Case Nos. 2018-2338 (L), -2339, -2395, -2396

In the

United States Court of Appeals

for the

Federal Circuit

NETWORK-1 TECHNOLOGIES, INC.,
Plaintiff - Appellant

v.

HEWLETT-PACKARD COMPANY,
HEWLETT PACKARD ENTERPRISE COMPANY,
Defendants - Cross-Appellants

Appeal from a Decision of the United States District Court for the Eastern District of Texas,
Case Nos. 6:11-cv-00492-RWS-KNM c/w 6:13-cv-00072-RWS
Honorable Robert Schroeder, III, United States District Judge

BRIEF OF APPELLANT NETWORK-1 TECHNOLOGIES, INC.

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January 18, 2019

CERTIFICATE OF INTEREST

Counsel for Appellant Network-1 Technologies, Inc. certifies the following:

1. The full name of every party or amicus represented by us is:

   Network-1 Technologies, Inc.

2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by us is:

   Network-1 Technologies, Inc.

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of any party represented by us are:

   None.

4. The names of all law firms and the partners or associates that appeared for the party now represented by us in the trial court or are expected to appear in this court are:

   Dovel & Luner, LLP: Sean A. Luner, Gregory S. Dovel, Christin Cho, Jonas Jacobson, Rick Lyon, Jeff Eichmann, Julien Adams, Simon Franzini, Matthaeus Martino-Weinhardt (no longer with firm), and Kayvan Noroozi (no longer with firm);
   Ward, Smith & Hill, PLLC: T. John Ward, Jr., Claire Henry, Andrea Fair, and Wesley Hill;
   Nelson Bumgardner Albritton PC: Eric Albritton.
   MoloLamken: Jeffrey A. Lamken

5. The title and number of any case known to counsel to be pending in this or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal. *See* Fed. Cir. R. 47.4(a)(5) and 47.5(b). (The parties should attach continuation pages as necessary).

   None.

Date: January 18, 2019

Respectfully submitted,

/s/Gregory S. Dovel

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TABLE OF CONTENTS

TABLE OF AUTHORITIES

Cases

Statement of Related Cases

No other appeal from this action has previously been filed.

United States Patent No. 6,218,930 ('930 patent) was challenged in three consolidated IPRs brought by HP and others: IPR2013-00071, IPR2013-00385, and IPR2013-00495. The PTAB issued a single Final Written Decision and determined that no challenged claim was unpatentable. Appx367-400. This Court affirmed. *Avaya Inc. v. Network-1 Techs., Inc.*, 612 F. App'x 613 (Fed. Cir. Aug. 10, 2015) (non-precedential) (O'Malley, Reyna, and Chen, JJ).

Network-1 is not aware of any case pending before this Court that will directly affect or be directly affected by the Court's decision in this appeal.

Jurisdictional Statement

Because this is a patent infringement action, the district court had jurisdiction under 28 U.S.C. § 1338(a). On August 29, 2018, the district court entered a final judgment disposing of all parties' claims. Appx140. On August 30, 2018, plaintiff-appellant Network-1 Technologies, Inc. ("Network-1") timely filed a notice of appeal. Appx1172-1174. On September 13, 2018, defendants-cross-appellants Hewlett-Packard Company and Hewlett Packard Enterprise Company (collectively, "HP") timely filed a notice of cross-appeal. Appx298 (Dkt. 1112). This Court has jurisdiction under 28 U.S.C. § 1295(a)(1).

Statement of the Issues

Construction of "low level current":

1. Because the word "low" is a relative term, its construction requires identifying a reference point for how "low" the current level must be. The word "low" does not mean "low and high," i.e., below one reference point and also above a second reference point. The district court's construction of "low level current" nonetheless required a current level lower than one reference point but higher than a second. Was the construction erroneous?

2. When construing a relative term, the correct reference point is the one that serve's the invention's purpose. The '930 patent's purpose for keeping the current at a "low" level was to *avoid* a current level that could start up the access

device. The district court's construction added a requirement that is contrary to that fundamental purpose: the current must be high enough to "begin the start up of the access device." Was the construction erroneous?

Construction of "main power source":

3. A patentee is entitled to the full scope of the ordinary meaning of claim language unless narrowed by the specification or prosecution history. The undisputed ordinary meaning of "main power source" encompasses both AC and DC power sources. The '930 specification and prosecution history confirmed that "main power source" means what it says and does not exclude AC power. Did the district court err by limiting "main power source" to "a DC power source"?

4. The district court justified construing "main power source" as "DC power source" to avoid a specific AC embodiment that (according to the district court) would "render the device inoperable." Appx51. In *Cordis Corp. v. Medtronic Ave, Inc.*, 511 F.3d 1157 (Fed. Cir. 2008), however, this Court held that it was error to distort a claim's plain meaning by carving out an inoperable embodiment—especially where the claim's natural construction yields *other* operable results. Did the district court err?

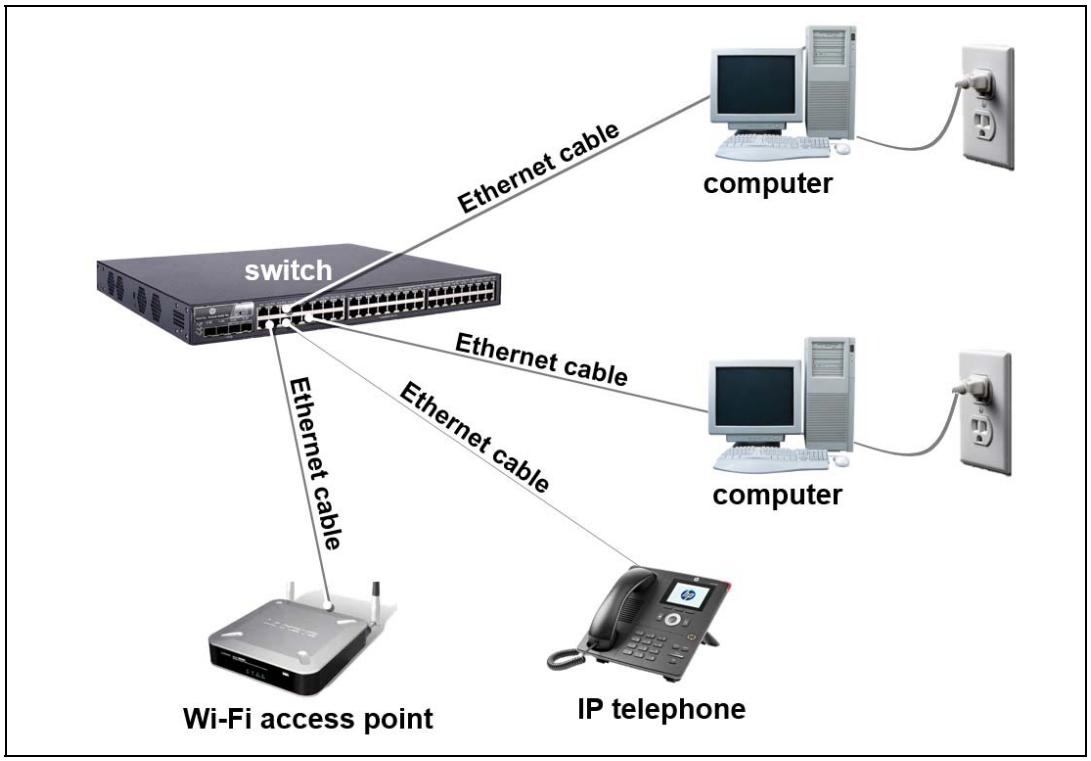
Statement of the Case

The ’930 patent addresses a problem for computer networks that deliver power to attached devices, such as IP phones or Wi-Fi access points. Delivering power through the same cables that transmit and receive data (e.g., Ethernet cables) can eliminate the need for a separate power supply for the device, allowing it to operate without a wall outlet. But some devices cannot accept power in that way, and sending them power over Ethernet can damage them. The ’930 patent claims a method for sensing whether attached devices can accept power through those cables.

I. The detection problem, the deficiencies of prior art solutions, and the ’930 patent’s surprising solution.

A. The detection problem.

The ’930 patent addressed a problem with data networks and, in particular, “Power over Ethernet” networks. Appx330 (1:13-19; 1:41-47). A data network connects network devices such as computers, IP telephones, and Wi-Fi access points through cables (e.g., Ethernet cables) that run between each device and a switch (also called a “data node”). Appx3245; Appx3250-3251.

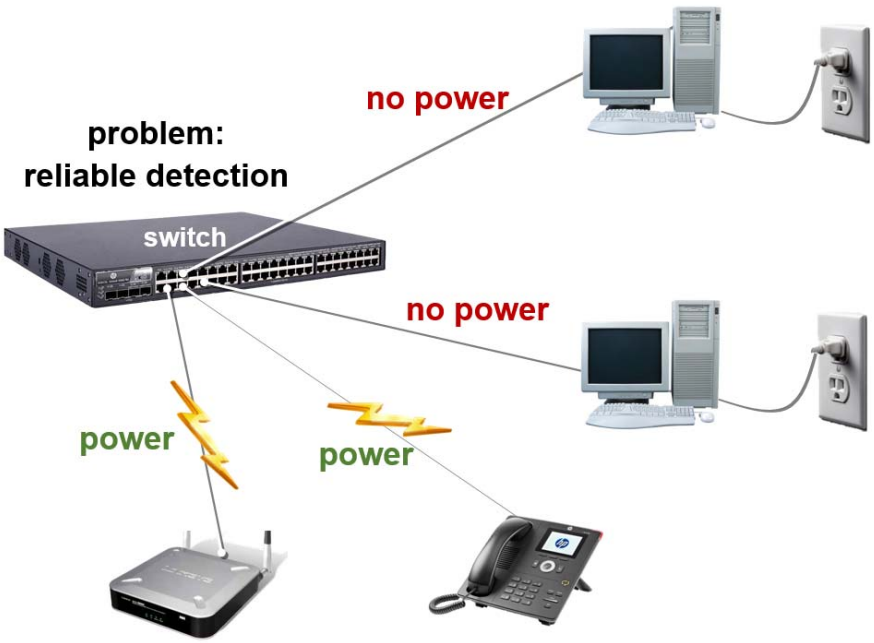


The ’930 patent refers to those network devices as “remote equipment” or “access devices.” Appx326 (Abstract); Appx330 (1:50-2:14).

In many situations, it is important for network devices (such as IP telephones or Wi-Fi access points) to obtain power through the network cable—i.e., through the same cable that transmits data between the devices and the switch. Appx326 (Abstract); Appx990 (¶100). That setup ensures that IP telephones continue to receive power during power outages. Appx330 (1:37-40). It also eliminates the need for a local wall outlet that might be costly to install, inconvenient, or unsightly. Appx1850-1851 (110:25-111:9). Thus, in a Power over Ethernet network, power is transmitted through the Ethernet cable. Appx330 (1:38-40);

Appx1850-1851(110:25-111:9). The '930 patent refers to Power over Ethernet as "remote power." Appx330 (1:16, 1:41-48).

Typically, however, networks include both devices that can accept remote power (such as IP telephones) and devices that cannot (such as computers). Appx979-980 (¶74); Appx3032-3034. If operating power were delivered over an Ethernet cable to a device that cannot accept it, damage could result. Appx1682 (71:2-11); Appx339; Appx1849-1850 (109:13-110:4); Appx981 (¶¶77-78).



To implement Power over Ethernet safely, network switches need a detection circuit that can automatically and reliably distinguish devices that can accept Power over Ethernet from those that cannot. Appx1711-1712 (100:10-

101:9); Appx1849-1850 (109:13-110:4); Appx330 (1:41-43, 1:54-56); Appx1682 (71:2-11); Appx980-981 (¶76); Appx3032-3034.

B. The conventional solution to detection.

At the time of the '930 invention, the "conventional" detection method was "to use a data signal that would carry information." Appx1712-1714 (101:14-103:12); Appx3151-3156. For example, fax machines transmitted a data signal so that the network switch could identify the attached device. Appx3152-3153. As a result, "the prior art in the field and even much of the post-art in the period immediately following the '930 invention … taught" that network switches should "us[e] a data signal (a signal designed to contain information) … for detection." Appx3008; Appx3154-3155.

Conventional methods did not perform detection by using a non-data signal electrical "current" delivered on the path used to provide power. Appx3155-3156. In fact, the conventional wisdom was to avoid sending *any* current on the power path to the remote device "until after the detection process determined" that the device could receive remote power. Appx3155-3157.

C. The '930 patent's solution: "low level current" detection.

Whereas prior methods relied on data signals, the patented method uses "low level current"—with no data signal in it—to determine whether a device can accept remote power. Appx34-35; Appx985-986 (¶¶89-91); Appx3155. Contrary to the

prior art, the patented method does not avoid transmitting current on the power path before detection; instead, before detection, it sends a current down that power path—i.e., over the same pair of wires that could be used to deliver operating power to the device. Appx330-331 (2:66-3:2, 1:65-2:14, 4:57-62); Appx3010-3014.

To use the claimed detection method, a "low level current" is delivered over a pair Ethernet wires (a "data signaling pair") to a device. Appx330 (2:8-10). Keeping the current at a "low level"—below the threshold needed to operate a device—avoids damage to non-compatible devices. Appx981 (¶¶77-78); Appx1849-1850 (109:13-110:4); Appx1682 (71:2-11); Appx339.

After the low level current is sent, the network switch senses the resulting "voltage level" on the wires. Appx330 (1:65-2:14). If the device can accept remote power, the sensed voltage level will match a "preselected condition" of the voltage, such as a particular "varying voltage" level. Appx330-331 (2:10-14, 3:2-17). Upon detecting that voltage condition, the network switch will provide operating power—it will increase the current from the low level to a higher level sufficient to allow the "remote equipment [to] become[] active" (i.e., to operate). Appx331 (3:17-22). By contrast, if the preselected condition of the voltage is not detected, the network switch will determine that the device cannot accept remote power. Appx331 (3:3-11). It thus will not transmit a higher current.

As a senior engineer from a leading maker of switches later observed, the '930 patent's detection method was "not an obvious solution." Appx3167. The genius was recognizing both (1) that sending current at a low level would adequately protect devices not designed to accept remote power, and (2) although the current was not an information-carrying data signal, reliable information could still be deduced from whatever voltage response, or lack of response, occurred. Appx3157-3160. Surprisingly, the claimed method was not just different, it proved to be *better* at correctly identifying devices than any conventional detection methods. Appx3157-3160; Appx1719 (108:11-25).

