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Paper 54
Entered: October 21, 2015

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC., and
SAMSUNG TELECOMMUNICATIONS AMERICA, LLC,
and
LG ELECTRONICS, INC., LG ELECTRONICS U.S.A., INC., and LG ELECTRONICS MOBILECOMM U.S.A., INC.
Petitioner,

v.

BLACK HILLS MEDIA, LLC,
Patent Owner.

Case IPR2014-00735
Case IPR2015-00336
Patent 6,618,593 B1

Before BRIAN J. MCNAMARA, DAVID C. MCKONE,
and PETER P. CHEN, *Administrative Patent Judges.*

MCKONE, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. Background

Samsung Electronics Co., Ltd. filed a Corrected Petition (Paper 4, "Pet.") to institute an *inter partes* review of claims 1, 4, 7, 10, and 13–21 of U.S. Patent No. 6,618,593 B1 (Ex. 1007, "the '593 patent"). Samsung Electronics America, Inc., and Samsung Telecommunications America, LLC, are identified as real parties-in-interest. Pet. 1. Black Hills Media, LLC ("Patent Owner") filed a Preliminary Response (Paper 11,[1] "Prelim. Resp."). Pursuant to 35 U.S.C. § 314, in our Decision to Institute, we instituted this proceeding as to all of the challenged claims of the '593 patent. Paper 18 ("Dec.")

After Samsung Electronics Co., Ltd., filed its Petition, LG Electronics, Inc., LG Electronics U.S.A., Inc., and LG Electronics MobileComm U.S.A., Inc., filed a petition (Case IPR2015-00336 ("the '336 proceeding"), Paper 2) and a motion to join the '336 proceeding to this proceeding (Case IPR2015-00336, Paper 3). We granted the motion for joinder, instituting the '336 proceeding on grounds identical to those in this proceeding. Paper 31. We refer to the petitioners in the joined proceeding collectively as "Petitioner."

After the Decision to Institute, Patent Owner filed a Patent Owner Response (Paper 35, "PO Resp."), and Petitioner filed a Reply to the Patent Owner Response (Paper 40, "Reply"). An oral hearing was held on July 28, 2015. Paper 53 ("Tr.").

[1] Unless otherwise noted, paper numbers refer to papers filed in IPR2014-00735.

Petitioner relies on the testimony of Stephen B. Heppe, D.Sc. (Ex. 1005, "Heppe Decl."; Ex. 1014, "2nd Heppe Decl.") in support of its contentions. Patent Owner relies on the testimony of Ivan Zatkovich (Ex. 2017, "Zatkovich Decl.") in support of its contentions.

We have jurisdiction under 35 U.S.C. § 6(c). This Decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the challenged claims. Based on the complete record, Petitioner has demonstrated, by a preponderance of the evidence, that all of the challenged claims are unpatentable.

B. Related Matters

The '593 patent has been asserted against multiple defendants in *Black Hills Media, LLC v. Samsung Electronics Co., Ltd.*, No. 2-13-cv-00379 (E.D. Tex.). Pet. 1; Paper 7, 2.

The '593 patent also is at issue in *Black Hills Media, LLC v. LG Electronics, Inc.*, No. 1:13-cv-00803 (D. Del.), and *Black Hills Media, LLC v. Sharp Corp.*, No. 1:13-cv-00804 (D. Del.). Paper 7, 2.

The '593 patent is the subject of an investigation before the United States International Trade Commission ("ITC"), *Certain Digital Media Devices, Including Televisions, Blu-Ray Disc Players, Home Theater Systems, Tablets and Mobile Phones, Components Thereof and Associated Software*, Inv. No. 337-TA-882 ("ITC investigation"). Pet. 1; Paper 7, 2. In the ITC investigation, the Administrative Law Judge determined that certain claims of the '593 patent are invalid and not infringed. *Initial Determination*, Inv. No. 337-TA-882, at 462 (Aug. 6, 2014).

C. References Relied Upon

Petitioner relies upon the following prior art references:

Ex. 1003	Degnbol	WO 00/22860	Apr. 20, 2000
Ex. 1008	DeLorme	US 5,948,040	Sept. 7, 1999

D. The Asserted Grounds

We instituted this proceeding based on the following specific grounds (Dec. 26–27):

Reference(s)	Basis	Claim(s) Challenged
Degnbol	§ 103(a)	1, 4, 7, 10, 13, 14, and 16–21
Degnbol and DeLorme	§ 103(a)	15

E. The '593 Patent

The '593 patent is directed to a system for matching mobile communication devices (e.g., cellular telephones) using location and profile information. Ex. 1007, Abstract. Figure 1, reproduced below, illustrates an example:

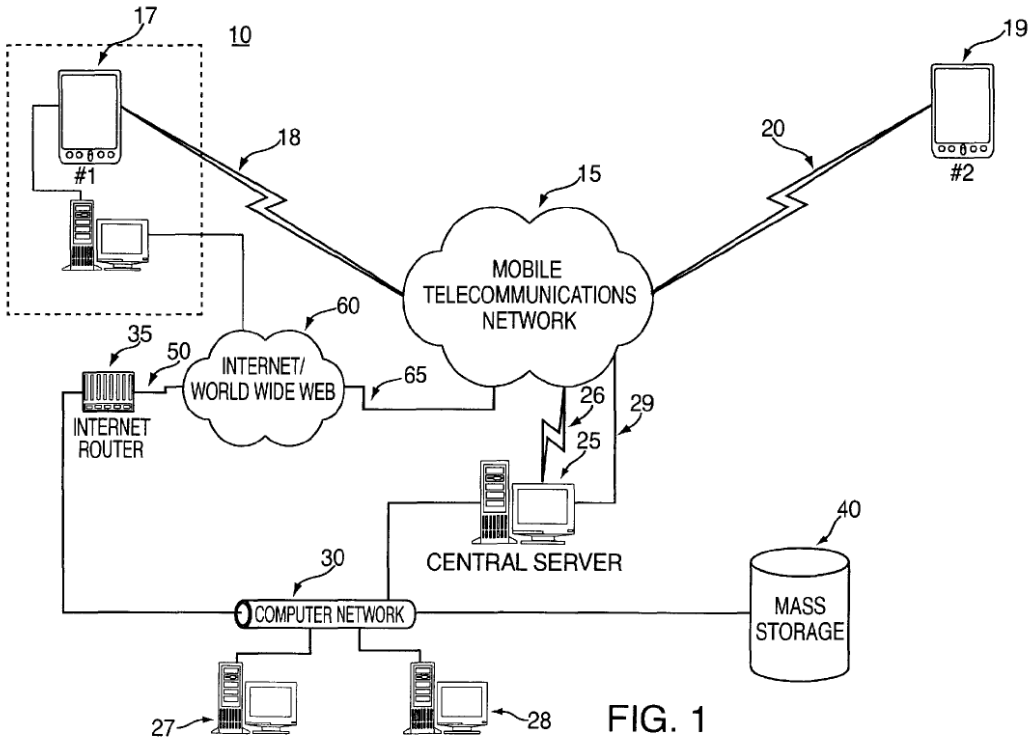


FIG. 1

Figure 1 is a block diagram of a mobile telecommunications network.

