greater number of scans from heavily trafficked roads.

The first half of Defendant's claim construction is the same as Skyhook's claim

construction. However, the remainder of Defendant's proposed construction impermissibly

narrows the scope of the claim. Arterial bias is illustrated in Figure 3 of the '694 patent and

occurs when Wi-Fi access point location data is collected in such a way that the scanning

coverage "shows a bias to the main roads, or arteries at the expense of the smaller and

surrounding roads." Ex. 2 ('694, 7:25-27). As a result, the location for a Wi-Fi access point will

be calculated to be near the main artery "rather than close to the access point itself." *Id.* 7:44-46.

Nothing in the claim language requires "arterial bias" to be "due to the tendency of

random scanning to result in a greater number of scans from heavily trafficked roads." The

patent specification does identify random scanning as one possible cause of arterial bias, but

neither the patent specification nor the claim language excludes other possible causes, such as

incomplete or unbalanced systematic scanning.

D. "avoid arterial bias" and "avoids arterial bias"

Skyhook's Proposed Construction	Defendant's Proposed Construction
Reduce(s) the effects of arterial bias.	Indefinite under 35 U.S.C. § 112, ¶ 2
	Eliminates arterial bias.

The parties have proposed constructions for "arterial bias." Thus the only additional

words to construe for this claim term are "avoid" and "avoids." Skyhook proposed constructions are consistent with the ordinary meaning of the word "avoid," which is "to prevent the . . . effectiveness of." Ex. 9 (*Merriam-Webster's Collegiate Dictionary* (10th ed. 2001)) at 80. They are also consistent with the patent specifications, which indicate that the claimed inventions "reduce[] location bias." *See, e.g.*, Ex. 2 ('694), 9:20-22 ("The resulting position calculation [603] has reduced location bias and is more accurate as a result.").

Defendant argues that these terms are indefinite in violation of 35 U.S.C. § 112, ¶ 2 because they do not apprise one skilled in the art of the bounds of the claim. Defendant will no doubt argue that these terms require some specific metric, *e.g.*, reduces arterial bias by 65%, in order to meet the requirements of § 112, ¶ 2. But no such numerical metric is required. The claim simply requires that, when multiple readings of the Wi-Fi access point are recorded at different locations around the Wi-Fi access point, the arterial bias is less than the arterial bias when multiple readings of the Wi-Fi access point are <u>not</u> recorded at different locations around the Wi-Fi access point. In other words, when the claimed technique is practiced, arterial bias is reduced compared to when the claimed technique is not practiced. *See Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1370-72 (Fed. Cir. 2003) (because intrinsic evidence provided no "specific improvement measure," the term "improved competence" was correctly construed as "generally increased" competence).

Furthermore, these claim terms are not indefinite because Defendant has proffered a construction for them, *i.e.*, "eliminates arterial bias." A claim is indefinite only if the claim is "insolubly ambiguous" or "not amenable to construction." *Young*, 492 F.3d at 1346-47. This is not the case here because the claim term can be properly construed as Skyhook proposes, and even Defendant has offered a competing claim construction.

VII. DISPUTED TERMS IN THE '694 PATENT

A. "recording multiple readings of the Wi-Fi access point at different locations around the Wi-Fi access point so that the multiple readings avoid arterial bias in the calculated position information of the Wi-Fi access point"

Skyhook's Proposed Construction	Defendant's Proposed Construction
Multiple scans of a Wi-Fi access point are recorded. The scans are taken at different locations around the Wi-Fi access point. The multiple readings avoid arterial bias in the calculated position information of the Wi-Fi access point.	Indefinite under 35 U.S.C. § 112, ¶ 2. Storing Wi-Fi access point signals received while scanning along a shortest planned route along each drivable road throughout each target area, *e.g.*, Chinese Postman and not using random scanning or collection methods to avoid the tendency of random scanning to result in a greater number of scans of the Wi-Fi access point from heavily trafficked roads.