Claim 6 of the '930 patent recites (Appx331):

> Method for remotely powering access equipment in a data network, comprising,
>
> providing a data node adapted for data switching, an access device adapted for data transmission, at least one data signaling pair connected between the data node and the access device and arranged to transmit data therebetween, a main power source connected to supply power to the data node, and a secondary power source arranged to supply power from the data node via said data signaling pair to the access device,
>
> delivering a low level current from said main power source to the access device over said data signaling pair,
>
> sensing a voltage level on the data signaling pair in response to the low level current, and
>
> controlling power supplied by said secondary power source to said access device in response to a preselected condition of said voltage level.

D. The main and secondary power sources in the ’930 patent.

The ’930 claims recite primary and secondary powers sources, both located on the switch side (not the device side) of the Ethernet cable. Appx331 (4:49-67). A “main power source” provides power to the network switch (“data node”) for data switching functions and also provides power for the low level detection current. Appx331 (4:56-62). After the switch detects a device that can accept remote power, a “secondary power source” provides the higher level current needed to operate the device. Appx331 (4:65-67).

A power source can output two types of current (AC or DC), but the current type is irrelevant to the claimed invention. Appx1131 (¶129 & n.7). The ’930 specification places no weight on whether the “main power source” supplies alternating current (AC), which periodically changes direction, or direct current (DC), which flows in one direction. *Id*.; Appx326-332. Moreover, the specification never even mentions DC in connection with a main power source. Appx326-332. Indeed, the only relevant disclosure depicts a preferred embodiment where the main power source is fed by AC, not DC. Appx329 (Figure 3); Appx1131 (¶129); Appx1137-1139 (¶¶133-134); Appx964-965 (¶49); Appx1049 (¶36). And a main power source providing AC could still be a source of power for circuits requiring DC because the claimed “main power source” connects to the network switch, and it is “common” for network switches to

include components that convert AC to DC (and vice versa) as needed. Appx1131 (¶129 & n.7); Appx1139-1140 (¶137); Appx1745 (5:7-12).

E. Widespread industry adoption of the patented method as an IEEE standard.

Although "not an obvious solution," Appx3167, the '930 patent's "low level current" detection method was so effective that it was eventually incorporated in an IEEE standard, 802.3af, for Power over Ethernet. Appx1837-1838 (97:14-98:14); Appx1852-1853 (112:4-113:20); Appx3591; Appx3594-3600. The '930 patent itself drew considerable attention during the standard-setting process.

Members of the standard-setting committee were concerned that the standard's then-proposed detection method would infringe the '930 patent. Appx1694 (83:15-19). Steve Carlson, Chairman of the IEEE 802.3af committee, placed the '930 patent on a meeting agenda. Appx2672; Appx1681 (70:6-11); Appx1682-1683 (71:25-72:3); Appx1684 (73:9-23). Dan Dove of HP, a skilled engineer and active member of the IEEE 802.3af committee, attended that meeting. Appx1684 (73:4-8); Appx1695-1696 (84:23-85:4); Appx2693.

Discussions with IEEE members regarding the '930 patent continued for weeks. One task-force member from PowerDsine, a company that designs integrated circuits for switch makers using PoE detection, expressed concerns that the '930 patent's low-level current "detection scheme . . . is pretty much what we do in 802.3af." Appx2707; Appx1684-1686 (73:24-75:22); Appx1687 (76:2-18);

Appx1656 (45:12-22). Carlson reported those concerns to his supervisor. Appx2707. He mentioned that four PowerDsine "customers" who were "key players" in the industry were "very worried about the ['930] patent." Appx2707; Appx1685-1686 (74:12-75:13); Appx1686-1687 (75:23-76:18). HP was one of PowerDsine's "key customers." Appx1651 (40:12-15).

Those discussions yielded an IEEE standard with two alternatives: "Alternative A," which infringed the '930 patent, and "Alternative B," which did not. Appx3590-3593; Appx1836-1837 (96:10-97:13). With "rare exceptions," the entire industry—including HP—implemented Alternative A. Appx1837-1838 (97:14-98:14); Appx3594-3600. Alternative B was not a "commercially acceptable substitute," because it imposed "prohibit[ively]" low bandwidth limits and, with some networks, "simply would not work." Appx1852-1853 (112:4-113:20).

As a result, Network-1 has now licensed the '930 patent to 25 companies that manufacture Power over Ethernet products. Appx3773-3775. The licensees include PowerDsine and each of PowerDsine's key customers (i.e. the companies who recognized during standard-setting that Alternative A would infringe the '930 patent) with the sole holdout being HP. *Id.*; Appx2455. For example, in 2010, industry leader Cisco licensed the '930 patent for an initial payment of $26,000,000 and running royalties up to $9,000,000 per year through the life of the

patent (which expires in 2020). Appx3835; Appx4012 (11:3-9). Of "the top 10 manufacturers" (which together "account for more than 95 percent of the sales in the world"), HP remains the lone market holdout in not obtaining a license, thereby gaining a competitive advantage from its infringement. Appx2444 (122:13-20).

II. Proceedings below.

A. Network-1 filed suit against HP.

HP manufactures network switches that comply with Alternative A of the IEEE 802.3af Power over Ethernet standard. Appx4181 (137:12-21); Appx2203 (20:8-10). Here's an example:

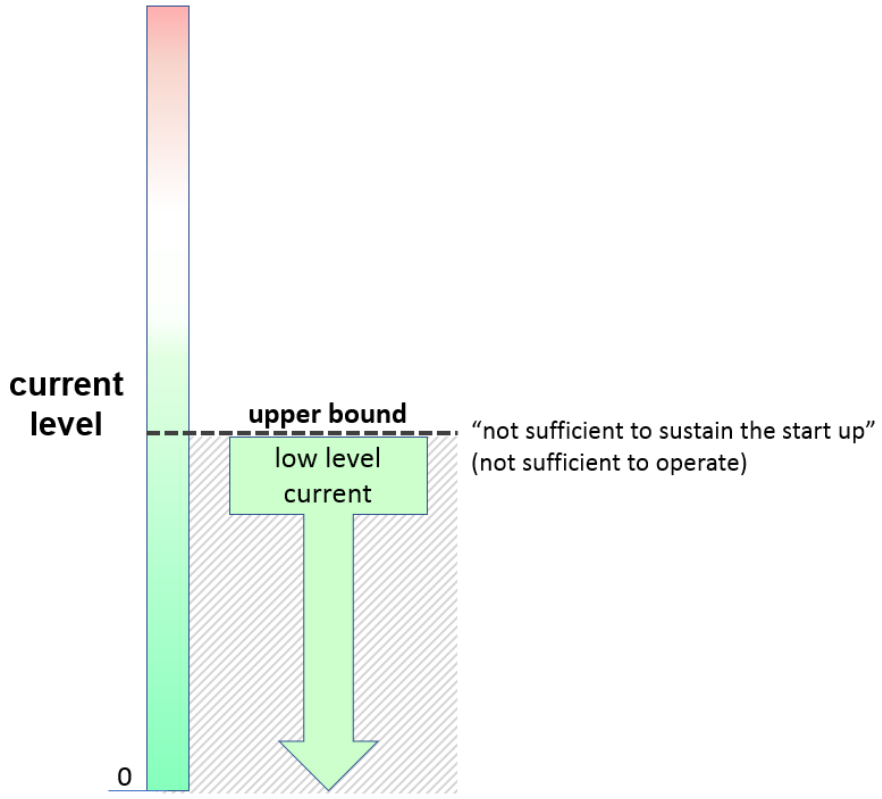
Appx2769. Because HP declined to take a license, in 2011 Network-1 filed suit against HP for infringing the '930 patent. Appx195 (Dkt. 1).

The case was stayed while HP challenged the '930 patent's validity before the PTAB. Appx229 (Dkt. 410). But the PTAB rejected HP's invalidity challenges, Appx367-400, and this Court affirmed on appeal, *Avaya Inc. v. Network-1 Techs., Inc.*, 612 F. App'x 613 (Fed. Cir. 2015). The Patent Office rejected multiple challenges to the patent's validity—in total, five petitions for *inter partes* review, a petition for Covered Business Method review, and two *ex parte* reexaminations. Appx325-337; Appx665-668. After the stay was lifted, the

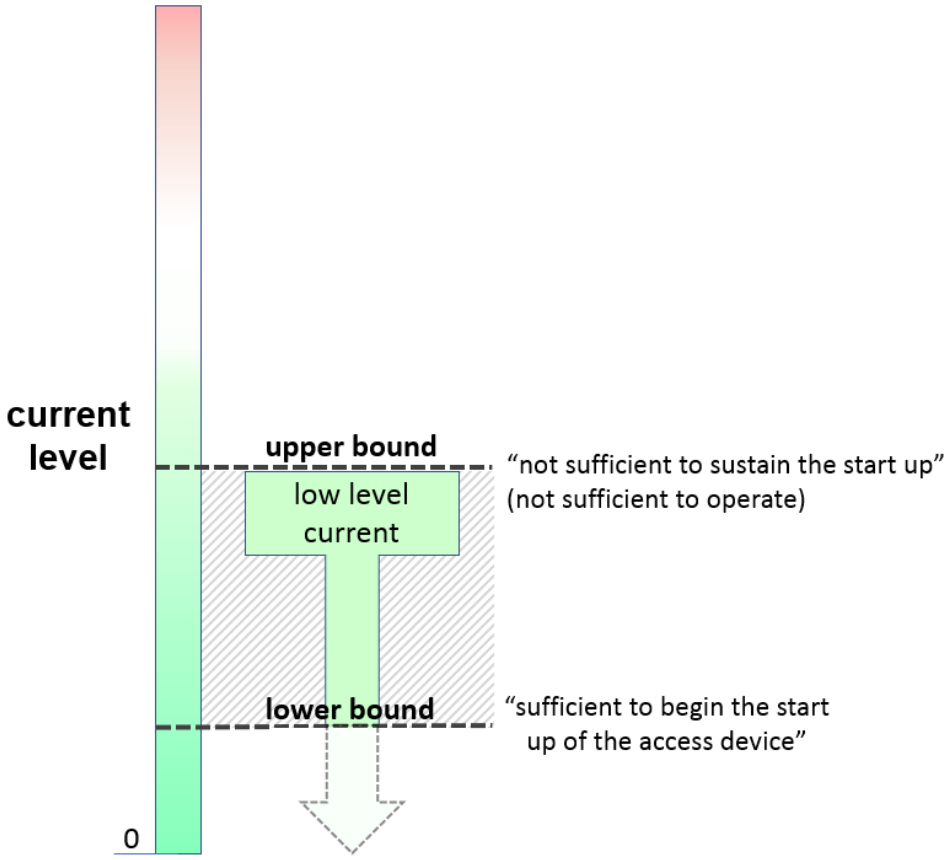
focus of the litigation shifted to the meaning of two claim terms: "low level current" and "main power source."

B. Construction of "low level current."

Network-1 argued that "low level current" is a non-data-signal "current at a level that is sufficiently low that, by itself, it will not operate the access device." Appx34. That proposed construction encompassed any current below a particular reference point—i.e., the level of current needed to start up and operate the device. This is illustrated in the following diagram, with a vertical scale for current level, and a dashed line for the upper bound for a "low level current:"



HP, by contrast, argued that a "low level current" had to be "sufficient to cause the access device to start up, but not sufficient to sustain the start up." Appx34. Under HP's proposed construction, a "low level current" had to be both *above* a particular reference point and *below* another.



In a report and recommendation, the magistrate judge concluded that "low level current" means "a non-data-signal current that is sufficient to begin the start up of the access device but that is not sufficient to sustain the start up." [1] Appx35.

[1] The magistrate judge correctly concluded, based on prosecution history disclaimer, that the "low level current" was a "non-data-signal current." Appx34-35. No party objected to that part of the construction.

The magistrate judge did not identify any word in the claim requiring the current level to be *higher* than a specified threshold, much less sufficiently high to begin device start up. Instead, the magistrate judge limited its reasoning to the conclusory assertion that adding a second reference point was "appropriate to give meaning to the constituent term 'low.'" Appx34.

Network-1 objected to the magistrate judge's construction of "low level current." Appx1153-1159. Network-1 argued the current must be "low" so as to serve the invention's purpose—withholding operating power to the access device. It should not be "high" enough to "begin the start up of the access device." Appx1157. The district court overruled the objection. Appx53-55. The court did not identify any word in the claim requiring the current level to be *higher* than a specified threshold. The court asserted that a lower boundary was "necessary to guide one skilled in the art," but did not provide any explanation for why that was true. *Id.*

C. Construction of "main power source."

During claim construction, HP urged the district court to construe "main power source" as "DC power source." Appx30. Network-1, by contrast, argued that "main power source" meant a "source of power connected to supply power to the data node and deliver a low level current to the access device." Appx30. The

claims, Network-1 urged, impose no requirement that "main power source" be a DC power source. Appx30.

In a report and recommendation, the magistrate judge "construe[d] the term 'main power source' to mean 'a DC power source.'" Appx31. The magistrate judge imported that construction from an order issued in prior litigation against Cisco. Appx30. [2] In the *Cisco* case, "main power source" had been construed to mean "DC power source" based on Figure 3 of the '930 patent, which (the court stated) "shows that the main power source is a source of DC power." Appx346-347. Figure 3, however, specifies nothing about "Main Power Supply 70" supplying DC.

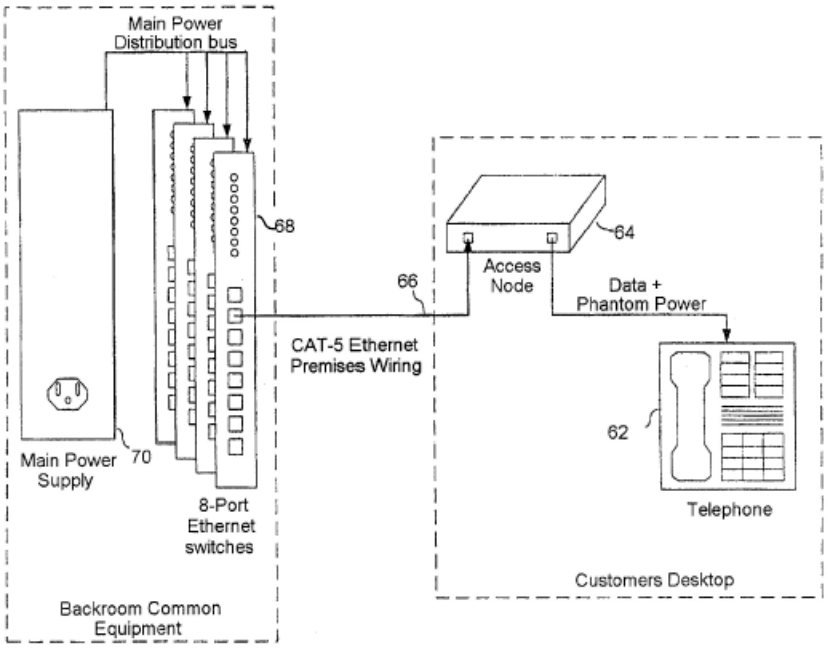


Figure 3 of the '930 Patent

[2] The *Cisco* litigation settled prior to any appeal of the claim-construction rulings.