As shown in Figure 1, first mobile communications device 17 and second mobile communications device 19 communicate with mobile telecommunications network 15 over wireless communications links 18 and 20, respectively. *Id.* at 5:38–43. Mobile telecommunications network 15 is connected to central computer server 25, which can be, for example, a personal computer or an internet server. *Id.* at 5:60–66.

Each mobile communication device has associated with it a data structure, the data in the structure including a location of the device (e.g., Global Positioning System ("GPS") coordinates), a receive/transmit status, and profile/preference data. *Id.* at 6:42–7:31. In one example, "the receive status data consists of a toggle bit within the wireless data stream transmitted over the wireless communications links that indicates whether the associated mobile communications device is accepting data or requests from other

mobile communications devices or the central server 25" (*id.* at 6:62–67), and the transmit status "indicates to the mobile communications device itself, whether requests or data should be sent to other mobile communications devices or to the central server" (*id.* at 7:1–4). The profile/preference data can include characteristics of the device's user (e.g., that the user is a manager in the Networking group at Xerox Corp.) and criteria for identifying other users (e.g., a preference to match with other managers at Xerox in a certain radius). *Id.* at 7:32–46. The data structures may be stored on the mobile communications devices or on the central server. *Id.* at 6:44–50.

In operation, central server 25 analyzes the profile/preference data of first and second mobile communications devices 17, 19 to determine whether they match; if they match, the central server examines the transmit/receive statuses of the devices to determine whether both devices permit them to be notified of the other; and, if so, the central server determines if each device is within a radius specified by the other. *Id.* at 8:54–9:2, Fig. 3. If the users of the two devices are close enough to one another and their profiles match, central server 25 causes locating information to be transmitted to either or both of the two devices. *Id.* at 9:3–8. "Such locating information may include either graphic or textual information and may be in any known format, e.g. a graphical map, textual directions, a video of the actual route to be traveled etc. Locating information may also be the raw GPS determined data." *Id.* at 9:8–12.

Claim 7, reproduced below, is illustrative of the claimed subject matter (additional paragraphing supplied):

> 7. A system for matching users of mobile communications devices comprising:
>
> a first mobile communications device for transmitting information defining a location of the first mobile communications device;
>
> a second mobile communications device for transmitting information defining a location of the second mobile communications device and a user sending status; and
>
> a central unit having a processor coupled to a memory,
>
> the central unit capable of communicating with the first mobile communications device over a first wireless communications link and with the second mobile communications device over a second wireless communications link,
>
> the memory storing a first user profile including information associated with a user of the first mobile communications device and a second user profile including information associated with a user of the second mobile communications device,
>
> wherein the central unit receives the user sending status from the second mobile communications device and the information defining the locations of the first and the second mobile communications devices and wherein the processor receives the first and the

> second user profiles to match information of the users and,
>
> if there is a match and depending upon the user sending status, effects the transmission to the first mobile communications device of locating information based upon the information defining the locations of the first and the second mobile communications devices.

II. ANALYSIS

A. Claim Construction

We interpret claims of an unexpired patent using the broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b); *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278 (Fed. Cir. 2015). Claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

In the Decision to Institute, we addressed the constructions of the following terms:

Claim Term	Construction in Decision to Institute
"locating information" (claims 1, 4, 7)	"information that indicates that a matching and available device is in proximate relation to another." Dec. 10.
"based upon the information defining the locations of the first and the second mobile communications devices" (claims 1, 4, 7)	No express construction. Dec. 10–11.

Claim Term	Construction in Decision to Institute
"user sending status" (claim 7)	"information indicating whether data should be sent to other mobile communications devices." Dec. 11–12.
"locating information is updated to track a movement of at least one of the first and the second mobile communications devices" (claim 17)	"locating information is updated to indicate a change in position of at least one of the first and the second mobile communications devices." Dec. 13.

Neither party challenges our construction of "locating information is updated to track a movement of at least one of the first and the second mobile communications devices" (Dec. 13), and we maintain that construction based on the full record.

In its Response, Patent Owner disputes our constructions of "locating information," "based upon the information defining the locations of the first and the second mobile communications devices," and "user sending status." PO Resp. 11–22.

1. "locating information" and "based upon the information defining the locations of the first and the second mobile communications devices"

In the Petition, Petitioner did not provide an express construction of "locating information." *See* Pet. 10–11. Patent Owner, however, responded that "locating information" is "information that is usable to arrive at a location." Prelim. Resp. 10. In the Decision to Institute, we disagreed with Patent Owner and construed the term to mean "information that indicates that a matching and available device is in proximate relation to another." Dec. 10.

In the Decision to Institute, we relied, in part, upon the '593 patent's description of an example of the decision-making process executed by central server 25 in determining whether to send locating information to mobile device. Dec. 1–8; Ex. 1007, 8:54–46, Fig. 3. In that example, central server 25 compares the profile/preference data of two mobile devices, examines their respective transmit and receive statuses, and determines whether the first mobile device is within a certain distance of the second mobile device. Ex. 1007, 8:56–9:2. If the profiles match, the statuses of the devices permit communication, and the second mobile device is within the certain distance, then

> central server 25 continues with step 315 and causes *locating information* to be transmitted to either or both of the first and second mobile communications devices 17 and 19 *indicating that a "matching" and "available" mobile communications device is in proximate relation to another*. Such locating information may include either graphic or textual information and may be in any known format, e.g. a graphical map, textual directions, a video of the actual route to be traveled etc. Locating information may also be the raw GPS determined data.

Ex. 1007, 9:3–12 (emphasis added). We determined that this passage describes "locating information" as information that indicates that a matching and available device is in proximate relation to another. Dec. 8. We understood the reference to "e.g., a graphical map, textual directions, a video of the actual route to be travelled etc.," to be non-limiting examples of locating information. *Id.*

In its Response, Patent Owner argues that we misread the Specification. PO Resp. 13. According to Patent Owner, "[t]he fact that locating information can indicate that 'a matching and available device is in

proximate relation to another' is merely a consequence that follows from receipt of the 'locating information.'" *Id.* (quoting Ex. 1007, 9:3–12). Put differently, Patent Owner argues that the phrase "indicating that a 'matching' and 'available' mobile communications device is in proximate relation to another" (Ex. 1007, 9:6–8) does not describe "locating information" itself, but rather the effect of the information's transmission.