Skyhook's construction reflects the straightforward nature of this claim phrase. It breaks up the claim phrase into three separate sentences to make it easier to understand, while hewing closely to the claim language. This is all that is needed outside of the claim terms for which the parties have already proposed constructions, *e.g.*, arterial bias. As such, no further construction is needed. *See Orion IP, LLC v. Staples, Inc.*, 406 F. Supp. 2d 717, 738 (E.D. Tex. 2005) ("[A]lthough every word used in a claim has a meaning, not every word requires construction.").

Defendant's proposed construction far overreaches, inserting every possible limitation from the specification into its construction to narrow the scope of Skyhook's claim and distorting otherwise easily understandable claim language. The sheer number of new limitations crammed into Defendant's construction is remarkable: (1) "storing," (2) "signals received," (3) "while scanning along a shortest planned route," (4) "along each drivable road," (5) "throughout each target area," (6) "*e.g.,* Chinese Postman," (7) "not using random scanning or collection methods," and (8) "to avoid the tendency of random scanning to result in a greater number of scans of the Wi-Fi access point from heavily trafficked roads." In support of its construction Defendant provides citations to preferred embodiments in the specification. But the Federal Circuit has consistently stressed that claims are not limited to preferred embodiments described in the

specification. *See Ekchian*, 104 F.3d at 1303.

Defendant also argues that this claim phrase is indefinite in violation of 35 U.S.C. § 112, ¶ 2 because it impermissibly recites a method step in an apparatus claim. But in the context of the surrounding claim language, it is clear that this phrase does not require a step to be performed. The full clause recites "wherein said calculated position information is <u>obtained from</u> recording multiple readings of the Wi-Fi access point at different locations around the Wi-Fi access point so that the multiple readings avoid arterial bias in the calculated position information of the Wi-Fi access point." (emphasis added). Thus, "recording multiple readings . . ." simply identifies from where the calculated position information is obtained. It is a description of the position information – not a method step. Defendant's indefiniteness argument fails.

B. **"wherein the database records for substantially all Wi-Fi access points in the target area provide reference symmetry within the target area"**

Skyhook's Proposed Construction	Defendant's Proposed Construction
Wherein the database records for substantially all Wi-Fi access points in the target area are distributed such that when the database records are used to calculate a user's location, the calculated positions of the observed Wi-Fi access points in range of the user tend to be distributed around the user with reduced levels of arterial bias.	Indefinite under 35 U.S.C. § 112, ¶ 2

The first part of Skyhook's construction "wherein the database records for substantially all Wi-Fi access points in the target area" comes straight from the claim language. Because "reference symmetry" is a term with a less readily apparent meaning than "substantially all" or "target area," to add clarity, Skyhook proposes a construction that applies its previously explained definition of "reference symmetry" to the term at issue here. Thus, the database records "are distributed such that when the database records are used to calculate a user's location, the calculated positions of the observed Wi-Fi access points in range of the user tend to be distributed around the user with reduced levels of arterial bias." This construction follows

directly from Skyhook's construction of "reference symmetry."

Defendant does not offer its own construction. Instead, it rests on its argument that this term is indefinite because it fails to apprise a person of ordinary skill in the art as to what it means to "provide reference symmetry within the target area." But Defendant cannot prove that this claim term is "insolubly ambiguous" as required to carry its burden. *Phillips*, 415 F.3d at 1314. Skyhook's interpretation is obvious from the patent specification, which describes an embodiment of the invention that "not only gathers more access points uniformly across a target area but the resulting data produces more accurate calculations of access point locations," Ex. 2 ('694), 8:9-11. Other portions of the patent specification describe how "there are numerous access point locations [602] on all sides of the user [601] within the range of the device's 802.11 radio," *id.* 9:18-20; and how "[t]he resulting position calculation [603] has reduced location bias and is more accurate as a result," *id.* 9:20-22.