Appx329. In the present case, the magistrate judge did not rely on Figure 3. Instead, the magistrate judge thought it permissible to limit "main power source" to "DC power source" to avoid rendering part of the preferred embodiment inoperable. The court reasoned that "[i]f the 'main power source' was providing AC current" the switch "could not detect" one of the three voltage states used in the preferred embodiment. Appx30-31.

Network-1 objected to the magistrate judge's proposed construction. Appx1154-1156. Network-1 argued that nothing in the claim language, specification, or prosecution history required, or even implied, a requirement of a DC power source as the main power source. *Id.* Moreover, any embodiment requiring DC was operable under Network-1's proposed construction, which encompassed both AC and DC power sources. Network-1 also explained that HP's expert agreed that "Figure 3" in the specification encompassed an embodiment in which a switch "receives the AC power" from an AC main power source "and then converts that power to DC." *Id.*

The district court overruled Network-1's objections and adopted the report's construction. Appx50-51. The court did not refer to the ordinary meaning of "main power source." Nor did it address Figure 3. Instead, citing the preferred embodiment, the court reasoned that "construing 'main power source' to include AC power sources would render the claims inoperable." Appx50-51.

D. Trial on infringement under disputed constructions.

The case proceeded to trial under the district court's constructions of "low level current" and "main power source." In fact, these were the *only* claim elements that HP contended were not met. Appx1529 (212:8-9); Appx1530 (213:11-13); Appx1531 (214:6-8); Appx2195 (12:12-23); Appx1521 (204:8-10); Appx2041 (13:9-12); Appx2621 (112:18). The jury found that HP did not infringe under the district court's constructions of "low level current" and "main power source." Appx69-71. Network-1 sought a new trial on infringement. Appx76. But the district court upheld the non-infringement verdict under its constructions. Appx92-Appx97. [3]

Summary of the Argument

1. By its plain meaning, "low level current" requires current *lower* than a certain reference point—here, below the level needed to start up and operate an access device (and thus below the level that might cause damage). Appx53-55. That is not disputed. All agree that a "low level current" must be low enough to prevent a device from starting up and operating.

But the district court construed "low level current" also to require a current *higher* than, or *above*, a specified level: current *high* enough "to begin the start up of the access device." Appx53-55. The phrase "low level current," however,

[3] The jury found the '930 patent invalid as well. But the district court held that HP had failed to establish invalidity "as a matter of law." Appx91.

contains only one relative term, "low," whose construction needs one reference point. "Low" means below, or beneath, some reference point. "Low" does not mean *above* or *higher* than a reference point. Yet the district court construed "low level current" to have both an *upper* and *lower* boundary. By adding a second reference point, the district court added a concept that is exactly opposed to the language of the claim term—that the "low level current" must be a sufficiently "high level current." That construction defies the plain meaning of the term.

In addition, the district court's lower bound is contrary to the fundamental purpose for keeping the current level "low." The claimed method delivers a "low level current" to determine whether a network access device can accept operating power *before* sending current at a high enough level that would start up and operate the access device. But the district court's lower bound required a current level high enough to "begin the start up of the access device." This allowed HP to argue that a "low level current" must be at a level that will begin start up of *the access device*, i.e. begin start up of all components and functionality of the access device, which requires a current at a level sufficient to operate the device. This was directly contrary to the fundamental purpose for keeping the current level "low," so that it would *not* begin start up of all components in the access device.

2. The district court's construction of "main power source" was erroneous. The district court limited that phrase to "DC power source." Appx30.

But "main power source" carries no such "DC" limitation. The phrase "power source" encompasses both DC and AC power sources. The modifier "main" does not connote or imply "DC"; it connotes "first" or "principal." This is confirmed by the structure of the claim language. The claims require a "main power source" to supply power used to operate the switch and deliver the low level current to detect compatible devices. After the "main power source" performs its functions, then the claims recite that a "secondary power source" supplies operating power to compatible devices. In the '930 patent, "main power source" means a source of power for the recited first or principal functions.

Nothing in the specification or prosecution history defines "main power source" differently. The specification never uses the terms "DC" or "direct current" when discussing the main power source for a network switch. Moreover, the sole reference to current direction in connection with the main power source is that the main power source in the embodiment in Figure 3 receives AC, not DC. There was no basis to import a limitation not found in the claims, not found in the specification, and that has nothing to do with the claimed invention.

The district court relied on the maxim that "[a] construction that renders the claimed invention inoperable should be viewed with extreme skepticism." Appx50-51 (internal quotations omitted). But that maxim may be invoked only to reject a proposed construction that "would render *all embodiments* of a claimed

invention inoperable," i.e., render the claim invalid. *Cordis Corp. v. Medtronic Ave, Inc.*, 511 F.3d 1157, 1174 (Fed. Cir. 2008) (emphasis added). When a claim's ordinary meaning includes both operable and inoperable embodiments, it is error to add limitations that carve out purported inoperable embodiments. *Id*. Furthermore, that maxim may be invoked *only* when "the claim is still ambiguous" "after applying all the available tools of claim construction." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1327 (Fed. Cir. 2005) (en banc) (internal quotations omitted). The district court bypassed all basic tools of claim construction and identified nothing ambiguous about the ordinary meaning of "main power source."

Finally, the district court's construction was also erroneous because it carved out numerous *operable* embodiments. The district court found that if an AC main power source were used, then one voltage condition used in the preferred embodiment could not be identified, and that particular voltage condition would therefore be rendered inoperable. But there are many embodiments operable with an AC main power source. Accordingly, it was error for the district court to carve out all AC embodiments.

3. If the district court's construction of either "low level current" or "main power source" is erroneous, then the judgment should be reversed and the case remanded for further proceedings based on the proper constructions. *Avid Tech., Inc. v. Harmonic, Inc.*, 812 F.3d 1040, 1042 (Fed. Cir. 2016) ("On one of

the two claim elements that were the focus of the dispute at trial, the district court gave the jury a narrow construction. … We hold that construction to be incorrect… [The plaintiff] therefore is entitled to a new trial on infringement"). Both constructions are wrong; therefore, a new trial is required.

Standard of Review

This appeal turns directly on claim construction, and the "ultimate issue of the proper construction of a claim" is a "question of law" reviewed *de novo*. *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 838-39 (2015). Any "subsidiary" factual findings by the district court are "reviewed for clear error." *Id.* at 841.

Argument

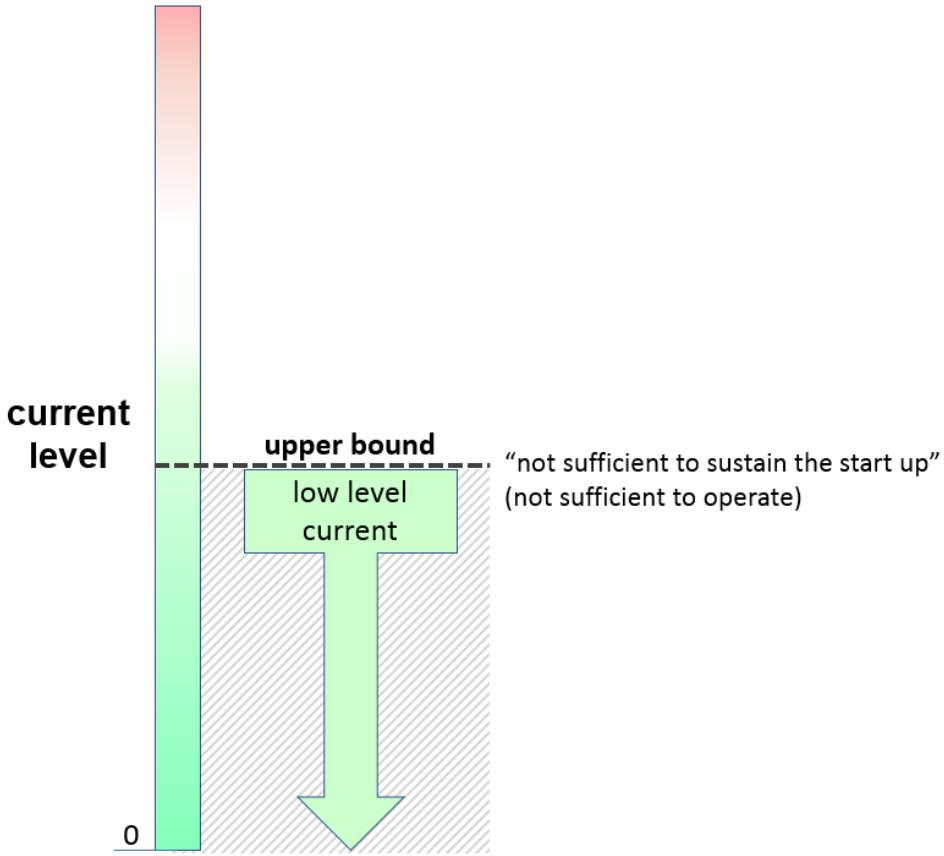
Claim terms should be given their "ordinary and customary meaning," as understood by "a person of ordinary skill in the art." *Phillips*, 415 F.3d at 1312-13. That principle should have controlled this case—on both disputed terms. The phrase "low level current," by its plain and unambiguous terms, means current *below* a specified level. It does not mean current that is also *higher* than some level. Similarly, the phrase "main power source" does not mean *direct current* power source. It means first or principal power source.

The district court here did not construe the relevant claim limitations—it added limitations. To "low level current," the court added the further requirement that it be *higher* than a particular level. To "main power source," the court required a *direct current* main power source. But "importing limitations" not found in the claim language is a "'cardinal sin' of claim construction." *Teleflex, Inc. v. Ficosa N. Am. Corp*., 299 F.3d 1313, 1324 (Fed. Cir. 2002). The district court's extra limitations are improper.

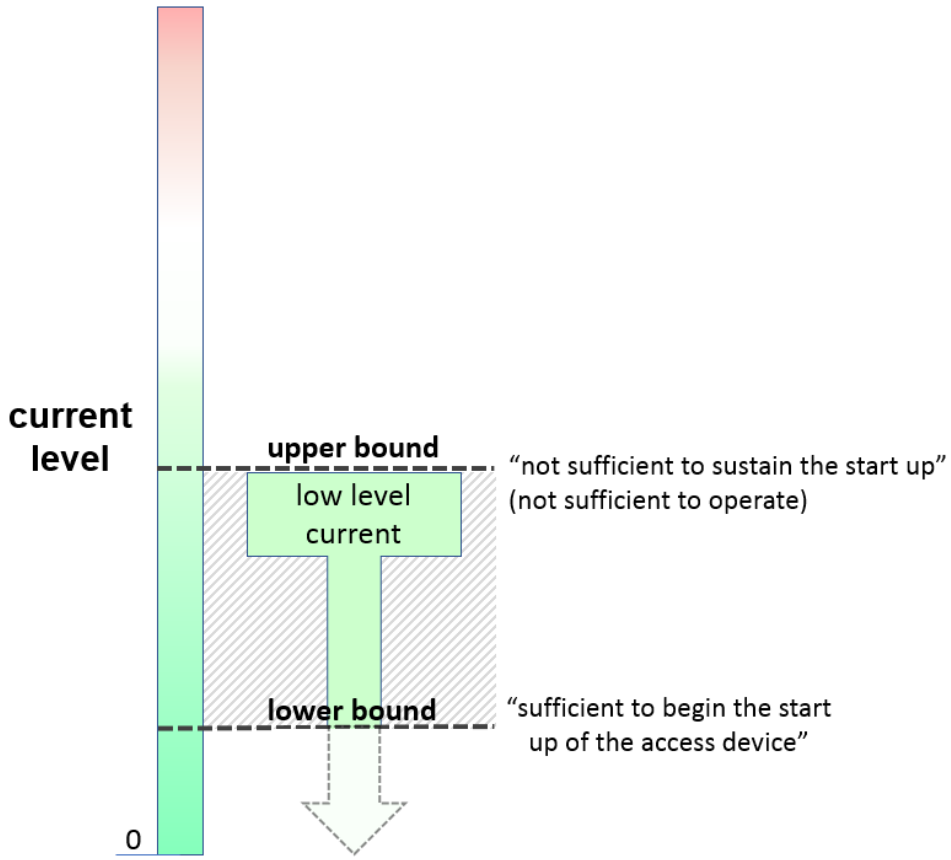
I. The district court's construction of "low level current" is incorrect.

The judgment below rests on a construction of "low level current" that cannot be reconciled with the claim language. It is undisputed that "low level current" must be *lower* than a particular reference point—i.e., below the threshold

needed to "sustain start up" of an access device. Appx53-55. That reading makes linguistic and technical sense. This is illustrated in the following diagram:



But in addition to an upper bound, the district court also imposed a lower bound. It required that "low level current" be "sufficient"—that is, *high* enough—"to begin the start up of the access device." Appx53-55. The following diagram illustrates this additional boundary:



That construction defies the plain meaning of "low level current," the '930 patent's description of the invention, the fundamental purpose of the "low level current" detection method, and precedent.

A. All parties and the district court agreed on the reference point for determining whether the level of current is sufficiently "low" to be a "low level current."

"The plain claim language marks the starting point for our analysis." *Sumitomo Dainippon Pharma Co. v. Emcure Pharm. Ltd.*, 887 F.3d 1153, 1157 (Fed. Cir. 2018). The word "low" means "[b]elow an average or standard." *The American Heritage Dictionary of the English Language* 1036 (4th ed. 2000).

Because the word "low" is a word of degree or comparative term whose meaning is defined relative to a reference or standard, its construction "requires a reference point." *Playtex Prods., Inc. v. Procter & Gamble Co.*, 400 F.3d 901, 908 (Fed. Cir. 2005) ("The disputed claim term is clearly a comparative term. Comparison requires a reference point."); *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1378 (Fed. Cir. 2015) ("When a 'word of degree' is used, the court must determine whether the patent provides some standard for measuring that degree.").