Patent Owner contends that locating information must be "usable to arrive at a location," and finds support for this contention in the second part of the above-cited passage, namely, "locating information may include either graphic or textual information and may be in any known format, e.g. a graphical map, textual directions, a video of the actual route to be traveled etc. Locating information may also be the raw GPS determined data." PO Resp. 11–12 (citing Ex. 1007, 9:8–12). Patent Owner further points to examples in the Specification it contends use locating information to arrive at a location. *Id.* at 12 (citing Ex. 1007, 10:50–59 (central server transmits data to a male teenager "indicating a matching female teenager has been found"; "the seeking male teenager may receive the location and/or the personal information for the matching female teenager"), 11:9–39 (central server selects from a predetermined list a convenient meeting place for meeting attendees based on "instantaneous location data", and "transmits a message to each of the mobile communications devices . . . indicating the time and the location of the meeting"), 11:46–57 (when a first truck is in a certain proximity to a second truck, sending a message to the two truck drivers "indicating a convenient meeting place"), 15:27–37 (sending information to a lost child's mobile device "indicating that they have left the fixed boundary of the [amusement] park, or other confinement area specified

by the parent" and, "[a]dditionally, the child's mobile communications device may be provided with the location of the parent based on the location data 421 associated with the second mobile communications device")).

In reply, Petitioner points to additional examples in which messages sent to the mobile devices do not include information usable to arrive at a specific location. Reply 4–5 (citing Ex. 1007, 13:20–46 ("the information transmitted to the first mobile communication device may include a data that the device is inside or outside the distance 440 of fixed point 400"), 14:22–32 ("central server 25 continues with step 515 and causes locating information to be transmitted to either or both of the first and second mobile communications devices 17 and 19 indicating that a 'matching' and 'available' mobile communications device is in proximate relation to the fixed point or is disposed inside/outside the fixed boundary"). Petitioner further points to Patent Owner's "amusement park" embodiment (Ex. 1007, 15:14–37) as an example of locating information that indicates, to a child's phone, a proximity relative to a boundary. Reply 5–6. We note that the location of the parent is described as additional information that may be provided.

We agree with Petitioner that the Specification describes examples of "locating information" that indicates that a mobile device is within a certain proximity but without specifying a specific location. Indeed, in this Figure 5 embodiment (Ex. 1007, 14:22–32), the term "locating information" is used to describe information that is not usable to arrive at a specific location. We conclude that a construction excluding such embodiments would be unreasonably narrow. *See Epos Techs. Ltd. v. Pegasus Techs. Ltd.*, 766 F.3d 1338, 1347 (Fed. Cir. 2014) ("A claim construction that excludes a preferred

embodiment is rarely, if ever correct and would require highly persuasive evidentiary support." (internal quotation marks and citation omitted)). We note that Patent Owner does not offer persuasive evidence that the Specification defines "locating information" or excludes or disavows locating information that is not usable to arrive at a specific location.

Patent Owner also argues that our construction "ignores the word 'locating'" and "conflates the notions of 'locating information' and 'proximity/profile data.'" PO Resp. 13. Patent Owner argues that proximity/profile data is distinct from locating information. *Id.* at 13–16. We agree with Patent Owner that locating information is distinct from proximity/profile data, but disagree that our construction conflates the two. According to the '593 patent, in determining whether to send locating information, a central server evaluates profile data and proximity data to determine whether there is a match. Ex. 1007, 8:54–9:2. Locating information is not merely the profile and proximity data, nor is proximity/profile data sent to the mobile devices. Rather, the central server sends to a mobile device locating information that indicates to the mobile device that the profile and proximity data have been successfully matched. *Id.* at 9:3–8. Our construction of "locating information" is directed to the information transmitted by the central server, rather than the information received by the central server.

As to reading the word "locating" out of "locating information," Petitioner, in reliance on Dr. Heppe, argues that "information, sent as a consequence of a proximity test, is 'locating information' *because information about a device's proximity to known locations provides information about that device's location*." Reply 3 (quoting Ex. 1014 ¶ 2).

We credit Dr. Heppe's testimony and agree with Petitioner. We conclude that our construction neither ignores "locating" nor conflates "locating information" with proximity/profile data.

Neither party proposes a construction of "based upon the information defining the locations of the first and the second mobile communications devices." Nevertheless, Patent Owner argues that "locating information" is further qualified by this claim language. PO Resp. 17. According to Patent Owner, in reliance on Mr. Zatkovich's testimony, "[l]ocation information must include **information about the *location**s*** **of at least *two devices***." *Id.* (citing Ex. 2017 ¶ 49). The plain language of the claims recites "based on," rather than "includes." Patent Owner does not persuasively argue that information "based on" the locations of two devices necessarily must include the two locations. Indeed, in the truck example Patent Owner cites (*Id.* at 6 (citing Ex. 1007, 11:46–57)), the information Patent Owner identifies as locating information is a transmission by the central server of a convenient meeting place, which, presumably, includes the location of neither truck.

Mr. Zatkovich testifies that in instances such as textual directions and a video of the route to be travelled, "the 'locating information' is based on and derived from the locations of both devices." Ex. 2017 ¶ 49. We agree. Nevertheless, information that indicates to a user that a second user is within a certain proximity of a first user also is based on and derived from the locations of both devices.

We note that in both the teenager and amusement park examples Patent Owner cites, the Specification describes sending to one party the location of the other party. Ex. 1007, 10:53–55 ("the seeking male teenager

may receive the location and/or the personal information for the matching female teenager"), 15:31–33 ("Additionally, the child's mobile communications device may be provided with the location of the parent based on the location data 421 associated with the second mobile communications device."). This information, however, need not be based on the locations of both devices. Indeed, in the amusement park example, the location of the parent is based only on "the location data 421 associated with the second mobile communications device." *Id.* at 15:31–33. In the teenager example, the only information transmitted by the central server that is based on the locations of both devices is the information "indicating a matching female teenager has been found." *Id.* at 10:50–53.

Lastly, Petitioner contends that Patent Owner is incorrect to exclude telephone numbers from "locating information." Reply 6. Patent Owner cites to the Initial Determination in the ITC investigation, which adopted Petitioner's proposed construction therein of "locating information" ("information that enables a user to contact or find another device or location"), a construction that Petitioner does not advance in this proceeding. *Id.* (citing Ex. 1016, 383). To the extent that Petitioner proposes that we adopt in this proceeding the construction from the ITC investigation, Petitioner does not persuasively support that construction on the record of this proceeding. Moreover, as it is not necessary to determine whether a telephone number indicates that a matching and available device is in proximate relation to another in order to determine whether the prior art renders obvious the challenged claims, we take no position on whether a telephone number is "locating information." *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) ("[O]nly those terms

need be construed that are in controversy, and only to the extent necessary to resolve the controversy.") (citation omitted).