VIII. DISPUTED TERMS IN THE '988 PATENT

    A.   **"recording multiple readings of the Wi-Fi access point at different locations around the Wi-Fi access point so that the multiple readings have reference symmetry relative to other Wi-Fi access points in the target area and so that the calculation of the position of the Wi-Fi access point avoids arterial bias in the calculated position information"**

Skyhook's Proposed Construction	Defendant's Proposed Construction
Multiple scans of a Wi-Fi access point are recorded. The scans are taken at different locations around the Wi-Fi access point. This results in the following: (a) the multiple readings produce a calculated position of the Wi-Fi access point having reference symmetry relative to other Wi-Fi access points in the target area and (b) the calculated position of the Wi-Fi access point reduces the effects of arterial bias.	Indefinite under 35 U.S.C. § 112, ¶ 2. Systematically driving each road in the target area using a predesigned Chinese Postman scanning route so as to collect multiple readings of the Wi-Fi access point at different locations around the Wi-Fi access point so that the multiple readings have reference symmetry relative to other Wi-Fi access points in the target area. Storing Wi-Fi access point signals received while scanning along a shortest planned route along each drivable road throughout each target area, e.g., Chinese Postman, and not using random scanning or collection methods.

Skyhook's construction restructures this long and dense claim term into several sentences, to make it easier to follow. The resulting claim construction requires the following elements: (1) recording multiple scans of a Wi-Fi access point (2) at different locations around the Wi-Fi access point. These multiple scans result in (3) a calculated position of the Wi-Fi access point that has reference symmetry relative to other Wi-Fi points in the target area. Because of the reference symmetry, (4) the calculated position reduces the effects of arterial bias when it is used to calculate the location of a user device.

Elements (1) and (2) come straight from the claim language ("recording multiple readings of the Wi-Fi access point at different locations around the Wi-Fi access point").

Skyhook's construction then clarifies what is meant by the phrase "the multiple readings have reference symmetry relative to other Wi-Fi access points in the target area." Although the claim term states that the readings <u>have</u> reference symmetry relative to other Wi-Fi access points, the specification refers to multiple readings "provid[ing] reference symmetry among the reference points." Ex. 3 ('988), 2:55-56. The specification also explains that that, in one aspect of the disclosed invention, "more access points [are gathered] uniformly across a target area," *Id.* 8:56-59, 9:4-21, confirming that the multiple readings produce reference symmetry relative to other Wi-Fi access points. Thus, the specification provides sufficient context to interpret "have" to mean "produce." This is consistent with the general dictionary definition of "have," which is "to produce." Ex. 10 (*The Cassell Dictionary and Thesaurus* (1999)) at 510-11. Thus, the multiple scans produce a calculated position of the Wi-Fi access point having reference symmetry relative to other Wi-Fi access points in the target area.

Skyhook's construction also clarifies what is meant by the phrase "so that the calculation of the position of the Wi-Fi access point avoids arterial bias in the calculated position

information." This limitation states that the more accurately calculated position reduces the effects of arterial bias when the calculated position is later used to calculate the location of a user device. This is consistent with the patent specification. *See, e.g.*, Ex. 3 ('988), 8:28-30 ("Another approach is to develop routing algorithms that include every single street in the target area so as to avoid arterial bias in the resulting collection of data thus producing a more reliable positioning system for the end users.").

Defendant's proposed constructions for this claim phrase is similar to its construction of "recording . . . " in Section VII.A., and suffer from the same defects. For the reasons described above in Section VII.A., Defendant's transparent efforts to import multiple extraneous limitations from preferred embodiments into the claim language should be rejected. Defendant also argues that this claim phrase is indefinite in violation of 35 U.S.C. § 112, ¶ 2 because it impermissibly recites a method step in an apparatus claim. For the reasons stated in Section VII.A., this phrase does not recite a method step. Therefore, this argument fails as well.

Defendant further argues that this claim is indefinite for failing to apprise a person skilled in the art what it means for "multiple readings of the Wi-Fi access point at different locations around the Wi-Fi access point" to "have reference symmetry relative to other Wi-Fi access points in the target area." But "[c]laims need not be plain on their face in order to avoid condemnation for indefiniteness; rather, claims must only be amenable to construction." *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1366 (Fed. Cir. 2011). Claims are found indefinite "only if reasonable efforts at claim construction prove futile". *Id.* Here, the claim language is amenable to construction, and indeed, even Defendant has proffered a claim construction.