The correct reference point is the one identified in the specification that will "serve the inventor's purposes." *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 796 F.2d 443, 450 (Fed. Cir. 1986) (construing the term "lens having a smooth surface" to mean "smooth enough to serve the inventor's purposes, i.e., not to inflame or irritate the eyelid of the wearer or be perceived by him at all when in place"); *see Cordis Corp. v. Medtronic Ave, Inc.*, 511 F.3d 1157, 1180 (Fed. Cir. 2008); *Exxon Research & Engineering Co. v. United States*, 265 F.3d 1371, 1381 (Fed. Cir. 2001).

To define "low level current," therefore, a court must determine what the '930 specification reveals as the purpose for keeping the current level "low" and what reference point would serve that purpose. All parties and the district court agreed on that reference point: the current must be below the level needed to operate the access device, i.e. "sustain start up" of the access device. Appx54.

The invention's purpose is to detect whether a device attached to a network can accept operating power over the cable *before* sending that power. Appx326 (Abstract); Appx330 (1:14-19, 1:41-43). It is a method "for automatically determining if remote equipment is capable of remote power feed and *if* it is determined that the remote equipment is able to accept power remotely *then* to provide power." Appx330 (1:14-18) (emphasis added). The specification explains, "Automatic detection … is accomplished by delivering a low level current" over the cable "to the access device" and "sensing a resulting voltage" to see if it matches "a preselected condition of the voltage," and then, only if appropriate, "delivering the power to remote equipment." Appx 330-331 (1:51-2:14, 2:66-3:2); Appx979-981 (¶¶74-78). Consequently, the "low level current" delivered "to the access device" for detection must be lower than the current level needed to operate an access device.

The description of the preferred embodiment confirms this upper bound. In this embodiment, the access device is a "telephone equipped to handle data communications as well as voice." Appx331 (3:59-62). The "low level current" reaches only a single component in the access device, "an internal dc-dc switching supply," a component in the telephone that receives incoming power and then distributes it to the circuits that perform data and voice functions. Appx330 (2:36-44); Appx3453-3455. The current level is so low, "approx. 20mA," that it "is

unable to sustain the start up" of even the switching supply in the telephone access device. Appx331 (3:1, 3:14-16). It is only after successful detection that the system "increases the power" to the telephone until it "reaches the proper level" and then the telephone's switching supply "turns on," after which other circuitry in the telephone "becomes active" and it begins transmitting data. Appx331 (3:17-24). As that embodiment illustrates, the "low level current" is lower than the level needed to start up and operate the access device.

The Patent Trial and Appeal Board, construing "low level current" in the same context, reached precisely that conclusion. In an *inter partes* review brought by HP, the Board "look[ed] to the Specification of the '930 patent for the proper standard for measuring the 'low level current.'" Appx617-619. It explained that the "Specification therefore indicates that the 'low level current' is sufficiently low that, by itself, it will not operate the access device." Appx619; Appx375-376, *aff'd, Avaya Inc. et al. v. Network-1 Techs., Inc.*, 612 F. App'x 613 (Fed. Cir. 2015) (non-precedential).

The Board thus identified the same reference point for "low" as the district court. A current below a level "sufficient to sustain the start up" of an access device is necessarily also below a level that will "operate the access device." An access device, such as an IP telephone, that cannot sustain start up cannot operate (i.e., make and receive phone calls). Appx1797-1798 (57:6-58:8). Conversely, if a

current is above a level "sufficient to sustain the start up of" an access device, the current is necessarily above a level that will "operate the access device." *Id*. Thus, in the '930 patent, "low level current" is a non-data signal current low enough that, by itself, it will not operate the access device.

Although it is accurate to say that a "low level current" is "not sufficient to sustain the start up," a jury is more likely to comprehend, and less likely to misapply, a construction that asks whether a device will "operate." The construction of "low level current" that should be applied on remand is "a non-data signal current at a level that is sufficiently low that, by itself, it will not operate the access device."

B. Importing a second reference point for determining if the current level is sufficiently high is contrary to the claim language.

The claim language "low level current" does not support, and in fact precludes, a second reference point for determining if the current level is sufficiently *high*, which is why courts uniformly construe claim phrases with "low" as having a single reference point.

1. The claim language does not support, and in fact precludes, the district court's lower bound.

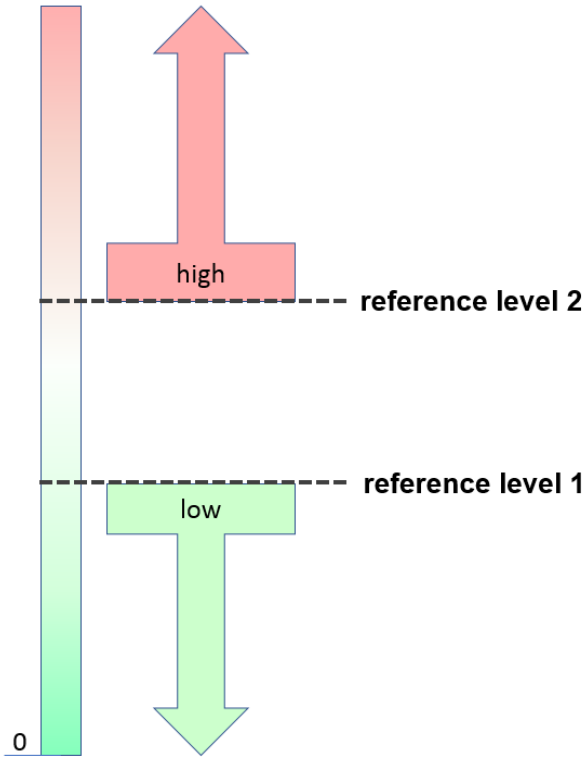
The word "low" never means higher than, or above, a standard; it exclusively means lower than, or below, a standard. *The American Heritage Dictionary of the English Language* 1036 (4th ed. 2000) (low: "Below an average

or a standard"); *Webster's Third New International Dictionary of the English Language Unabridged* 1340 (3rd ed. 2002) (low: "being beneath a rate, amount, or value considered normal, standard, or adequate by some criteria"); *Random House Webster's Unabridged Dictionary* 1140 (2nd ed. 2001) (low: "lying or being below the general level"); *The New Oxford American Dictionary* 1011 (1st ed. 2001) (low: "below average in amount, extent, or intensity").

In fact, the word "low" belongs to a special class of relative adjectives called "gradable antonyms." A gradable antonym is one of a pair of words with opposite meanings (like "low" and "high") that are "the end-points of a continuum or gradient." Howard Jackson & Etienne Ze Amvela, *Words, Meaning and Vocabulary, An Introduction to Modern English Lexicology* §5.3.2, pp. 99-100 (2004); Adrienne Lehrer, *Markedness and Antonymy*, 21 Journal of Linguistics, pp. 397-429 at 397 (1985) ("Gradable antonyms are words, typically adjectives, that name opposite parts, usually ends, of a single dimensional scale.").

Importantly for the issue here, a gradable antonym points *in only one direction*, towards one end of a continuum or gradient, while its opposite points towards the other end. *Id*.; Nick Riemer, *Introducing Semantics* p. 137 (2010) ("A gradable pair of antonyms names points on a scale … thus, *hot* and *cold* are two points towards different ends of a scale…."). While "low" points downward and

encompasses what lies below a reference point, its opposite, "high," points upward and encompasses what is above a reference level:



Nothing about "low" connotes "high." In fact, one feature of being a gradable antonym is that the concept "low" entirely precludes the concept "high." Nick Riemer, *Introducing Semantics* p. 137 (2010) (antonyms are "characterized by a relationship of incompatibility between two terms;" a "gradable pair of antonyms … are two points towards different ends of a scale"); Adrienne Lehrer, *Markedness and Antonymy*, 21 Journal of Linguistics, pp. 397-429 at 397 (1985) ("Gradable antonyms … name opposite parts, usually ends, of a single dimensional scale.").

A gradable antonym never means both opposite parts of the pair; i.e. it never has a meaning that points in both opposing directions. "Low" never means "low and high."

Everyday usage confirms this conclusion. If an investment is described as "low risk," that means the risk level is below a certain reference level. The risk need not be above a certain level as well. No one would say an investment ceases to be "low risk" if the risk level drops to a tiny amount. Likewise, to count as "low calorie," a snack needs to have less than a certain caloric content. It does not need a minimum calorie count. It makes no sense to say that a snack with a very low caloric content is *too low* to be "low calorie." What is true of investments and snacks is true of electric current. A "low level current" must be lower than a certain reference level; it need not be higher than another.

To be sure, there is an inherent limit of zero imposed by the word "current." A "current" is a flow of electric charge, and the "level" of current is the rate of that flow. *The Penguin Dictionary of Electronics* 109 (3rd ed. 1998) (current: "A flow of electric charge or, quantitatively, the rate of flow of electric charge."); *Oxford Dictionary of Scienc*e 206 (4th ed. 2003) (current: "A flow of electric charge through a conductor. The current at a particular cross section is the rate of flow or charge."). A "low level current" thus requires some flow of electric charge. If there is no flow, there is no "current." But nothing in the term "current," or its

modifier "low level," requires that flow to be higher than some non-zero reference point.

For the inventor to have claimed a detection current that was both below one reference level and above another reference level would have required starkly different claim language. Rather than using the single term "low," the inventor could have included both parts of the gradable antonym pair, such as "a current at a level that is sufficiently low … and sufficiently high…." Or the inventor could have replaced "low" with a relative term that is not a gradable antonym, for example, "mid-level current" or "moderate level current." Relative terms like "moderate" connote a bracketed range and require identifying two reference points that bound that range.

But the phrase "low level current" does not contain both parts of a gradable antonym pair, nor does it include an intermediate relative term that connotes a bounded range. And it is improper to rewrite "low level current" to something that it is not. "Courts do not rewrite claims; instead, we give effect to the terms chosen by the patentee." *Taurus IP, LLC v. DaimlerChrysler Corp.*, 726 F.3d 1306, 1321 (Fed. Cir. 2013) (quoting *K-2 Corp. v. Salomon S.A.*, 191 F.3d 1356, 1364 (Fed. Cir. 1999)).

The phrase "low level current" contains only one relative term, "low." And that term points in only one direction, downward, encompassing what lies below a

reference level. Adding a second reference level as a lower bound imports a concept that is the exact opposite of the claim language—that the current must be a sufficiently "high level current." The claim language does not support, and in fact precludes, the district court's lower bound.

2. Courts uniformly construe claim phrases with "low" or "high" to have a single reference point.

Courts routinely construe claim terms modified by the word "low" to be below a specified reference point and do not add a second reference point as a lower bound. For example, "low temperature oxide" was construed as an oxide ocurring at "temperatures less than approximately 450° C." *IXYS Corp. v. Advanced Power Technology, Inc.*, 301 F. Supp. 2d 1065, 1082-83 (N.D. Cal. 2004). Because "low" points only downward from a reference point, and does not also connote pointing upward from a second reference point, the construction did not also add a lower bound such as "and greater than approximately ____." Similar cases abound.

- The phrase "low DC voltage" means below a reference point: "not to exceed 30 milliamps." *NexMed Holdings, Inc. v. Beta Techs., Inc.*, No. 2:06-CV-1014 TC, 2008 U.S. Dist. LEXIS 54273, *12-13 (D. Utah July 16, 2008). It does not mean lower than one reference point and higher than a second reference point, such as "not to exceed 30 milliamps *and exceeding* ___."

- The phrase "low pass filter" points downward from a reference point: "passing frequencies below about 500 Hz." *T-Netix, Inc. v. Global Tel*Link Corp.*, No. 2:01-CV-00189, 2003 U.S. Dist. LEXIS 27830, *56 (E.D. Tex., Aug. 15, 2003). It does not mean lower than one reference point and higher than a second reference point, such as "passing frequencies below about 500 Hz *and above* ___."
- The phrase "low power communication signals" points downward from a reference point: "a power for transmission of up to a maximum of several hundred feet." *Freeny v. Apple Inc.*, No. 2:13-CV-00361-WCB, 2014 U.S. Dist. LEXIS 120446, *18-19 (E.D. Tex. Aug. 28, 2014). It does not mean lower than one reference point and higher than a second reference point, such as "a power for transmission of up to a maximum of several hundred feet *and a minimum of* __."
- The phrase "low pressure" points downward from a reference point: "pressure below atmospheric pressure." *ITP Interpipe, Inc. v. Technip Offshore*, No. 1:05-CV-00581, 2007 U.S. Dist. LEXIS 7551, *37 (S.D. Ala., Jan. 31, 2007). It does not mean lower than one reference point and higher than a second reference point, such as "pressure below atmospheric pressure *and above* __."

- The phrase "low flow rate" points downward from a reference point: "a rate of flow less than about 1 liter/minute." *Erbe Electromedizin GmbH v. Canady Tech., LLC*, 512 F. Supp. 2d 297, 308-09 (W.D. Pa. 2007). It does not mean lower than one reference point and higher than a second reference point, such as "a rate of flow less than about 1 liter/minute *and more than* ___."
- The phrase "low mechanical spring constant" points downward from a reference point: "sufficiently low so that sensitivity to low frequency forces is obtained." *Input/Output, Inc. v. Sercel, Inc.*, No. 5:06-CV-236, 2007 U.S. Dist. LEXIS 98316, *89 (E.D. Tex. Dec. 19, 2007). It does not mean lower than one reference point and higher than a second reference point, such as "sufficiently low so that sensitivity to low frequency forces is obtained *and sufficiently high so that* __."
- The phrase "low pressure chemical vapor deposition" points downward from a reference point: "pressures well below atmosphereic pressure." *Agere Systes Inc. v. Atmel Corp*., No. 2:02-CV-00864-LDD, 2003 U.S. Dist. LEXIS 9823, *42 (E.D. Pa., May 23, 2003). It does not mean lower than one reference point and higher than a second reference point, such as "pressures well below atmospheric pressure *and above* ___."

- The phrase "lower layers" points downward from a reference point: "[t]he layers below a dividing line." *Agere Sys. v. Broadcom Corp.*, No. 2:03-CV-3138, 2004 U.S. Dist. LEXIS 14187, *58-62 (E.D. Pa. July 20, 2004). It does not mean lower than one reference point and higher than a second reference point, such as "[t]he layers below a dividing line *and above a* __."