On the complete record, we maintain our construction of "locating information." We further conclude that "based upon the information defining the locations of the first and the second mobile communications devices" requires no express construction.

2. "user sending status"

Petitioner proposes construing "user sending status" to mean "information indicating whether data should be sent to other mobile communications devices." Pet. 5–6. In the Preliminary Response, Patent Owner argued that this term means "information indicating whether the user's device is configured to send data." Prelim. Resp. 13–14. In the Decision to Institute, we adopted Petitioner's proposal. Dec. 12.

In its Response, Patent Owner renews its proposal, arguing that "a sending status for a mobile communications device must indicate whether the mobile communications device is able to send data to other mobile communications devices or to the central server." PO Resp. 19. Patent Owner cites to a passage in the Specification describing a "transmit status," which Patent Owner equates to a "user sending status." *Id.* at 20–21. In particular, the Specification states that "[t]he transmit status data . . . indicates to the mobile communications device itself, whether requests or data should be sent to other mobile communications devices or to the central server." Ex. 1007, 6:60–7:4. Patent Owner reads this to mean that "[t]he *transmit status data* (i.e. user sending status) controls whether the data is sent from the communications device to the central server, and subsequently

to other communications devices." *Id.* at 21. Patent Owner relies on Mr. Zatkovich, who testifies that "[t]he purpose of the user sending status in this example is to enable and disable the transmission of locating information from device 19 to the central server." *Id.* at 21–22 (quoting Ex. 2017 ¶ 56). Patent Owner argues that "'*user sending status*' is a privacy control akin to '*do not track*,' which allows a user to opt out of transmitting location information altogether." *Id.* at 22.

In response, Petitioner argues that the user sending status controls the transmission of locating information from the central server[2] to another mobile device. Reply 16–17 (citing Ex. 1007, 3:17–42 ("wherein the central unit receives the user sending status from the second mobile communications device and the information defining the locations of the first and the second mobile communications devices . . . and depending upon the user sending status, effects the transmission to the first mobile communications device of locating information based upon the information defining the locations of the first and the second mobile communications devices"). Because this example includes sending the user sending status to the central server, it is inconsistent with Mr. Zatkovich's testimony that the user sending status prevents any transmission to the central server.

To the extent that Patent Owner's characterization of the Specification's description of "transmit status" is accurate, it is not consistent with how the term "user sending status" is used in claim 7. Specifically, claim 7 recites that "the central unit receives the user sending

[2] The Specification generally uses the term "central server," while the claims generally use the term "central unit." The parties do not argue that these terms should be accorded different meanings. Reading the claims in light of the Specification, we understand these terms to be synonymous.

status from the second mobile communications device and the information defining the locations of the first and the second mobile communications devices" and "if there is a match and depending upon the user sending status, effects the transmission to the first mobile communications device of locating information." As Petitioner points out (Reply 18), claim 7 specifies that the central unit receives from the second mobile communications device both a user sending status and information defining location of the second mobile communications device. The user sending status is used by the central unit, along with the information defining the device's location, to determine whether to send locating information to another device. Patent Owner's proposed construction, and the explanation provided by Mr. Zatkovich, would exclude the second communications device from transmitting to the central server the very information specifically recited in claim 7. Because Mr. Zatkovich's testimony, specifically his statement that "[t]he purpose of the user sending status in this example is to enable and disable the transmission of locating information from device 19 to the central server," Ex. 2017 ¶ 56, is directly contradicted by the language of claim 7, the testimony lacks credibility.

Moreover, as explained in the Decision to Institute (Dec. 11–12), the Specification describes embodiments in which the transmit status is transmitted to the central server and controls whether the central server transmits locating information to another device. Ex. 1007, 6:44–50, 8:1–7, 9:3–8, 10:50–59, 11:24–29. These passages provide additional support for Petitioner's proposed construction of "user sending status." Patent Owner's proposed construction would exclude these embodiments.

At the hearing, Patent Owner argued that:

> Whereas, petitioner asserts that user receiving status deals with the receipt of data or requests from other communications devices or the central server, that's important, or the central server, . . . petitioner's proposed construction for using sending status plainly eliminates this reference to the central server. By conveniently omitting this reference, the petition unreasonably broadens the scope of this claim and ignores the teachings of the Drutman ['593] patent specification as to the proper claim scope.

Tr. 27:11–19. We are not persuaded. First, Patent Owner's hearing argument that the central server receives a user sending status is at odds with its Response argument that the user sending status prevents any transmission to the central server. Second, claim 7 itself recites the role of the central unit, including that the central unit "receives . . . the user sending status" and "depending upon the user sending status," effects the transmission of locating information. Thus, the role of the central unit is specified by claim 7 regardless of whether it is included explicitly within the construction of "user sending status."

On the complete record, including the plain language of claim 7 and the description in the Specification, we maintain our construction of "user

sending status" as "information indicating whether data should be sent to other mobile communications devices."[3]

B. Asserted Grounds of Unpatentability

1. Obviousness over Degnbol

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are "such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." We resolve the question of obviousness on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art;[4] and (4) objective evidence of

[3] At the oral hearing, Patent Owner admitted that it did not include in its Response any patentability argument distinguishing the prior art under its proposed construction of "user sending status." Tr. 13:7–14:16. Instead, Patent Owner points to the testimony of Mr. Zatkovich, which Patent Owner admits is not cited in its Response. *Id.* (citing Ex. 2017 ¶¶ 81–89). Even if we were to adopt Patent Owner's proposed construction of "user sending status," Patent Owner has waived any patentability arguments based thereon, as they were not raised in the Response. *See, e.g.*, Paper 27 (Scheduling Order), 2–3 ("The patent owner is cautioned that any arguments for patentability not raised in the response will be deemed waived.").

[4] Petitioner, citing Dr. Heppe's testimony, contends that a person of ordinary skill in the art "would typically have at least a Bachelor of Science degree in electrical engineering, computer engineering, computer science, or equivalent thereof, and one to two years of experience in the field of computer communications, telecommunications, and/or communications networking." Pet. 6 (citing Ex. 1005 ¶ 3). Patent Owner neither contends that this is incorrect nor proposes an alternative. On the full record, we adopt Petitioner's statement of the level of skill in the art.

nonobviousness, i.e., secondary considerations.[5] *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Petitioner contends that claims 1, 4, 7, 10, 13, 14, and 16–21 would have been obvious over Degnbol. Pet. 3. For the reasons given below, we agree.

a. Overview of Degnbol

Degnbol describes a system that automatically notifies a first communication unit (such as a cellular telephone) when a second communication unit matching user-specified parameters enters a pre-determined area or proximity. Ex. 1003, 1:7–11. Figure 1, reproduced below, illustrates an example:

[5] The record does not contain any evidence of secondary considerations.