Finally, Defendant argues that this claim phrase is indefinite because it "fails to provide any measure of when [']recording multiple readings . . . around the Wi-Fi access point . . . so that

the calculation of the position of the Wi-Fi access point avoids arterial bias['] is achieved." But

as described above in Section VI.D., no such measure is required. The claim simply requires

that, when multiple readings of the Wi-Fi access point are recorded at different locations around

the Wi-Fi access point, the arterial bias is less than the arterial bias when multiple readings of the

Wi-Fi access point are <u>not</u> recorded at different locations around the Wi-Fi access point. In other

words, when the claimed technique is practiced, arterial bias is reduced compared to when the

claimed technique is not practiced.

B.   "Logic" Conveys Sufficient Structure To Avoid Means-Plus-Function

Defendant argues that the "logic" limitations are "means-plus-function" terms subject to

35 U.S.C. § 112, ¶ 6. Defendant's position ignores well-settled law, the intrinsic evidence, and

the ordinary meaning of the word "logic."[5]

1.   There Is A Strong Presumption Against Interpreting A Limitation As A Means-Plus-Function Clause When The Limitation Does Not Include The Term "Means"

"Claim drafters conventionally use the preface 'means for' (or 'step for') when they intend

to invoke section 112(6), and there is therefore seldom any confusion about whether section

112(6) applies to a particular element." *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580,

1583 (Fed. Cir. 1996). Because "the term 'means,' particularly as used in the phrase 'means for,'

is part of the classic template for functional claim elements and has come to be closely associated

with means-plus-function claiming," *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d

1354, 1358 (Fed. Cir. 2004) (quotations and citation omitted), <u>it is highly unlikely that a patentee</u>

<u>who intended to invoke § 112, ¶ 6 would exclude the word "means" from the claim language</u>.

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[5] If the Court were to find one or more of these claim terms to constitute means plus
function claim terms, Skyhook identifies corresponding structures for such claim terms at
Exhibit 15.

Courts give force to the patentee's election to avoid application of § 112, ¶ 6 by invoking a presumption that the paragraph does <u>not</u> apply when the word "means" is absent from the claim language. *See CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1369 (Fed. Cir. 2002) ("[A] claim term that does not use 'means' will trigger the rebuttable presumption that § 112 ¶ 6 does not apply."). In order to rebut this presumption, Defendant must "demonstrate[] that the claim term fails to 'recite <u>sufficiently</u> definite structure' or else recites a 'function without reciting <u>sufficient</u> structure for performing that function.'" *Id.* at 1369 (emphasis added)).

The burden of overcoming this presumption is high. *See Lighting World*, 382 F.3d at 1358 ("Our cases make clear . . . that the presumption flowing from the absence of the term 'means' is a strong one that is not readily overcome."). One reason is that the Federal Circuit has set the bar low for a term to recite "sufficient" structure. If a claim term "connotes <u>some</u> structure. . . . [in] the understanding of one of ordinary skill in the art, the presumption that § 112, ¶ 6 does not apply is determinative." *Apex Inc. v. Raritan Computer, Inc.*, 325 F.3d 1364, 1373 (Fed. Cir. 2003) (emphasis added). As a result, the presumption against the application of § 112, ¶ 6 can only be overcome if a claim uses a term that suggests <u>no</u> structure and is effectively a synonym for "means for," such as the word "element." *See Lighting World*, 382 F.3d at 1360.

2. The "Logic" Limitations Recite Sufficient Structure

It is clear that none of the "logic" limitations use the word "means." The absence of the word "means" creates a strong presumption that § 112, ¶ 6 does not apply.