Conversely, when courts construe a phrase with the adjective "high" (the gradable antonym counterpart of "low"), they define it solely in terms of a lower bound and impose no additional upper bound. For example, this Court construed "very high mechanical resistance" to point upward from a reference point: "an ultimate tensile strength of 1500 MPa or greater." *ArcelorMittal France v. AK Steel Corp.*, 700 F.3d 1314, 1321-22 (Fed. Cir. 2012). The Court did not add a second reference point in the opposite direction, such as "an ultimate tensile strength of 1500 MPa or greater *and less than __ MPa*." The same is true of other cases construing "high." *Am. Seating Co. v. USSC Grp., Inc.*, 91 F. App'x 669, 676-77 (Fed. Cir. 2004) (non-precedential); *Input/Output, Inc. v. Sercel, Inc.*, No. 5:06-CV-236, 2007 U.S. Dist. LEXIS 98316, at *80-84 (E.D. Tex. Dec. 19, 2007).

We are aware of no court—other than the district court here—that interpreted "low" so that it pointed both upward and downward. Interpreting

"low" so that it means higher than a reference point is incompatible with its meaning.

C. The district court's reasoning for imposing a lower bound on "low level current" was erroneous.

The reasoning of the magistrate judge and district court below was sparse and erroneous.

The magistrate judge reasoned that the construction should "include a lower boundary" because doing so "is appropriate to give meaning to the constituent term 'low.'" Appx34. The court then imported from the preferred embodiment a lower bound—"sufficient to begin the start up"—based on the effect of the current on the "switching supply in the remote equipment" of the embodiment. Appx34 (citing Appx331 (3:12-17)). This reasoning is flawed. "Low" means "[b]elow an average or standard." *The American Heritage Dictionary of the English Language* 1036 (4th ed. 2000). Thus "to give meaning to the constituent term 'low'" (Appx34) requires identifying a reference level that the current must be beneath or below—it requires an upper boundary. It is not "appropriate" to "include a lower boundary" (Appx34), which does just the opposite, i.e. it is what is required to give meaning to the opposite term, "high."

A court can examine specification embodiments to find objective boundaries for relative terms, but only for relative terms that actually appear in the claim language. Words like "high," higher" or "above" do not appear in the claim

language. Absent any relative term in the claim language connoting a boundary that the current must be "above" or "higher" than, it was improper for the court to import a limitation from the preferred embodiment. This is the "'cardinal sin' of claim construction." *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1324 (Fed. Cir. 2002).

The need to provide an objective boundary for a relative term justifies importing only the boundary required by that *particular term*. The presence of a relative term is not a license for importing *other* attributes of the preferred embodiment. Because "low" is a gradable antonym that points in only one direction, the needed boundary consists of a single reference point. Therefore, the need "to give meaning to the constituent term 'low'" (Appx34), does not justify importing a second boundary from the specification, especially a boundary that establishes "highness," which is the opposite of the claim language.

The district court made the same mistake as the magistrate judge. The court declared that a second lower bound was "necessary to guide one skilled in the art in determining a 'low level current.'" Appx54 (quoting Cisco *Markman* (Appx353-354)). The claim language has no such necessity. The necessary

guidance to determine what is "low" is an upper bound reference point—below the level that will "sustain start up," i.e. operate the access device. Appx54. [4]

Rather than only examining the specification for how "low" the current must be, the district court imported a second benchmark for something not found in the claim language: how "high" the current must be. The phrase "low level current" contains only one relative term, "low." And that term points in only one direction, downward, encompassing what lies below a reference level. Therefore only one objective benchmark is needed (an upper bound). Adding a second benchmark imports into the phrase a concept that is the exact opposite of the claim language—that it must be a sufficiently "high level current." The district court erred in reasoning that "low" required adding a second reference point.

[4] The district court also incorrectly asserted that a necessary "objective benchmark" was "a varying voltage level produced in the return path." Appx54. The "varying voltage level" response was the result of the peculiar "switching supply" used in the access device of the preferred embodiment. Appx331 (3:14-17). But neither the switching supply nor the varying voltage response are recited in or required by any of the asserted claims. That error in reasoning was harmless, however, because the district court did not import the "varying voltage level" into its claim construction. Moreover, in other portions of the *Markman* rulings below, the courts correctly ruled that the claims are *not* limited to the "varying voltage level" of the preferred embodiment. Appx37 (the "Court did not suggest in any way that a detectable response must be the illustrative varying voltage level described in the '930 Patent specification" (internal quotations omitted)); Appx59 ("'preselected condition' is *not* limited to the disclosed embodiments" (emphasis in original)); Appx354-355.

D. The district court's phrasing of the lower bound was incompatible with the '930 invention.

Not only did the district court err by adding a lower bound to define "low level current," the district court phrased the lower bound such that it was directly contrary to the fundamental purpose for keeping the current level "low." The district court's lower bound—"begin the start up of the access device"—allowed HP to argue that a "low level current" must be high enough to begin start up "of the access device," i.e., begin to start up all components and functionality of the access device. But the purpose for keeping the current level "low" is the exact opposite: to *avoid* starting all components until after successful detection. As described above, pp. 7-9, the "low level current" detection method proceeds "in a non-intrusive manner" that keeps the current level "low" to avoid starting up an access device until after the network switch determines the device can accept remote power. Appx330 (1:14-18, 1:54-56); Appx979-981 (¶¶74-78).

The district court derived its lower bound from the preferred embodiment, but even in that embodiment the low level current does *not* begin to start up "the access device," i.e., the entire access device. It begins the start up of "the "switching supply in the remote equipment," i.e. *one* component of the access device. Appx331 (3:14-16). The specification explains that only after successful detection, followed by providing operating level current, then the switching supply "turns on," after which "the remote equipment becomes active." Appx331 (3:17-

22). Yet the district court's construction was not phrased "sufficient to begin the start up of *one component* of the access device"; it was phrased "begin the start up of the access device" itself.

This error was crucial because HP's witnesses admitted that HP's detection current would start up certain components in the access device. Appx2098-2099 (70:20-71:4) ("Several of those [components] do work during the detection phase."); Appx2270-2272 (87:25-89:8); Appx2275 (92:4-8) ("each of these components we've got highlighted in yellow here will begin to consume power from the detection current"); Appx2740; Appx1800-1803 (60:1-63:23) (referring to Appx2740). But applying the lower bound as phrased by the district court, HP's witnesses testified that HP did not infringe because its detection current was not high enough to begin the start up of all components in the access device so that it would "turn on and begin to operate." Appx2220-2222 (37:7-39:20); (Appx2054) (26:10-11) ("we don't allow that start up and turn-on to the operational circuitry"); Appx2265-2266 (82:2-83:4).

Using an IP phone as an exemplary "access device," HP's witnesses testified "we know that it's not beginning to start up" as a result of the detection current because "the phone is not on. There's no lights turning on. There's no display. Can't make a phone call with it. It's … nonoperational." Appx2052-2053 (24:9-

25:7); Appx2047 (19:4-17). "[A]lthough there's current being sent," he explained, "the phone is not usable." Appx2053 (25:20-23). [5]

The district court's lower bound—"sufficient to begin the start up of the access device"—allowed HP to argue that it did not infringe because its detection current would not "start up," "turn on," and "operate" an access device so that it was "usable" and one could "make a phone call" with it. This was directly contrary to the fundamental purpose for using a current at a "low level," which is to *not* start up and operate the device, but rather to detect whether a device can accept remote power *before* it "turns on" and its circuits "become[] active." Appx331 (3:17-22).

The district court erred by imposing a lower bound, and it doubly erred by imposing a lower bound that was fundamentally incompatible with the '930 invention and preferred embodiment.

[5] In fact, under HP's view of the claim construction, the current level required to "begin the start up of the access device" was the same current level required to "sustain the start up" and operate the device. Appx2085 (57:10-23) ("it will be sufficient to begin and sustain that start up"); Appx2054 (26:2-12); Appx2062-2063 (34:20-35:1); Appx2063 (35:5-7). To be a "low level current," the current thus would have to be above that level while also simultaneously being below that same level. "A claim construction that renders asserted claims facially nonsensical 'cannot be correct.'" *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1255 (Fed. Cir. 2010).

II. The district court erred in construing "main power source" as "a DC power source."

Below, it was undisputed that the ordinary meaning of "main power source" includes both AC and DC power sources. It was also undisputed that the '930 specification and prosecution history do not define "main power source" as "a DC power source," disavow use of AC power sources, or disparage AC power sources. But the district court construed "'main power source' to mean 'a DC power source,'" excluding all embodiments with an AC main power source. Appx31; Appx50-51.

That construction cannot be sustained. The district court's sole rationale for excluding AC power sources—that one embodiment could require DC and be "inoperable" with AC, Appx50-51—is devoid of support. Adding limitations to carve out inoperable embodiments is directly contrary to this Court's decision in *Cordis Corp. v. Medtronic Ave, Inc.*, 511 F.3d 1157 (Fed. Cir. 2008). Moreover, excluding all AC embodiments improperly removed many operable AC embodiments.

A. The ordinary meaning of "main power source," confirmed by the '930 specification and prosecution history, encompasses AC power sources.

1. The phrase "power source" includes both AC and DC power sources.

"The appropriate starting point for claim construction is always with the language of the asserted claim itself." *Cat Tech LLC v. TubeMaster, Inc.*, 528 F.3d

871, 884-85 (Fed. Cir. 2008). And the Court "indulge[s] a 'heavy presumption' that a claim term carries its ordinary and customary meaning." *Starhome GmbH v. AT & T Mobility LLC*, 743 F.3d 849, 857 (Fed. Cir. 2014).

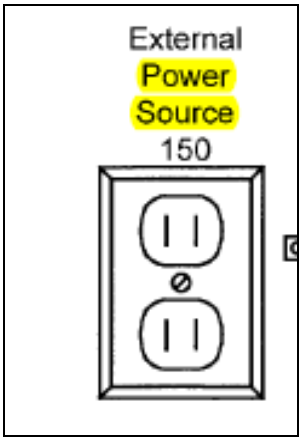
It was undisputed that "[t]he ordinary meaning of a 'power source' includes both an AC power source and a DC power source." Appx954-963 (¶¶33-47); Appx1017-1020 (not disputing ordinary meaning); Appx1048-1057 (¶¶33-52) (same). The term "power source" includes both devices that provide alternating current (current that periodically changes direction) and devices that provide direct current (current that flows in one direction). Appx954-955 (¶35); Appx957-958 (¶40); Appx964-965 (¶49); Appx1131 (¶129); Appx1132-1133 (¶131); Appx771.

This ordinary meaning was confirmed by objective sources. "[P]rior art use of the term would further inform one of skill in the art as to the common meaning of the term." *Laryngeal Mask Co. Ltd. v. Ambu*, 618 F.3d 1367, 1373 (Fed. Cir. 2010); *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1584 (Fed. Cir. 1996) ("prior art references may also be more indicative of what all those skilled in the art generally believe a certain term means").

The prior art invoked by HP shows that someone of ordinary skill in the art would have understood "power source" to encompass both AC and DC power sources. For example, in an (unsuccessful) attempt to show the '930 patent invalid, HP invoked a patent covering a method for "ramping up a power supply

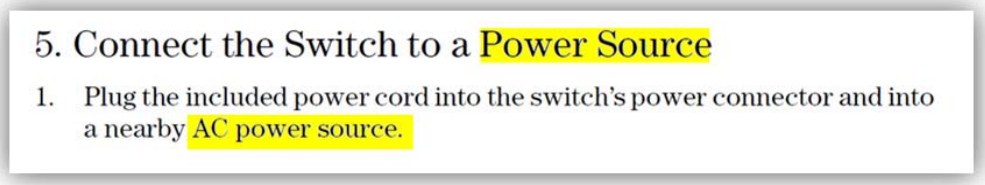
that supplies power" over a network to a device. Appx835 (Abstract). That patent included an embodiment where "the power source 108 includes a direct current (DC) and/or an alternating current (AC) power source such as a battery and/or a connection the main power grid." Appx842 (4:49-52).

As another example, HP's principal prior art reference, the Fisher patent, disclosed a method for "concurrently transmitting" a network data signal and electrical "current, sufficient to power a wireless access point." Appx776 (Abstract). The reference "describe[d] a 'power source' as either a DC power source (such as a battery) or an AC power source (such as a wall outlet)." Appx958 (¶41); Appx782 (1:17-18). That reference even used "Power Source" as the label for a standard AC power outlet:



Appx778 (Figure 2).

HP's own documents describing its accused Ethernet switches (the exact context of the '930 patent) showed that HP, like everyone else, understood that "power source" includes AC power sources.

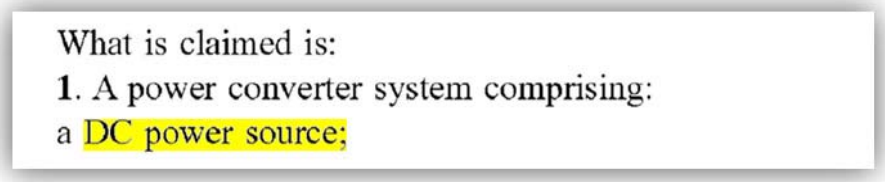


5. Connect the Switch to a Power Source

1. Plug the included power cord into the switch's power connector and into a nearby AC power source.

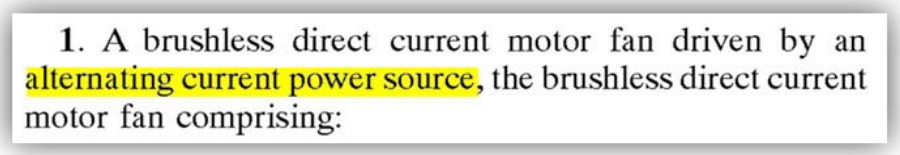
Appx878; Appx960-962 (¶43).

Furthermore, given the established meaning of "power source," any prior art patentee wishing to limit its claims to either AC or DC had to say so expressly.



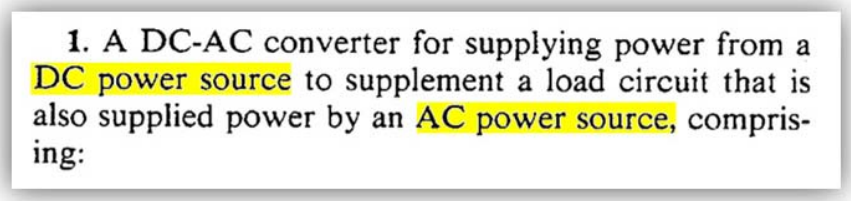
What is claimed is:
1. A power converter system comprising:
a DC power source;

Appx807 (17:21-23);



1. A brushless direct current motor fan driven by an alternating current power source, the brushless direct current motor fan comprising:

Appx820 (4:24-26);



1. A DC-AC converter for supplying power from a DC power source to supplement a load circuit that is also supplied power by an AC power source, comprising:

Appx832 (10:1-4). Likewise, to exclude AC, the district court had to insert the limiting modifier "DC" in its construction. Without that modifier, the construction would have been "power source," which encompasses both AC and DC power sources.