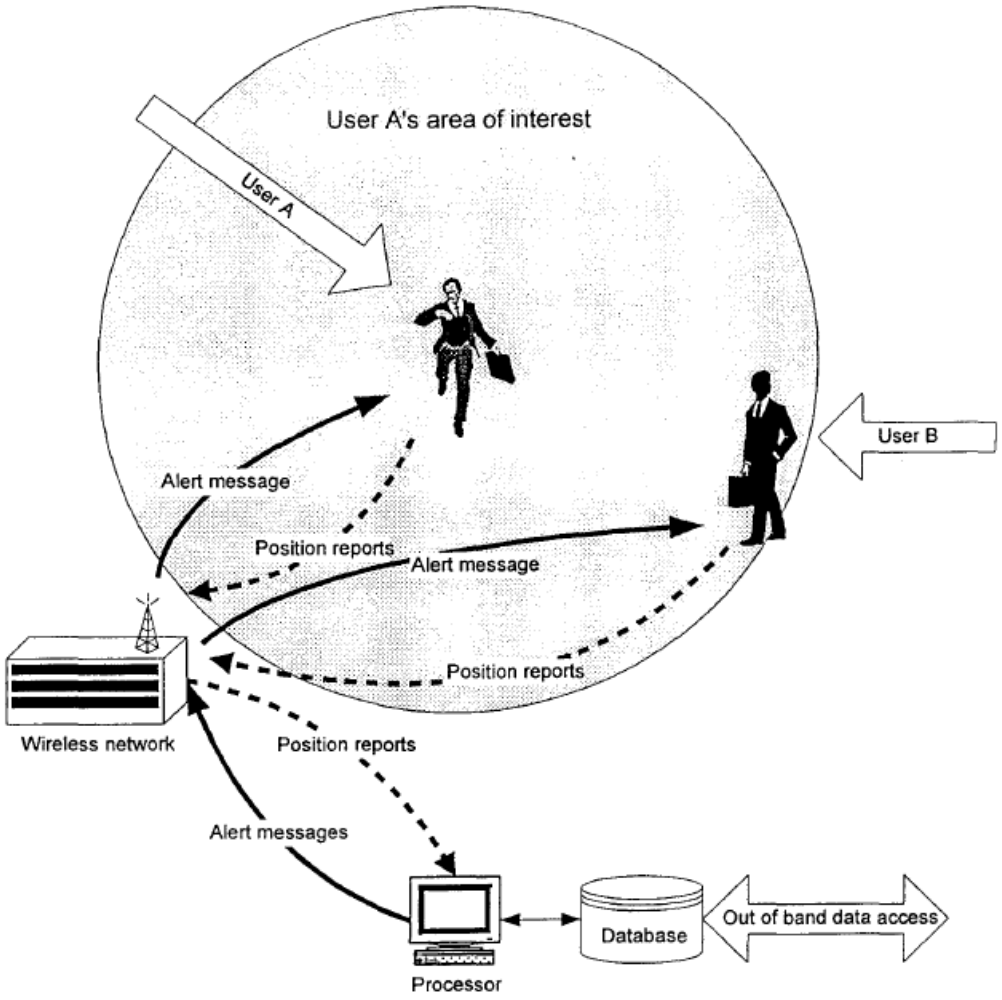


Figure 1 illustrates the operation of a cellular network. *Id.* at 20:23–24. User A and User B are subscribers to the network and each carries a communications device such as a data-enabled cellular phone. *Id.* at 20:24–30. The network knows the position of each of the cellular phones through network-based or mobile-based position calculations, for example, by triangulation methods or by GPS. *Id.* at 5:7–9, 20:30–32.

As shown in Figure 1, a processor is connected to the network and a database is, in turn, connected to the processor. Users A and B provide profile information to the database. *Id.* at 20:25–26. The profile information can include information about which other users can be contacted on behalf

of the user. For example, "User A's profile includes a desire to be alerted when User B is in his vicinity; User B's profile includes a permission to notify User A of his whereabouts." *Id.* at 20:26–28.

An example of profile data is illustrated in Table 1 (Ex. 1003, 22), reproduced below:

User Name	Unit ID	Altering Times	Geo Area	Users	Interests	Permissions
JohnS	jsmith@domain.com	1000-1400	Proximity <2km	Any	Sports: Bball: NBA: Bulls	Any
	555-234-5678	1700-2000	City: Street	JulieS	-	JulieS

Table 1. PROFILES Data

Table 1 is an example user entry in a database containing user name, device identification (Unit ID), and various user preferences. *Id.* at 21:23–29. In the first row of this example, user "JohnS" has indicated that he is to be alerted only from 10 A.M. to 2 P.M.,[6] if any user matching certain interests (sports, basketball, and the Chicago Bulls) is within 2 km of John's phone. *Id.* at 22:4–5. The "Permissions" column indicates that any user can be alerted to JohnS's presence during this time. *Id.* at 22:6–8. In the second row, JohnS has indicated that he is to be alerted only from 5 P.M. to 8 P.M. if JulieS reaches a particular map point. *Id.* at 22:5–6. According to the permissions, only JulieS can be alerted to JohnS's presence during this time.

[6] The heading "Altering Times" should be "Alerting Times." *See* Ex. 1003, 22:4–6.

If the server identifies a profile match between two users, the users' phones are in the specified proximity, and the users have indicated permission to send to and receive from each other, the server generates user alert messages to one or both of the users. *Id.* at 12:25–29, 13:10–13, 18:29–33.

> The generated message may comprise text, e.g. information about the distance between user "A" and user "B", graphics, such as an image or an icon, a map or diagram with a pointer showing the location of the user, a video clip, sound, such as voice, a fragrance, light emission, and/or movements, such as vibration, or any combination thereof.
>
> In an optional implementation, closer proximity decreases the intervals between alert signals (i.e. light or sound emission), resulting in an escalation of signal frequency as users approach each other.

Id. at 5:16–24.