(a) The Ordinary Definition Of "Logic" Conveys Structure

Defendant cannot meet its burden of rebutting the presumption against means-plus-function interpretation, because "logic" would immediately bring to mind a class of structures to avoid invocation of § 112, ¶ 6. For example, one of ordinary skill would immediately recognize that "logic" extends to computer instructions designed to carry out a specified task. *See* Ex. 11

(*The American Heritage College Dictionary* (3rd ed. 1997)) at 797 (defining "logic" as "[t]he nonarithmetic operations performed by a computer, such as sorting, that involve yes-no decisions"); Ex. 12 (*Wiley Electrical and Electronics Engineering Dictionary* (2004)) at 432 ("The functions performed by a computer which involve operations such as mathematical computations and true/false comparisons."). "Logic" also conveys the circuitry by which computer instructions may be carried out. *See* Ex. 12 at 432 ("The circuits in a computer which enable the performance of logic functions or operations, such as AND, OR, and NOT."); Ex. 13 (*McGraw-Hill Dictionary of Scientific and Technical Terms* (4th ed. 1989)) at 1101 ("General term for the various types of gates, flip-flops, and other on/off circuits used to perform problem-solving functions in a digital computer.").

"Logic" is obviously not a "nonce word" or "simply a substitute for the term 'means for.'" *Lighting World*, 382 F.3d at 1360. It is thus clear that, even in isolation, the word "logic" conveys sufficient structure to avoid invocation of § 112, ¶ 6. Unsurprisingly then, there is a multitude of judicial opinions holding that terms such as "logic" and related terms such as "circuit," and "computer code" convey sufficient structure to avoid application of § 112, ¶ 6 when the claim language does not include the word "means." *See, e.g.*, *3Com Corp. v. D-Link Sys., Inc.*, 473 F. Supp. 2d 1001, 1016-17 (N.D. Cal. 2007) ("logic"); *Diagnostic Group, LLC v. Benson Med. Instruments Co.*, No. CIV.02-777 JNE/JGL, 2005 WL 715935, at *10 (D. Minn. Mar. 28, 2005) ("pre-programmed logic"); *Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1319-21 (Fed. Cir. 2004) ("circuit" and "circuitry"); *Apex*, 325 F.3d at 1373-75 ("interface circuit"); *Aloft Media, LLC v. Adobe Sys. Inc.*, 570 F. Supp. 2d 887, 897-98 (E.D. Tex. 2008) ("computer code"); *Rowe Int'l Corp. v. Ecast, Inc.*, 586 F. Supp. 2d 924, 944-45 (N.D. Ill. 2008) ("instructions").

The Surrounding Claim Language Imparts Additional Structure

The word "logic" conveys an even more definite structure when read in light of the rest of the claim language. Each instance of logic must be "computer-implemented,"[6] meaning it must be implemented with a machine that can be fairly characterized as a computer. This limitation makes "logic" even more structurally definite. *See Personalized Media Commc'ns, LLC v. Int'l Trade Comm'n*, 161 F.3d 696, 705 (Fed. Cir. 1998) (adjectival qualification "digital" "further narrows the scope of those structures covered by the claim and makes the term more definite").

C. "logic"

Skyhook proposes that this term be construed as "software and/or hardware." "Logic," based on its ordinary meaning, can be either software or hardware. Ex. 12 (*Wiley Electrical and Electronics Dictionary* (2004)) at 432 (defining logic as both "[t]he functions performed by a computer which involve operations such as mathematical computations and true/false comparisons" and "[t]he circuits in a computer which enable the performance of logic functions or operations, such as AND, OR, and NOT"); *see also Diagnostic Group*, 2005 WL 715935, at *10 ("[T]he ordinary meaning of 'pre-programmed logic' is computer source code (software) programmed into a device and/or computer circuitry (hardware) for performing a specified function.").

The patent specification and claims similarly encourage a broad reading of "logic" to encompass both hardware and software. The patent claims a "Wi-Fi location server," Ex. 3 ('988), 14:14, and the specification explains that the operations performed by the logic all occur

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[6] Even the "logic to recalculate position information for Wi-Fi access points . . ." in claim 1 of the '988 patent must be "computer-implemented," because the full clause reads "computer-implemented logic . . . including logic to recalculate . . . ." The "logic to recalculate" is a sub-part of computer-implemented logic, and as a result must itself be computer-implemented.

within a "Central Network Server." *Id.* 11:47-13:31. Because a server is a combination of hardware and software, the "logic" within the server is not constrained to mean only hardware or only software.