A person skilled in the art would have understood that "power source" encompasses both AC and DC power sources.

2. The modifier "main" does not connote "DC"; instead it connotes "first" or "principal."

Adding the modifier "main" to the phrase "power source" did not limit the power source to a DC power source. There is "no technical (or other) dictionary, treatise, or textbook suggesting that the term 'main' connotes or is synonymous with 'DC.'" Appx963 (¶46). Instead, "main" connotes "first or principal as in the first or principal functions." Appx963 (¶45); Appx769. [6]

The structure of the '930 patent's claim language confirms that "main" means "principal" or "first." Claim 6, for example, recites both a "main power source" and a "secondary power source." Appx331 (4:49-67). That claim contrasts "main" with "secondary," not with "alternating current."

The claim's description of each power source's function makes that contrast even more explicit. A "main power source" performs two functions: "connected to supply power to the data node" and "delivering a low level current from said main power source to the access device" for detection purposes. Appx331 (4:56-57, 4:60-61); Appx955-956 (¶36). "These two main functions … take place … *before* an access device that can receive remote power is detected." Appx955-956 (¶36)

[6] "DC" refers to "a completely different concept: 'direct current,' which is the unidirectional flow of an electric charge." Appx963 (¶45).

(emphasis added). By contrast, the "secondary power source" supplies power "to the access device" *after* the data node detects an access device that can receive remote power. Appx331 (4:57-59); Appx955-956 (¶36). That function is secondary in that it occurs only after the functions of the main power source have been performed. *Id*. The modifier "main" thus connotes a power source that performs the two recited main functions; it carries no implication of "DC."

Nothing in the claim language connotes or implies that "main power source" is limited to DC power sources. Instead, the only plausible interpretation of the claim language is that it contains no such limitation.

3. Claim differentiation confirms that "main power source" encompasses AC power sources.

"[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." *Phillips*, 415 F.3d. at 1315. That "presumption is especially strong" where the additional limitation "is the only meaningful difference between [the] independent and dependent claim." *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1374 (Fed. Cir. 2014).

Independent claim 6 requires a "main power source." That claim does not specify whether the "main power source" provides AC or DC. Appx331 (claim 6). By contrast, dependent claim 17 specifies that the "main power source" provides DC. Claim 17 recites a "[m]ethod according to claim 6, wherein said main power

source provides a DC current flow." Appx334. That difference in claim language is a "powerful indicator" that "main power source" is not limited to a power source that provides DC current flow. *Saunders Grp., Inc. v. Comfortrac, Inc.*, 492 F.3d 1326, 1336 (Fed. Cir. 2007). Construing "main power source" to mean "DC power source" would eliminate the "only meaningful difference between [the] independent and dependent claim." *Hill-Rom*, 755 F.3d at 1374. The presumption that "main power source" encompasses more than "DC power source" is thus "especially strong." *Id.*

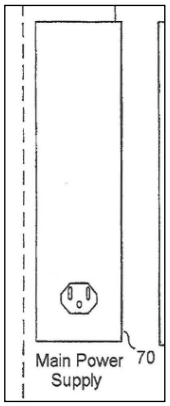
4. The specification and prosecution history confirm that "main power source" is not limited to DC.

The phrase "DC power source" is conspicuously absent from the specification. The specification's Summary of the Invention never once uses the terms "DC" or "direct current." Appx330 (1:49-2:15). Nor does it contain any mention of the direction of current flow. *Id*. Whether current flow was AC or DC had no significance for the invention. Appx1131 (¶129 & n.7).

The rest of the specification, which describes preferred embodiments, does not describe the "main power source" as a "DC power source" either. It nowhere calls out a "DC" main power source "as the present invention, as essential, or as important" to the invention. *GE Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309-10 (Fed. Cir. 2014). To the contrary, the specification states that the main power source can be a "conventional main power supply." Appx330 (2:52-

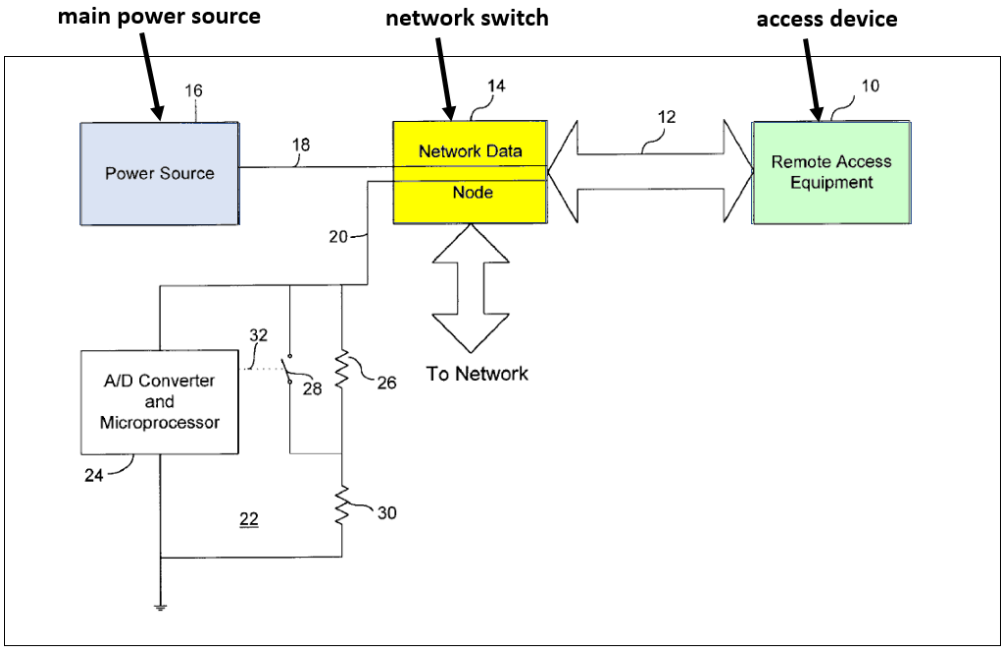
53). As discussed above, pp. 46-49, "conventional" main power supplies were not limited to DC power supplies; they could "be either an AC or DC source of power." Appx1131 (¶129 & n.7); Appx964-965 (¶49).

In fact, the specification *never once* uses the term "DC" or "direct current" in connection with the main power source. Appx326-332; Appx963-964 (¶48). Moreover, the sole reference to current direction in connection with a main power source is to AC, not DC. An embodiment having "main power supply 70" is illustrated in Figure 3, and (as both sides' experts agreed) it is depicted as deriving AC power "from a typical AC wall socket." Appx329; Appx1049 (¶35); Appx1131-1132 (¶¶129-130); Appx964-965 (¶49).



The specification's sole reference to "dc" is when describing a component in the preferred embodiment that is *not* the main power source. In that embodiment, the specification describes a piece of "remote access equipment"—an IP telephone—that uses a "dc-dc switching supply." Appx331 (3:4-7, 3:12-14); Appx963-964 (¶48). But that shows only that a piece of remote equipment, in a preferred embodiment, has a "dc-dc" switching supply. It does not prove anything about the main power source.

As Figure 1 (below) illustrates, the switching supply internal to the remote equipment (shaded green) is different from the "main power source" for the network switch (shaded blue):



Appx327.

Moreover, as Figure 1 shows, in the preferred embodiment a "data node" or switch (shaded yellow) sits between the "main power source" and the remote equipment. Figure 3 "illustrates the physical layout of components" in Figure 1, and shows the same thing. Appx329-331 (2:29; 3:59-60). That is significant because it is "common" for such a network switch to include internal components that convert AC to DC as needed. Appx1131 (¶129 & n.7); Appx1139-1140 (¶137); Appx1745 (5:7-12). Both sides' experts agreed that, if certain circuits needed DC, then one or more converters within the switch could convert AC

received from an AC main power source to the DC needed to power those circuits. Appx1131 (¶129 & n.7); Appx1132-1140 (¶¶131-137); Appx3765 (659:3-14); Appx3767 (661:4-16). That the remote equipment in the preferred embodiment had an internal dc-dc switching supply did not require the "main power source" for the network switch to be a DC power source. Appx1140.

Moreover, the mention of "dc" in a preferred embodiment is not a "manifest exclusion or restriction" of the claim, and cannot justify importing limitations from the specification. *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004). The prosecution history likewise says nothing to restrict "main power source" to "DC power source." The inventor nowhere stated that the invention required a DC main power source or disclaimed AC power sources. Appx963-964 (¶48).

5. HP's expert previously agreed with Network-1's construction of "main power source."

Consistent with the claim's plain meaning and the intrinsic evidence, HP's own expert previously agreed with Network-1's construction. Throughout this case, Network-1 maintained that "main power source" naturally encompasses both AC and DC power sources. Network-1 argued it should be construed as: "a source of power connected to supply power to the data node and deliver a low level current to the access device." Appx30.

In consolidated *inter partes* review proceedings, an expert for HP (and other parties) agreed with the construction of "main power supply" that Network-1 proposed below:

> Q. You've told me what the main power source is going to do in the claims, but what is meant by the phrase "main power source"? What does that mean?
> A. It is a source of power that both supplies power to the data node and is the source of the low-level current.

Appx514 (113:15-20).

The expert clarified, moreover, that this was not some expansive "broadest reasonable interpretation"; this construction was what "one of ordinary skill in the art" would "understand is the ordinary meaning" of "main power source."

> Q. My question isn't about what someone could envision it to be. What would one of ordinary skill in the art understand is the ordinary meaning of "main power source"?
> A. And my answer remains that one would understand it as the source of power that supplies both power to the data node and the power for the low-level current.

Appx515 (114:2-8). That construction was not limited to "DC."

* * *

The ordinary meaning of "main power source" should control here. "This is simply not a case where the patentee has disavowed the plain meaning of the

term." *GE Lighting Sols., LLC v. AgiLight, Inc*., 750 F.3d 1304, 1310 (Fed. Cir. 2014). "There is no reason in this case to depart from the term's ordinary meaning," which includes an AC power source. *Ancora Techs. v. Apple, Inc*., 744 F.3d 732, 734 (Fed. Cir. 2014) (holding that the term "program" "encompasses both operating systems and the applications that run on them"); *Wasica Fin. GmbH v. Cont'l Auto. Sys.*, 853 F.3d 1272, 1282 (Fed. Cir. 2017). This Court should construe "main power source" as "a source of power connected to supply power to the data node and deliver a low level current to the access device."

B. The district court's reasoning was directly contrary to circuit authority.

The district court defied fundamental rules of claim construction, ignoring the ordinary meaning of the claim language, structure of the claim, dependent claim differentiation, and the absence of any limiting or disavowing statement in the specification or prosecution history. The one line of reasoning the district court did follow was directly contrary to controlling precedent of this Court.

The district court quoted the maxim from *Talbert* that a "construction that renders the claimed invention inoperable should be viewed with extreme skepticism." Appx50-51 (quoting *Talbert Fuel Sys. Patents Co. v. Unocal Corp.*, 275 F.3d 1371, 1376 (Fed. Cir. 2002)). The court reasoned that a device using AC "would be unable to detect" one of the three voltage states used in the '930 preferred embodiment. Appx50. Having found that AC would render the device

"inoperable" for one voltage state in the embodiment, the district court concluded that all AC embodiments should be excluded and the claim limited to just a "DC power source." Appx50-51. That reasoning defied this Court's controlling precedent.

The *Talbert* maxim applies only in the rare situation where a proposed construction "would render all embodiments of a claimed invention inoperable," i.e., render the claim invalid. *Cordis Corp. v. Medtronic Ave, Inc.*, 511 F.3d 1157, 1174 (Fed. Cir. 2008). But when a claim's ordinary meaning includes both operable and inoperable embodiments, the claim is not invalid and there is no basis for deviating from ordinary meaning and carving out any claim scope. *Id*. "It is not a function of the claims to specifically exclude … possible inoperative" embodiments. *Atlas Powder Co. v. E.I. du Pont De Nemours & Co.*, 750 F.2d 1569, 1576 (Fed. Cir. 1984) (internal quotes omitted) ("[e]ven if some of the claimed combinations were inoperative, the claims are not necessarily invalid").

If "main power source" were construed to cover both DC and AC power sources, some embodiments would still be operable. No one questions that embodiments with a DC main power source would work. So, too, would a network switch that uses an AC main power source but converts it to DC. Thus, no limiting construction is needed to preserve the patent's validity.

Moreover, this Court expressly rejected the exact misapplication of the *Talbert* maxim used by the district court to narrow "main power source" to DC. In *Cordis Corp. v. Medtronic Ave, Inc.*, 511 F.3d 1157 (Fed. Cir. 2008), the accused infringer argued that the "construction of 'slots' cannot be correct because, under that construction, the claim would cover inoperable embodiments." *Cordis*, 511 F.3d at 1174. Just like HP, the accused infringer attempted to rely on *Talbert's* statement that "a construction that renders the claimed invention inoperable should be viewed with extreme skepticism." *Id*. This Court rejected the accused infringer's argument, holding, "that statement [in *Talbert*] refers to a construction that would render *all embodiments* of a claimed invention inoperable, not a construction that might cover some inoperable embodiments." *Id.* (emphasis added). The Court held that the accused infringer's attempt to narrow the ordinary meaning construction was improper. *Id*.; *see In re Anderson*, 471 F.2d 1237, 1242 (C.C.P.A. 1973) (refusing to limit "medicament" even though "some medicaments" were "inoperative or deleterious"); *In re Myers*, 410 F.2d 420, 426 (C.C.P.A. 1969) (rejecting the argument that a claim must "be so specific as to exclude materials known to be inoperative").

The *Cordis* rule is sound because carving-out purported inoperable embodiments offers no benefit but has a high likelihood of causing significant harm. It offers no benefit because inoperable embodiments are, by definition,

"impossible" to make work. *CFMT, Inc. v. YieldUp Int'l Corp.*, 349 F.3d 1333, 1339 (Fed. Cir. 2003). An accused infringer's device cannot perform the impossible. Therefore, removing inoperable claim scope does not resolve any potential infringement dispute or give an accused infringer any additional freedom. It serves no purpose to add a special limiting clause to a claim construction so that the claim does not cover something that cannot exist.