Degnbol also describes an "incognito" mode, in which a user can disable and re-enable his or her participation in the system. *Id.* at 13:4–6. In this mode, the server will not send messages regarding the user to other users; however, the user may be alerted of other users' presences. *Id.* at 13:13–15.

b. Claim 7

Petitioner contends that Degnbol's cellular phones A and B are a "first mobile communications device" and a "second mobile communications device," with each "transmitting information defining a location of" the device, as recited in claim 7. Pet. 41. Petitioner relies on disclosure in Degnbol identifying "[r]eporting of current unit position" as one of the fundamental elements of Degnbol's invention and description stating that the

position calculation can be "network-based or mobile-based." *Id.* (citing Ex. 1003, 12:17–29, 20:29–32).

Patent Owner argues that Degnbol teaches determining the locations of cellular phones by deriving or inferring, using triangulation techniques, the positions of the phones from the locations of the cellular towers that receive signals from the phones. PO Resp. 26–28. Patent Owner does not connect this argument to any contention regarding patentability over Degnbol. Nevertheless, we understand Patent Owner's contention to be that Degnbol does not teach "transmitting information defining a location of" a device.

Degnbol describes several techniques for determining the location of cellular phones, including using GPS technology:

> The simplest form of location determination is based on the fact that all cellular networks are built of a number of "cells", each covering an area ranging from a few hundred meters to several miles. Users of the system are constantly located by the systems universal tracking function. This means the individual users are tracked by cell. Although this method is not very accurate and precision varies with cell size, it may be sufficient for some embodiments of the system described in this document.
>
> More precise systems use technologies such as time difference of arrival, (TDOA), power/signal attenuation, angle of arrival (AOA), Radio Signal Mapping, *GPS (Global Positioning System)* or a combination to establish the position of the user. These systems can be purchased from third-party providers and installed in existing cellular networks. The only requirement for use in this system is that they can provide a streaming real-time or near real-time feed of user location data to a database.

Ex. 1003, 1:22–34 (emphasis added). Degnbol further explains that "[t]he determination of the position of one or more units in the set may comprise

the use of several determination methods, such as triangulation methods, *GPS*, AOA, TDOA, Radio Signal Mapping, power/signal attenuation or a combination." *Id.* at 5:7–9 (emphasis added). Degnbol also distinguishes between "network-based" and "mobile-based" position calculation: "Each carries a communications device (e.g., data-enabled cellular phone), the position of which is known to the wireless network. Whether the position calculation is network-based or mobile-based, as illustrated here, is irrelevant to the invention." *Id.* at 20:29–32.

Mr. Zatkovich analyzes Degnbol and testifies that: "[i]nstead of a communications device transmitting data defining its own location, these systems mentioned in Degnbol know the positions of the network's cellular tower and use this information to derive the location of a communications device. To summarize, Degnbol's cellular tower infers the location of communications devices." Ex. 2017 ¶ 63. We understand Mr. Zatkovich to be testifying that Degnbol's reference to "GPS" is a reference to the GPS coordinates of the cellular towers, rather than the GPS coordinates of the mobile telephones. Mr. Zatkovich does not cite to evidence other than Degnbol in reaching this conclusion. In reply, Dr. Heppe testifies, "a person of ordinary skill would understand Degnbol to teach (among other things) a 'mobile-based' position determination method with GPS receivers in (or associated with) the mobile devices." Ex. 1014 ¶ 15. Dr. Heppe also relies exclusively on Degnbol's disclosure in reaching his conclusion.

Patent Owner argues that Degnbol has no explicit disclosure of mobile devices including GPS transceivers and that Degnbol's distinction between "network-based" and "mobile-based" position calculation is "cryptic." PO Resp. 27–28. The logical reading of Degnbol's disclosure is that mobile-

based methods, such as tracking a mobile phone's position through receipt of GPS information from the phone, are distinct from "network-based" techniques, such as triangulation. *See, e.g.*, Ex. 1003, 5:7–9 ("several determination methods, such as triangulation methods, GPS . . ."). As Dr. Heppe points out (Ex. 1014 ¶ 15), Figure 1 of Degnbol depicts a wireless network receiving "position reports" from users. To the extent there is any ambiguity, this is persuasive evidence that Degnbol's cellular phones transmit information about their positions, such as GPS coordinates, to a central server. In consideration of all of this evidence, we find that Degnbol teaches first and second mobile communications devices "for transmitting information defining a location of" each device.

Claim 7 also recites a second mobile communications device for transmitting "a user sending status." Petitioner, relying on Dr. Heppe (Ex. 1005 ¶¶ 26–28), contends that the "Permissions" field of the profile data shown in Table 1 of Degnbol is a user sending status. Pet. 19. The permissions information is sent to the central server for storage in the user's profile. *Id.* Petitioner argues that Degnbol teaches the communications device transmitting a user sending status (i.e., the Permissions field), as recited in claim 7. *Id.*

Patent Owner does not argue that Degnbol fails to teach a "user sending status" under our construction. Moreover, as explained above, Patent Owner concedes that it does not present in its Response any patentability arguments based on its proposed construction of "user sending status" (which we decline to adopt, for the reasons given above).

We find that this Permissions field is information indicating whether data should be sent to other mobile communications devices, i.e., a user

sending status. Degnbol explains that a cellular phone, "User 'B'," has "previously provided profile information to the system, now stored in the system database" and that "User 'B''s profile includes a permission to notify User 'A' of his whereabouts." Ex. 1003, 20:23–28. This is shown as the "Permissions" field of the profile data of Table 1. *Id.* at 22. Upon a profile match and an evaluation of the permissions, "the processor generates an alert message to User 'A'." *Id.* at 20:34–21:6.

For an additional example of a "user sending status," Petitioner relies on Degnbol's "incognito" mode of operation. Pet. 41–42. Petitioner argues that, when a user's communications device is in Degnbol's "incognito" mode, the system will not match the user with any other user. *Id.* at 18. According to Petitioner, a skilled artisan would have understood that one possible way to implement the "incognito" mode would have been to modify the users listed in the "Permissions" field. *Id.* at 19 (citing Ex. 1005 (Heppe Decl.) ¶ 28). In particular, Petitioner argues that it would have been obvious to a skilled artisan to use information in the user profile to represent that a device is presently "incognito." *Id.* at 21 (citing Ex. 1005 ¶ 29). Petitioner presents this alternative if we were to find that the Permissions field, by itself, is not a user sending status. *Id.*

Patent Owner contends that Petitioner has failed to articulate a case for obviousness, arguing that "Petitioner's claim charts provide numerous citations to elements purportedly found in Degnbol but at no point does Petitioner identify *what is missing* in Degnbol and explain *why it would be obvious to modify Degnbol* to provide the missing element." PO Resp. 30. We disagree. Petitioner contends that Degnbol's "Permissions" field, by itself, is a "user sending status." Pet. 19. While Petitioner does not concede

that Degnbol's "Permissions" field fails to teach a "user sending status," Petitioner argues that, to the extent we find the "Permissions" field alone lacking, it would have been an obvious design choice to use this field to implement Degnbol's "incognito" feature. *Id.* at 18–19, 21; Ex. 1005 ¶¶ 28–29.