> **D.** **"computer-implemented logic to add records to the database for newly-discovered Wi-Fi access points"**

Skyhook has already proposed a construction for the term "logic." And the "records" added to the database simply contain data for newly-discovered Wi-Fi access points. The appropriate construction is thus "computer-implemented software and/or hardware to add data records to the database for newly-discovered Wi-Fi access points."

> **E.** **"logic to recalculate position information for Wi-Fi access points previously stored in the database to utilize position information for the newly-discovered readings of previously stored Wi-Fi access points"**

Skyhook's proposed construction is as follows:

> Software and/or hardware to recalculate position information for Wi-Fi access points previously stored in the database. This recalculation utilizes new position information for such Wi-Fi access points calculated using scans taken after the previously stored Wi-Fi access points were stored.

This construction is consistent with the plain meaning of the claim term: logic (i.e., hardware and/or software) is used to recalculate position information for Wi-Fi access points previously stored in the database (i.e., existing access points). The specification clarifies the remainder of the claim language: "[E]xisting access points are repositioned based on any new data recorded by the scanners." Ex. 3 ('988), 12:33-34. Thus, the "recalculation" utilizes position information based on new data recorded by the scanners (i.e., scans taken after the previously stored Wi-Fi access points were stored).

> **F.** **"computer-implemented clustering logic to identify position information based on error prone GPS information"**

Skyhook's proposed construction is as follows:

Computer-implemented software and/or hardware to identify when position information for a Wi-Fi access point based on GPS readings is likely to be erroneous. The software and/or hardware identifies position information that is not located within a certain threshold distance of other position information for the Wi-Fi access point.

Defendant argues this claim term is indefinite because it "fails to apprise the person of ordinary skill in the art what constitutes "error prone GPS information." But Defendant cannot bear its burden of demonstrating "by clear and convincing evidence" that the claim term is "insolubly ambiguous" because the term's meaning is immediately obvious, requiring only "application of the widely accepted meaning of commonly understood words." *See Phillips*, 415 F.3d at 1314. "Error prone GPS information" simply means GPS information that is error prone. "Error prone" means likely to be erroneous or imprecise. This is confirmed by the patent specification. *See* Ex. 3 ('988), 12:1-4 ("the GPS receiver may record erroneous . . . records").

The only term further requiring construction is "clustering." In the specification, "clustering" refers to a class of techniques that can be used identify GPS readings that are error prone. *See id.* 12:6-7, 12:15-17. The specification's example of a clustering technique involves identifying outlier position information, *e.g.*, position information that is not located within a certain threshold distance of other position information. *Id.* 12:7-17.

G.   "logic to determine a weighted centroid position for all position information reported for an access point"

Skyhook's proposed construction is as follows:

Software and/or hardware to determine a weighted centroid position for a Wi-Fi access point. The weighted centroid position is determined using all position information reported for that Wi-Fi access point.

The term weighted centroid position is defined elsewhere as a weighted average position. Section VIII.K. Skyhook's construction expands what is otherwise a long and dense claim element and makes clear, based on the plain and ordinary meaning, that the weighted centroid

position is determined using all position information reported for that Wi-Fi access point.

H. "logic to identify position information that exceeds a statistically-based deviation threshold amount away from the centroid position"

Skyhook's proposed construction is as follows:

> Software and/or hardware to identify position information whose distance from the centroid position exceeds a certain threshold distance. This threshold distance is based on the distribution of the position information used to calculate the centroid position.

This claim element recites the following elements: (1) logic (i.e., hardware and/or software) (2) to identify position information (3) that exceeds a statistically-based deviation threshold amount away from a centroid position. The first two elements are in the claim itself.