But attempting to carve-out purported inoperable embodiments will almost certainly cause harm. No rational infringer squanders time, money, and judicial attention trying to persuade the court to carve out embodiments that do not work. An accused infringer expends these resources *only* to propose a carve-out that includes *operable* embodiments matching an accused device. Accordingly, a carve-out for inoperable claim scope proposed by an accused infringer is virtually certain to encompass important operable claim scope. As shown below, pp. 68-69, that is exactly why HP vigorously argued to limit "main power source" to "DC power source."

Moreover, while there is a maxim that courts may consider the effect of a construction on validity, this Court has "limited that maxim to cases in which 'the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous.'" *Phillips*, 415 F.3d at 1327 (quoting *Liebel-Flarsheim Co. v. Medrad*, Inc., 358 F.3d 898, 911 (Fed. Cir. 2004)). The district court did not

hold that "main power source" remained ambiguous "after applying all the available tools of claim construction." Rather, the court identified *nothing ambiguous* about the ordinary meaning of "main power source." And it bypassed all tools of claim construction. The district court had no license to limit the scope of an unambiguous claim term.

Finally, a court "cannot construe the claim differently from its plain meaning in order to preserve its validity." *Phillips*, 415 F.3d. at 1327 (quoting *Elekta Instrument S.A. v. O.U.R. Scientific Int'l, Inc.*, 214 F.3d 1302, 1309 (Fed. Cir. 2000)). Because the plain meaning of "main" never equates to "DC," it was improper to construe "main power source" as "DC power source" to preserve validity.

A claim's natural meaning cannot be artificially limited by features found in a given embodiment, much less to ensure that every embodiment is fully operable under every possible iteration of a claim. Under the Court's controlling authority, it was improper to adopt a narrowing limitation to carve out purportedly inoperable claim scope.

C. The district court's construction is also erroneous because it excludes operable embodiments.

Not only was it improper for the district court to attempt to carve out inoperable embodiments from the full scope of the claim's ordinary meaning, but the district court's carve-out excluded *operable* embodiments. No principle of

claim construction allows courts to re-define claims—in defiance of clear meaning—to throw out the operable baby merely to get rid of a splash of inoperable bathwater.

The district court noted that the '930 specification describes a preferred embodiment in which a low level current produces one of three responses: "no voltage drop, a fixed level voltage drop, or a varying level voltage drop." Appx50; Appx331 (3:2-4). If DC current were used for the detection current, then all three states could be detected; but if AC current were used, then according to the district court, the system "would be unable to detect the second state, a fixed voltage drop." Appx50-51. The district court reasoned that because one aspect of the preferred embodiment would be inoperable with AC current, then AC should be carved out entirely from the construction of "main power source." *Id*. This was erroneous at three levels.

First, the district court confused the specification's description of the preferred embodiment with the claimed invention. The claimed invention requires a network switch to detect whether an access device can accept remote power by "sensing a voltage level" in response to "low level current." Appx331 (claim 6). If the switch senses a "preselected condition of [the] voltage level," it then delivers remote power. *Id.* As the preferred embodiment illustrates, that "preselected condition" can be a particular "varying voltage level" such as the "sawtooth"

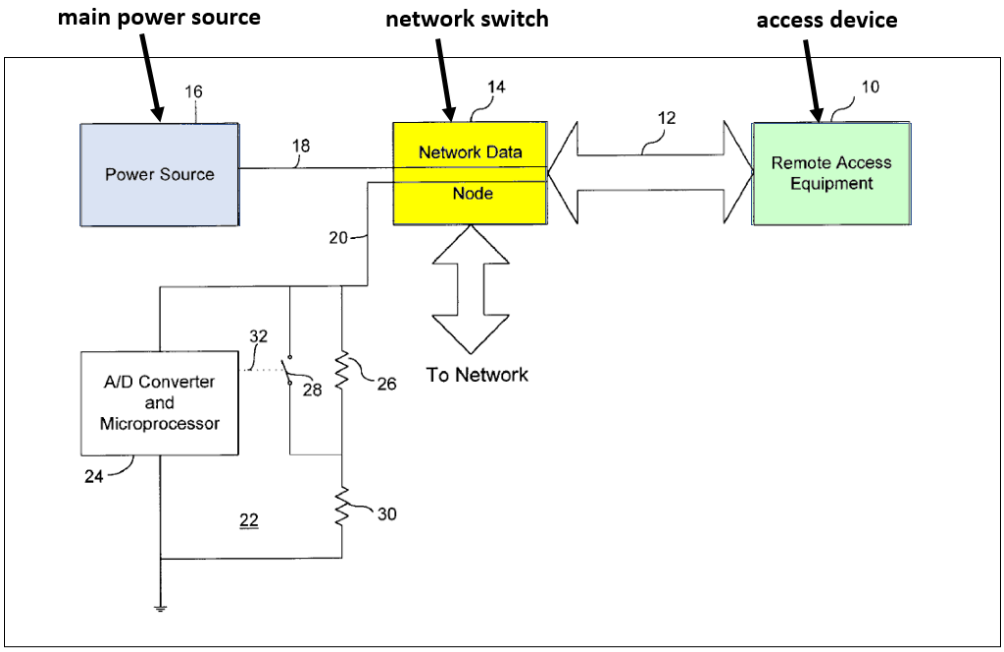
voltage used in the preferred embodiment. Appx331 (3:2-17). But the claim itself does not require using the particular voltage conditions of the preferred embodiment as the "preselected condition." Any "preselection condition" will suffice. Appx330 (2:1-14); Appx36-37.

For that reason, when construing the phrase "preselected condition," the district court expressly rejected the argument that the claims were limited to the particular pattern of voltage conditions used in the preferred embodiment, holding that these were "a feature of a particular embodiment, rather than the claimed invention as a whole, and therefore should not be imported into the construction." Appx37. It held that "preselected condition" encompasses any "parameter of the voltage on the signaling pair that indicates whether an access device is able to accept remote power." Appx38. Accordingly, that one of the three voltage conditions in the preferred embodiment would not work with an AC detection current, does not suggest that the claim is not operable. There is no more basis for restricting the claims to require those particular voltage conditions than there is a basis for restricting any patent to the particular features of any embodiment.

Second, that a particular configuration of AC would not work with the preferred embodiment does not imply that AC would never work for any embodiment. The experts agreed that a network switch with an AC power source would be able to sense *some* preselected conditions. For example, as HP's own

expert recognized, a network switch using an AC main power source could "sense a varying (i.e. AC) voltage level in response to that AC current." Appx1049-1050 (¶37). Such a varying voltage could be used as the claimed "preselected condition"—i.e., a "parameter of the voltage on the signaling pair that indicates whether an access device is able to accept remote power." Appx38. And some of HP's products do use a varying voltage pattern (a stairstep voltage pattern) to signal a device that can accept remote power. Appx1813-1814 (73:1-74:18); Appx4418.

Third, the district court failed to recognize configurations where AC current from the main power source passes through the network switch and is converted to DC before being delivered across the network cable to the access device. As Figure 1 illustrates, the main power source (blue) connects to the network switch (yellow), which in turn connects via the cable to the remote access equipment (green).



Appx327. And it is "common" for network switches to convert alternating current to direct current. Appx1131 (¶129 & n.7); Appx1138-1139 (¶134); Appx1139-1140 (¶137); Appx1745 (5:7-12). As both sides' experts agreed, "an AC/DC converter . . . can convert power before delivering the low level current to an access device that requires a DC low level detection current." Appx1139-1140 (¶137); Appx3765 (659:3-14); Appx3767 (661:4-16). Therefore, even embodiments requiring a DC detection current to produce a particular preselected condition of the voltage can be operable with an AC "main power source."

In fact, it was undisputed that it "is very common" in fully operable Power over Ethernet systems to use an AC power supply as the main power source "in the exact configuration in Figure 3." Appx1132-1139 (¶¶131-135).

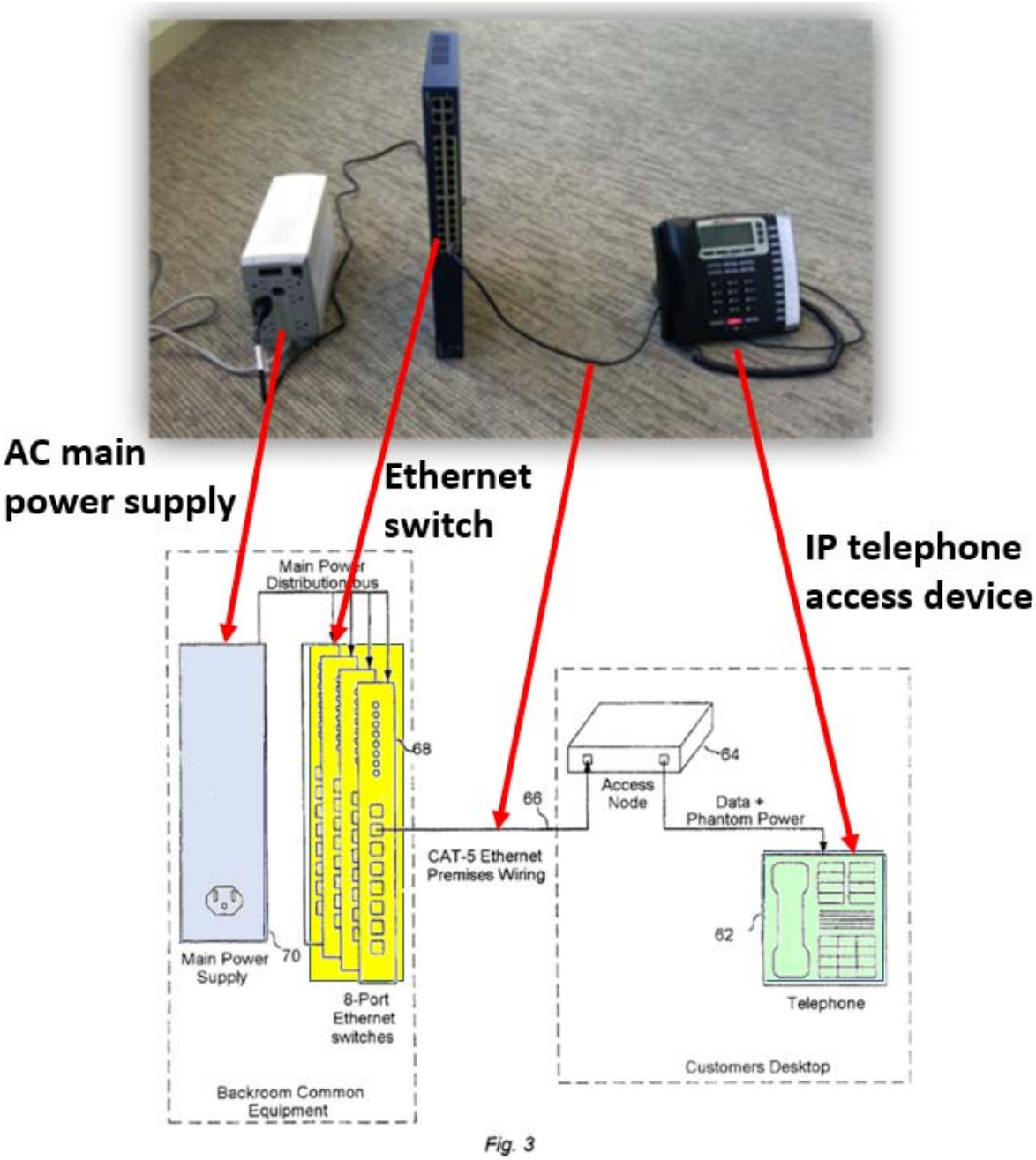


Fig. 3

Id. Shown above is a photograph of an AC power supply serving as the "main power source" "in the exact configuration of Figure 3," that "performs all of the claimed functions" recited in the '930 patent and "works just fine." *Id.* That very configuration was demonstrated live to the magistrate judge. Appx1196-1197

(22:25-23:24). The AC power source was connected to the network switch (manufactured by a '930 patent licensee), which resulted in delivering a low level detection current, followed by sensing a voltage pattern indicating an IP telephone that could accept remote power, and then fully powering up the telephone so that it was completely operable. *Id*.

The district court erred by imposing a construction that precluded all AC main power source embodiments, thereby precluding operable embodiments used by HP.

III. An error in the construction of either "low level current" or "main power source" requires vacating the judgment of non-infringement and remanding for a new trial.

"It is well established that when an incorrect jury instruction—such as an incorrect claim construction—removes from the jury a basis on which the jury could reasonably have reached a different verdict, the verdict should not stand." *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.,* 381 F.3d 1371, 1383 (Fed. Cir. 2004); *Avid Tech., Inc. v. Harmonic, Inc.,* 812 F.3d 1040, 1042 (Fed. Cir. 2016) ("On one of the two claim elements that were the focus of the dispute at trial, the district court gave the jury a narrow construction. … We hold that construction to be incorrect. … [The plaintiff] therefore is entitled to a new trial on infringement").

If "an error … in claim construction could have changed the verdict," then the error is prejudicial and a new trial is required. *SSL Servs., LLC v. Citrix Sys*.,

769 F.3d 1073, 1085 (Fed. Cir. 2014). An erroneous claim construction on one element is harmless "only if a reasonable jury would have been required by the evidence to find non-infringement even without the error." *Avid*, 812 F.3d at 1047.

The error here was manifestly prejudicial. The only two elements that HP contested at trial were "low level current" and "main power source." Appx1529 (212:8-9); Appx1530 (213:11-13); Appx1531 (214:6-8); Appx1521 (204:8-10); Appx2195 (12:12-23); Appx2041 (13:9-12); Appx2621 (112:18). HP did not even contest that its products satisfied every other element, and it made that tactical decision for an obvious reason: the evidence unambiguously confirmed that HP's products met every other aspect of the claims. Appx1720-1737 (109:5-126:22); Appx1743-1820 (3:14-80:19); Appx1964-1966 (41:17-43:23); Appx2727; Appx2740; Appx4364-4365; Appx2802; Appx4229 (54:5-17).