While we find that the "Permissions" field, by itself, teaches a user sending status (and Patent Owner does not argue to the contrary), we also credit Dr. Heppe's testimony that implementing an "incognito" mode through use of Degnbol's already existing "Permissions" field would have been an obvious design choice. Implemented as such, this is another example of a user sending status.

Claim 7 also recites that a central unit's processor, upon determining a match, effects the transmission of "locating information based upon the information defining the locations of the first and the second mobile communications devices." According to Degnbol, "[w]hen a match is found between the Personal Profiles of user 'A' and 'B' an alert is transmitted to user 'A', user 'B', or both, depending on their respective preferences." Ex. 1003, 18:29–31. Petitioner contends that this alert is locating information. Pet. 46–47. Petitioner, in particular, points to Degnbol's disclosure of an alert message, alerting "user 'A's' communication device when a user 'B' enters the proximity of user 'A,'" and including "*information about the distance between user 'A' and user 'B'*, graphics, such as an image or an icon, *a map or diagram with a pointer showing the location of the user*, . . ., or any combination thereof." *Id.* at 47 (quoting Ex. 1003, 5:16–20, 18:27–33).

Patent Owner contends that Degnbol's alert message is not locating information because it "merely indicates to a user that another user is 'in the vicinity,'" and, in any case, merely shows the location of "a user." PO Resp. 33. As a result, the alert is not "information that would enable one user to arrive at the location of the other user." *Id.* at 34. This argument is based on Patent Owner's proposed construction of "locating information," which we decline to adopt for the reasons stated in Section II.A.1 above. Under our construction, we find that Degnbol's alert message is information that indicates that a matching and available device is in proximate relation to another, i.e., locating information.

In sum, Petitioner has shown that each limitation of claim 7 is taught in Degnbol. We also conclude that a skilled artisan would have made a design choice to implement Degnbol's "incognito" mode using the "Permissions" field of Degnbol's profile data. On the complete record, Petitioner has shown, by a preponderance of the evidence that claim 7 would have been obvious over Degnbol.

c. Claims 1, 4, 10, 13, 14, and 16–21

Independent claim 4 is similar to claim 7 except that, rather than reciting a second mobile communications device for transmitting a user sending status, claim 4 recites a first mobile communications device for transmitting a "user receiving status" and recites that a match determination depends, in part, on the user receiving status rather than a user sending status. Claim 1 is similar to claim 4 except that it recites both first and second mobile communications devices for transmitting user receiving statuses. Petitioner contends that the "Alerting Time" field shown in

Degnbol's Table 1 discloses or would have taught a "user receiving status." Pet. 16–18, 25–26, 33–34. We agree with Petitioner that Degnbol's "Alerting Time" field is a "user receiving status." Otherwise, Petitioner advances the same evidence, discussed above for the limitations of claim 7 that overlap with those of claims 1 and 4. *Id.* at 24–40. Patent Owner presents its arguments together for claims 1, 4, and 7, and does not present arguments particular to claims 1 and 4. Upon consideration of this evidence, we find that Degnbol teaches each limitation of claims 1 and 4.

Claims 10, 13, 14, and 16–20 are multiple dependent claims that depend from any of claims 1, 4, and 7. Claim 21 depends from either of claims 4 and 7. Patent Owner does not present separate arguments for claims 10, 13, 14, and 16–21. We have considered the evidence presented in the Petition, at 48–54, and make the following findings:

> Degnbol's web-based interface for entering preferences (Ex. 1003, 11:1–3) is an example of "an input device for inputting the profile information," as recited in claim 10;
>
> Degnbol's "mobile telephone" (Ex. 1003, 4:27–31) is an example of "a cellular phone," one of the enumerated list of devices recited in claim 13;
>
> Degnbol's "Position" field, specifying "lat:long" of a mobile telephone (Ex. 1003, 22 (Table 2)) is an example in which "the information defining the location of at least one of the first mobile communications device and the second mobile communications device includes . . . coordinates," as recited in claim 14;
>
> Degnbol's locating information can include "text," "graphics," "a video clip," and "sound" (Ex. 1003, 5:22–24), examples showing the limitation of claim 16;
>
> Regarding claim 17, Degnbol describes generating a message that may comprise "sound, such as voice, a fragrance, light emission, and/or movements, such as vibration" and

that "[i]n an optional implementation, closer proximity decreases the intervals between alert signals (i.e. light or sound emission), resulting in an escalation of signal frequency as users approach each other." Ex. 1003, 5:16–24. This teaches "wherein the locating information is updated to track a movement of at least one of the first and the second mobile communications devices," as construed in Section II.A above;

Degnbol's "information relating to the subject of interest," sent as part of an alert, is "additional information," as recited in claim 18. Degnbol describes obtaining this information "using a web-based interface" (Ex. 1003, 15:21–23), which teaches that "the additional information is obtained over the Internet," as recited in claim 19;

Regarding claim 20, Degnbol's "Users" field (Ex. 1003, 22 (Table 1)) teaches that the user profile information "includes information identifying the user of the other mobile communications device"; and

Degnbol's description of generating a message showing "an image or an icon, a map or diagram with a pointer showing the location of the user" (Ex. 1003, 16:16–20) teaches that "the locating information is locating information for the second mobile communications device," as recited in claim 21.

On the complete record, Petitioner has shown, by a preponderance of the evidence, that claims 1, 4, 10, 13, 14, and 16–21 would have been obvious over Degnbol.

2. Obviousness over Degnbol and DeLorme

Claim 15 depends from each of claims 1, 4, and 7 and recites that "the locating information includes a map, vectors, directions, and an address." Petitioner contends that claim 15 would have been obvious over Degnbol and DeLorme. Pet. 3. For the reasons given below, we agree.

a. Overview of DeLorme

DeLorme describes a computerized travel reservation information and planning system that generates maps and directions. Ex. 1008, Abstract. DeLorme's system can generate output such as shown in Figure 1B, reproduced below, which includes maps, a computed route, compass directions, point-to-point distance, and driving directions (Ex. 1008, 20:63–21:7):