Skyhook's claim construction defines element (3): Position information that "exceeds a statistically-based deviation threshold amount away from the centroid position." This language refers to a distance that is based on the statistical distribution of the position information that is used to calculate the centroid position. *See* Ex. 3 ('988), 12:12-17 ("the system first calculates the weighted centroid for the access point using all reported data. . . . [then] uses a definable threshold based on [the distribution of the reported locations] to filter out access points that are in error"). Position information that deviates from (i.e., is father away from) the centroid position by more than the threshold is identified so that it can be filtered out. *Id.* 12:17-19 ("Once these error records are marked, the centroid is recalculated with the remaining location records . . . .").

I. "the clustering logic . . . excludes such deviating position information from the database and from influencing the calculated position of the Wi-Fi access points"

Skyhook's proposed construction is as follows:

> The software and/or hardware excludes such deviating position information from being stored in the database of WiFi access points. Such deviating position information is not used to determine the calculated positions of the Wi-Fi access points.

For purposes of clarity, this claim construction simply breaks the function of the logic into two sentences.

J. "computer implemented logic to add records to the database for newly-discovered Wi-Fi access points"

In light of the definition of the term "logic" above, no further construction is necessary.

K. "a weighted centroid position"

Skyhook's Proposed Construction	Defendant's Proposed Construction
A position determined by weighted averaging of position information.	A position determined by weighted averaging of recorded positions.

The parties agree that a "weighted centroid position" is "a position determined by weighted averaging." The only question is whether the "weighted averaging" is of "position information" (Skyhook's construction) or "recorded positions" (Defendant's construction).

Skyhook's claim construction is based on the remainder of the claim language, which states that "a weighted centroid position" is determined "for all position information reported for an access point." Skyhook's claim construction is confirmed by the patent specification, which uses the same language. Ex. 3 ('988), 4:51-52 ("a weighted centroid position for all position information reported for an access point").

Defendant's claim construction, however, is unsupported by the claim language or the patent specification. The modifier "recorded" appears nowhere in the claim language. And the phrase "recorded position(s)" appears nowhere in the '988 patent at all.

IX.   DISPUTED TERMS IN THE '897 PATENT

A.   "a WiFi-enabled device communicating with WiFi access points within range of the WiFi-enabled device so that observed WiFi access points identify themselves"

Skyhook's Proposed Construction	Defendant's Proposed Construction
A user device having a Wi-Fi radio communicates with Wi-Fi access points within range of the user device.	A user device having a Wi-Fi radio actively searching for Wi-Fi access points by transmitting a signal to all Wi-Fi access points

Communications received by the user device include an identifier (*e.g.*, a MAC address) for observed Wi-Fi access points.	within range and receiving a response that includes a unique identifier (*e.g.*, a MAC address) from each such Wi-Fi access point.

The dispute between the parties with respect to this claim term is whether it encompasses both active and passive scanning. Skyhook's claim construction encompasses both active and passive scanning, while Defendant's proposed construction attempts to limit this phrase to active scanning only. But there is nothing in the claim language (or the patent specification) that supports Defendant's proposed construction.

As an initial matter, the patent discloses that data may be collected from Wi-Fi access points either actively or passively. For example, the specification describes how "[t]he client device monitors the broadcast signal or requests its transmission via a probe request." Ex. 4 ('897), 6:52-53. Monitoring a broadcast signal refers to passive data collection while requesting transmission of a broadcast signal refers to active data collection. The specification also describes how "[t]he client positioning software receives signal beacons or probe responses from the 802.11 access points in range . . . ." *Id.* 6:56-58. Receiving signal beacons refers to passive data collection while receiving probe responses refers to active data collection. In both cases, identification information for the Wi-Fi access points would be received by the Wi-Fi enabled device. Thus, there is nothing in the specification that limits data collection to active scanning.

Skyhook's claim construction is also consistent with the dictionary definition of "communicating." For example, *The IEEE Standard Dictionary of Electrical and Electronics Terms* 182 (6th ed. 1996), defines "communication" to mean "The transmission of information from one point to another by means of electromagnetic waves" or "The flow of information from one point, known as the source, to another, the receive." Ex. 14. Thus, "communicating" does not require two way communication. In other words, the Wi-Fi enabled device does not need to transmit to as well as receive information from the Wi-Fi access points. Instead, communicating

encompasses the Wi-Fi enabled device (the "receive") passively monitoring the transmissions

broadcast by Wi-Fi access points (the "source") within range.

Skyhook's proposed construction does not define "communicating with" because

Skyhook believes that its meaning is readily apparent even to lay persons. However, if needed,

Skyhook would propose a definition of "receiving information from, transmitting information to,

or both receiving information from and transmitting information to."

Finally, Defendant's proposed claim construction has the following extraneous limitations

that are not present in Skyhook's proposed claim construction: (1) "actively searching," (2) "by

transmitting a signal," (3) "to all Wi-Fi access points," (4) "receiving a response," (5) including a

"unique identifier," and (6) "from each such Wi-Fi access point." Defendant's construction

should also be rejected for once again trying to narrow the scope of the claim language by adding

limitations from the preferred embodiments.

B. **"using the recorded location information for each of the observed WiFi access points in conjunction with predefined rules to determine whether an observed WiFi access point should be included or excluded from a set of WiFi access points"**

Skyhook's Proposed Construction	Defendant's Proposed Construction
Does not need to be construed. But if construed: Predefined rules are used to determine whether each observed WiFi access point should be included or excluded from a set of WiFi access points that is to be used to calculate location. The predefined rules consider recorded location information for each of the observed WiFi access points.	Indefinite under 35 U.S.C. § 112, ¶ 2

The parties have proposed constructions for the terms "recorded location information"

and "WiFi access points." The remaining words in this phrase are straightforward and do not

require further construction. But should the Court find an express construction to be necessary,

Skyhook proposes an alternative construction that breaks up the claim phrase into two separate

sentences to make it easier to understand, while hewing closely to the claim language.

Defendant does not propose a construction for this phrase. Defendant instead argues that the claim language is indefinite because the language fails to apprise the person of ordinary skill in the art what constitutes the claimed "predefined rules." But the phrase "predefined rules" has a plain and ordinary meaning that is readily apparent even to laymen. As such, construing the terms "involves little more than the application of the widely accepted meaning of commonly understood words." *Phillips*, 415 F.3d at 1314.

Webster's Third New International Dictionary Unabridged 1785 (2002) defines "predefine" to mean "to define or determine in advance." Ex. 6. *The American Heritage College Dictionary* 1192 (3rd ed. 1997) defines "rule" to mean "a standard method or procedure for solving a class of problems." Ex. 11. Taken together, "predefined rules" is commonly understood to mean determining in advance a method for solving a class of problems, in this case, determining whether a WiFi access point should be included or excluded from a set used to calculate location.

C. "rules to determine a reference point and to compare the recorded location information for each of the observed WiFi access points to the reference point"

Skyhook's Proposed Construction	Defendant's Proposed Construction
Does not need to be construed. But if construed: Rules that (1) first determine a reference point and (2) then compare the recorded location information for each of the observed WiFi access points to the reference point.	Indefinite under 35 U.S.C. § 112, ¶ 2

This phrase is readily understood from the context of its use in the claims. To the extent the Court feels further guidance is necessary, Skyhook's proposed construction merely adds structure to this long, but otherwise easily understandable phrase in the claim.

Defendant does not propose a construction for this phrase. Defendant instead argues that

the claim language is indefinite. For the reasons set forth in Section IX.B. with respect to

"predefined rules" and their plain and ordinary meaning, Defendant's argument fails.

X.   CONCLUSION

For the reasons stated above, Skyhook respectfully requests that the Court find the claim

terms not indefinite, adopt Skyhook's constructions, and reject those offered by Defendant.

Respectfully submitted,

SKYHOOK WIRELESS, INC.,

By their attorneys

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I, Samuel K. Lu, hereby certify that this document filed through the ECF system will be sent electronically to the registered participants as identified on the Notice of Electronic Filing (NEF) on September 14, 2011.

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/s/ Samuel K. Lu

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