FIG 1B-1

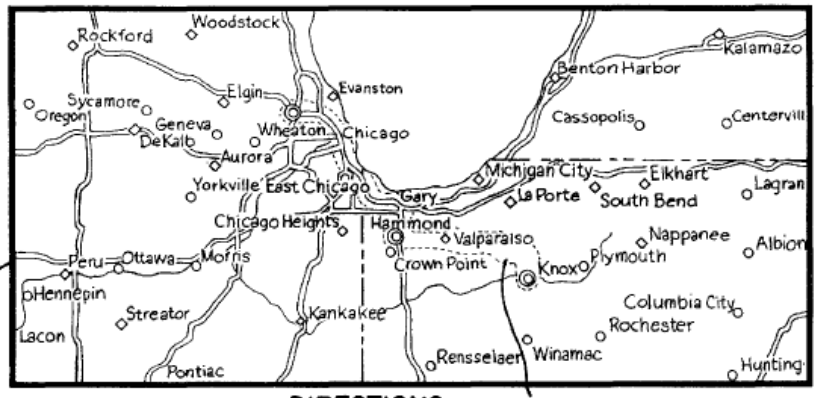


FIG 1B-2 139

		Road	Dir	Near	Exit #	Time	Dist	Mi
		START - Knox, IN						
	1	US 35 (SR 8, CR 400 E, Heat	N	Knox, IN		0:00	0.0	0.2
	2	US 35 (SR 8, CR 400 E)	N	Knox, IN		0:00	0.1	6
	3	US 30	W			0:08	6.4	38
		STOP - Jolly Ginger's, IN						
	4	US 30 (Lincoln Hwy)	E	Merrillville, IN		0:59	44.5	0.4
	5	I-65	N	Merrillville, IN	253	1:00	44.9	9
	6	I-90 (East-West Toll Rd)	NW		17|261	1:09	54.1	45
	7	I-190	W		78	2:00	99.6	3
		FINISH - Chicago O'Hare Intl (ORD), IL						

TOTAL DISTANCE: 103 MI, TOTAL TIME: 2:03

FIG 1B-3

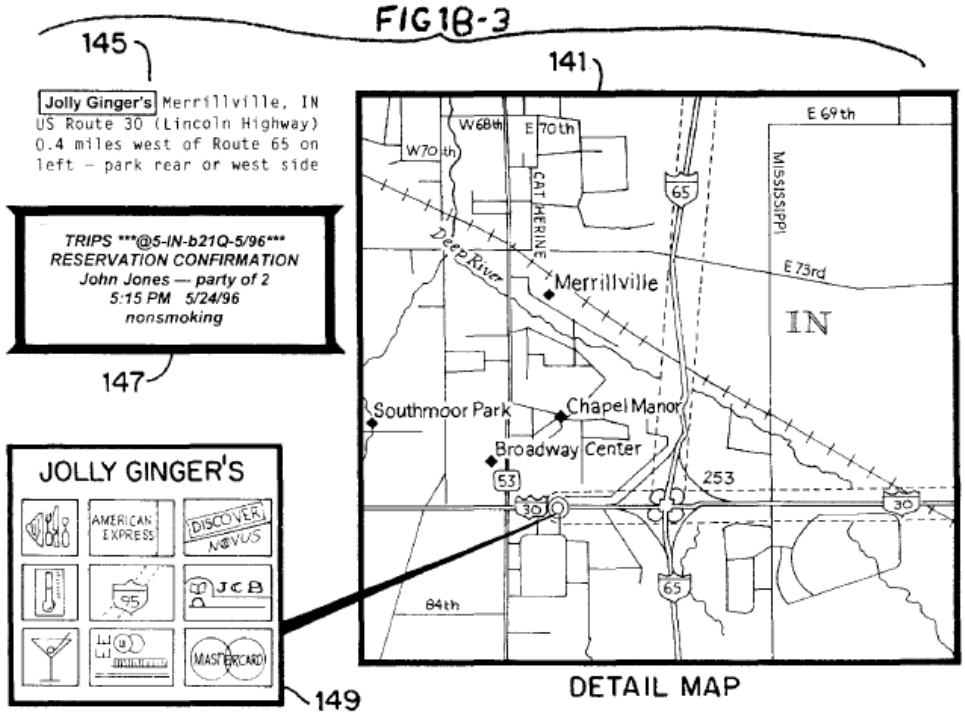


Figure 1B illustrates a "map ticket" travel plan output, which can be electronic or in hard copy. *Id.* at 12:55–57. A map ticket can be transferred

to an electronic device, including a mobile telephone or handheld device with GPS capability. *Id.* 72:27–32.

b. Claim 15

Petitioner contends that a skilled artisan would have incorporated the features of DeLorme's map ticket, including a map, vectors, directions, and an address, into Degnbol's alert message. Pet. 55. According to Petitioner, a skilled artisan would have recognized that including this additional information would have made it easier for users to find specific locations. *Id.* at 55–56. Dr. Heppe testifies that a skilled artisan would have recognized the improvement provided by well-known presentation techniques such as maps, arrows, and turn-by-turn directions, and would have had a reasonable expectation of success. Ex. 1005 ¶¶ 37, 40. Petitioner further argues that Degnbol and DeLorme describe systems using similar hardware and that such a combination would have involved combining known methods to yield predictable results. *Id.* at 57.

Degnbol itself teaches that messages sent to the mobile phones can include "an icon, a map or diagram with a pointer showing the location of the user." Ex. 1003, 5:16–18. As explained above, skilled artisans would have included experienced engineers and computer scientists. We are persuaded that a skilled artisan would have recognized that incorporating the additional detail shown in DeLorme's description of a map ticket into Degnbol's alert messages would have provided a predictable improvement and would have been within the level of skill in the art. We find that the improved alert message would have included "a map, vectors, directions, and an address."

On the complete record, Petitioner has shown, by a preponderance of the evidence, that claim 15 would have been obvious over Degnbol and DeLorme.

III. PETITIONER'S MOTION TO EXCLUDE

At his deposition, on redirect by Patent Owner, Mr. Zatkovich testified regarding Degnbol's "incognito" mode. Ex. 1017, 215:22–218:22. Petitioner moves to exclude this redirect testimony as beyond the scope of Mr. Zatkovich's Declaration (Ex. 2017) and Petitioner's cross examination. Paper 43 (Mot. to Exclude), 1–3.

Patent Owner does not cite to or rely on this testimony. Accordingly, we deny Petitioner's Motion to Exclude as moot.

IV. CONCLUSION

Petitioner has demonstrated, by a preponderance of the evidence, that claims 1, 4, 7, 10, 13, 14, and 16–21 would have been obvious over Degnbol and that claim 15 would have been obvious over Degnbol and DeLorme.

V. ORDER

For the reasons given, it is

ORDERED that, based on a preponderance of the evidence, claims 1, 4, 7, 10, and 13–21 are held unpatentable;

FURTHER ORDERED that Petitioner's Motion to Exclude (Paper 43) is denied as moot; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to this proceeding seeking judicial review of it must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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