In fact, had the district court instructed the jury using the proper meaning of the claims, the evidence was so strong that infringement would have inevitably followed as a matter of course for the disputed phrases. HP focused its "low-level current" non-infringement argument solely on the portion of the construction that was incorrect. Appx1529 (212:8-9); Appx2063 (35:18-25); Appx2111-2112 (83:22-84:1). And it was *undisputed* that HP's accused products would satisfy the "low level current" element under the proper construction. HP's witnesses did not dispute that HP's detection current was a non-data signal. Appx2215 (32:5-21);

Appx1795-1796 (55:23-56:15) ("It's definitely a non-data signal current."). And they confirmed that HP's detection current was insufficient to "sustain the start up" or "operate" the access device. Appx2223 (40:6-16); Appx2062-2063 (34:7-35:25); Appx2073 (44:15-23); Appx2111-2112 (83:22-84:1).

Similarly, if "main power source" could encompass an AC power source, the evidence of infringement was strong. At trial, HP's expert conceded that, for certain HP products, "the power for all functions"—including the two functions of the main power source—"originate at the AC input." Appx2291(108:5-7). Similarly, an HP engineer conceded that certain HP switches receive "all the[ir] power" from an "AC power source." Appx2056 (28:5-21). HP's attorney—well aware of the significance of this concession—interjected:

> Q. And just to be clear, I think that the Court has told us that the *AC is not the power to talk about in this case*–
>
> A. That is—
>
> Q. —okay?
>
> A. That is correct, ma'am.
>
> Q. It's the DC power, right?
>
> A. It's the DC power, right.

Appx2056-2057 (28:22-29:3) (emphasis added). Similarly, when the engineer also testified that for some switches there is "a single power source" for all functions that "connect[s] from that AC wall plug outlet," HP's attorney had the witness

clarify that "AC power is not what's involved here in Judge Schroeder's claim construction." Appx2065-2066 (37:3-38:1); Appx2067 (39:7-14).

In addition, Network-1 had substantial additional evidence available to establish that, for HP's accused switches, an AC power source supplies power for the two recited functions of powering the data node and the low level detection current. Appx3338-3347. "[T]he question of infringement was not explored on the … less restrictive claim construction" and a "new trial is required so [Network-1] can present evidence and argument that were not needed under the district court's original claim construction." *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 381 F.3d 1371, 1382-83 (Fed. Cir. 2004).

Nor would HP be entitled to judgment as a matter of law if the Court reversed only one of the claim constructions. If the Court reversed only the construction of "low level current," HP would not be entitled to judgment as a matter of law on the district court's construction of "main power source." Network-1 presented extensive evidence that HP's accused products satisfied that construction. Appx1730-1737 (119:3-126:22); Appx2078-2079 (50:22-51:1) (for certain HP switches "all the power that's consumed inside that switch, whether it's for the switch fabric [data node], for detection [low level current], whatever, comes through that DC output on the other end of that single power supply"); Appx2075 (47:6-17); Appx2076-2077 (48:20-49:10) ("all of the power" comes from "that

output, that DC power"); Appx2077 (49:16-22); Appx2079-2080 (51:9-52:3); Appx2079 (51:2-8); Appx2073 (45:14-24); Appx4198-4200 (154:15-156:9); Appx2293 (110:7-12); Appx2866; Appx2870-2871; Appx2875; Appx2885; Appx2952.

And if the Court reversed only the construction of "main power source," HP would not be entitled to judgment as a matter of law on the district court's construction of "low level current." Network-1 presented extensive evidence that HP's accused products satisfied the "low level current" element under the district court's construction. Appx1795-1808 (55:15-68:12); Appx2072 (44:15-23); Appx2098-2099 (70:20-71:4); Appx2740; Appx2265 (82:16-20); Appx2266 (83:12-18); Appx2140-2141 (112:23-113:12).

HP, therefore, was not entitled to judgment as a matter of law on any claim element. Appx2497-2498 (175:9-176:2) (denying HP's motion for judgment as a matter of law on infringement). Accordingly, the district court's erroneous construction of either "low level current" or "main power source" could have made a difference, and Network-1 "is entitled to a new trial on infringement." *Avid Tech., Inc. v. Harmonic, Inc.,* 812 F.3d 1040, 1042 (Fed. Cir. 2016).

Conclusion

The judgment of non-infringement should be reversed and the case remanded for a new trial on infringement.

Date: January 18, 2019

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ADDENDUM

ADDENDUM

TABLE OF CONTENTS

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION

NETWORK-1 TECHNOLOGIES, INC.,	§	
	§	
Plaintiff,	§	
	§	**CASE NO. 6:11-CV-492**
v.	§	
	§	
ALCATEL-LUCENT USA INC., *et al.,*	§	
	§	
***Defendants*.**	§	
	§	

REPORT AND RECOMMENDATION
OF THE UNITED STATES MAGISTRATE JUDGE

This Report and Recommendation construes the disputed claim terms in United States Patent No. 6,218,930 ("the '930 Patent"), asserted in this suit by Plaintiff Network-1 Technologies, Inc. Also before the Court is Defendants' Motion for Summary Judgment of Invalidity Under 35 U.S.C. § 305. Doc. No. 609.

On June 2, 2016, the parties presented oral arguments on the disputed claim terms and the improper claim broadening issues at a *Markman* hearing. Based on the analysis stated herein, the Court resolves the parties' claim construction and claim broadening disputes and **ADOPTS** the constructions set forth below. It is also recommended that Defendants' Motion for Summary Judgment be **GRANTED-IN-PART** and **DENIED-IN-PART**.

BACKGROUND

Plaintiff Network-1 Technologies, Inc. ("Network-1") filed the above-captioned suit on September 15, 2011 alleging infringement of the '930 Patent. The Court previously construed terms of the '930 Patent in *Network-1 Security Solutions, Inc. v. D-Link Corp., et al.*, No. 6:05-cv-291, Doc. No. 137 (E.D. Tex. Nov. 20, 2006) ("*D-Link Markman Order*"), and *Network-1*

Security Solutions, Inc. v. Cisco Systems, Inc., No. 6:08-cv-30, Doc. No. 251 (E.D. Tex. Feb. 16, 2010) ("*Cisco Markman Order*"), Doc. No. 328 (May 18, 2010) ("*Cisco Reconsideration*").

In July 2012, a request for *ex parte* reexamination was filed ("the 401 reexamination"). Doc. No. 609 at 3. In response to rejections of challenged claims 6, 8, and 9, Network-1 filed an Amendment and Reply that responded to the rejections and added new claims 10-23 to the '930 Patent. Doc. No. 609 at 3. A reexamination certificate issued on October 14, 2014. Doc. No. 609, Ex. 7. The '930 Patent was subject to a subsequent *ex parte* reexamination ("the '444 reexamination"). Doc. No. 609 at 4. A reexamination certificate issued in that proceeding on November 9, 2015. Doc. No. 609, Ex. 9.

Sony filed a Petition for Post-Grant Review on February 16, 2015. Doc. No. 502. This case was stayed and administratively closed pending the U.S. Patent Trial and Appeal Board's (PTAB) action on Sony's Petition. Doc. No. 558. The PTAB denied Sony's Petition, Sony's Request for Rehearing, and Sony's second Request for Rehearing. Doc. No. 576 at 2. On April 8, 2016, the case was re-opened.

APPLICABLE LAW

Claim Construction

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). The Court examines a patent's intrinsic evidence to define the patented invention's scope. *Id.* at 1313–1314; *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). Intrinsic evidence includes the claims, the rest of the specification, and the prosecution history. *Phillips*, 415 F.3d at 1312–13;

Bell Atl. Network Servs., 262 F.3d at 1267. The Court gives claim terms their ordinary and customary meaning as understood by one of ordinary skill in the art at the time of the invention. *Phillips*, 415 F.3d at 1312–13; *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003).

Claim language guides the Court's construction of claim terms. *Phillips*, 415 F.3d at 1314. "[T]he context in which a term is used in the asserted claim can be highly instructive." *Id.* Other claims, asserted and un-asserted, can provide additional instruction because "terms are normally used consistently throughout the patent." *Id.* Differences among claims, such as additional limitations in dependent claims, can provide further guidance. *Id.*

"[C]laims 'must be read in view of the specification, of which they are a part.'" *Id.* (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995), aff'd, 517 U.S. 370, 116 S. Ct. 1384, 134 L. ed. 2d 577 (1996)). "[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Id.* (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *see also Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). In the specification, a patentee may define his own terms, give a claim term a different meaning than the term would otherwise possess, or disclaim or disavow the claim scope. *Phillips*, 415 F.3d at 1316.

Although the Court generally presumes terms possess their ordinary meaning, this presumption can be overcome by statements of clear disclaimer. *See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343-44 (Fed. Cir. 2001). This presumption does not arise when the patentee acts as his own lexicographer. *See Irdeto Access, Inc. v. EchoStar Satellite Corp.*, 383 F.3d 1295, 1301 (Fed. Cir. 2004).

The specification may also resolve ambiguous claim terms "where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone." *Teleflex, Inc.*, 299 F.3d at 1325. For example, "[a] claim interpretation that excludes a preferred embodiment from the scope of the claim 'is rarely, if ever, correct.'" *Globetrotter Software, Inc. v. Elam Computer Group Inc.*, 362 F.3d 1367, 1381 (Fed. Cir. 2004) (quoting *Vitronics Corp.*, 90 F.3d at 1583). But, "[a]lthough the specification may aid the court in interpreting the meaning of disputed language in the claims, particular embodiments and examples appearing in the specification will not generally be read into the claims." *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988); *see also Phillips*, 415 F.3d at 1323.

The prosecution history is another tool to supply the proper context for claim construction because a patentee may define a term during prosecution of the patent. *Home Diagnostics Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1356 (Fed. Cir. 2004) ("As in the case of the specification, a patent applicant may define a term in prosecuting a patent."). The well-established doctrine of prosecution disclaimer "preclud[es] patentees from recapturing through claim interpretation specific meanings disclaimed during prosecution." *Omega Eng'g Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323 (Fed. Cir. 2003).

The prosecution history must show that the patentee clearly and unambiguously disclaimed or disavowed the proposed interpretation during prosecution to obtain claim allowance. *Middleton Inc. v. 3M Co.*, 311 F.3d 1384, 1388 (Fed. Cir. 2002); *see also Springs Window Fashions LP v. Novo Indus., L.P.*, 323 F.3d 989, 994 (Fed. Cir. 2003) ("The disclaimer . . . must be effected with 'reasonable clarity and deliberateness.'") (citations omitted). "Indeed, by distinguishing the claimed invention over the prior art, an applicant is indicating what the

claims do not cover." *Spectrum Int'l v. Sterilite Corp.*, 164 F.3d 1372, 1378–79 (Fed. Cir. 1988) (quotation omitted). "As a basic principle of claim interpretation, prosecution disclaimer promotes the public notice function of the intrinsic evidence and protects the public's reliance on definitive statements made during prosecution." *Omega Eng'g, Inc.*, 334 F.3d at 1324.

Although "less significant than the intrinsic record in determining the legally operative meaning of claim language," a court may rely on extrinsic evidence to "shed useful light on the relevant art." *Phillips*, 415 F.3d at 1317 (quotation omitted). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but such sources may also provide overly broad definitions or may not be indicative of how the term is used in the patent. *Id.* at 1318. Similarly, expert testimony may aid the Court in determining the particular meaning of a term in the pertinent field, but "conclusory, unsupported assertions by experts as to the definition of a claim term are not useful." *Id.* Generally, extrinsic evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms." *Id.*

Impermissible Claim Broadening

A patentee is not permitted to enlarge the scope of a patent claim during reexamination. 35 U.S.C. § 305. "Whether amendments made during reexamination enlarge the scope of a claim is a matter of claim construction." *Creo Prods., Inc. v. Presstek, Inc.*, 305 F.3d 1337, 1344 (Fed. Cir. 2002). The Federal Circuit has "strictly interpreted § 305 to prohibit any broadening amendments," such that a "reexamined claim cannot be broader in any respect, even if it is narrowed in other respects." *Senju Pharm. Co., Ltd. v. Apotex Inc.*, 746 F.3d 1344, 1352 (Fed. Cir. 2014); *Predicate Logic, Inc. v. Distributive Software, Inc.*, 544 F.3d 1298, 1303 (Fed. Cir. 2008). The broadening inquiry under § 305 involves two steps: (1) "analyze the scope of the

claim prior to reexamination" and (2) "compare it with the scope of the claim subsequent to reexamination." *Creo*, 305 F.3d at 1344.

ANALYSIS

I. Agreed Terms[1]

The parties have submitted the following agreements (Doc. No. 620-1 at 29, 33, 39, 44; Doc. No. 612 at 22):

Term	Agreed Construction
"**adapted for data switching**"	"configured to route (switch) data from a sending device to one or more receiving devices addressed by the sending device, using temporary rather than permanent connections"
"access device"	"a device that can receive and transmit data over a network"
"data signaling pair"	"a pair of wires used to transmit data between the data node and the access device"
"**controlling power**"	No construction necessary

In light of the parties' agreements on the proper construction of these terms, the Court **ADOPTS AND APPROVES** these constructions.

II. Disputed Terms in the '930 Patent

The '930 Patent, titled "Apparatus and Method for Remotely Powering Access Equipment Over a 10/100 Switched Ethernet Network," issued on April 17, 2001, and bears an earliest priority date of March 10, 1999. The Abstract states:

[1] The term "Adapted for Data Switching" was originally disputed but Defendants withdrew their construction and did not object to Network-1's construction. *See* Doc. No. 612 at 22. The term "Controlling Power" was also originally disputed but the parties now agree that there is no need for the Court to construe the term. *Id.*

> Apparatus for remotely powering access equipment over a 10/100 switched Ethernet network comprises an Ethernet switch card with a phantom power supply for remote access equipment and added circuitry for automatic detection of remote equipment being connected to the network; determining whether the remote equipment is capable of accepting remote power in a non-intrusive manner; delivering the phantom power to the remote equipment over the same wire pairs that deliver the data signals, and automatically detecting if the remote equipment is removed from the network.

a. "main power source" (Claims 6, 17, and 20-23)

Plaintiff's Proposed Construction	Defendants' Proposed Construction
a source of power connected to supply power to the data node and deliver a low level current to the access device	a DC power source

The crux of this dispute is whether the "main power source" is limited to a DC power source or whether it can be an AC power source as well. This same dispute arose in *Cisco* and the Court construed the term "main power source" as "a DC power source." *Cisco Markman Order* at 8-10; *Cisco Reconsideration* at 3-4. Defendants advocate for the same construction as *Cisco*. Doc. No. 611 at 11. Network-1 argues that the independent claims do not have an alternating current ("AC") or direct current ("DC") limitation. Doc. No. 596 at 8.

The *Cisco* construction is reinforced by the specification as well as by the explanation of Defendants' expert here that a broader construction would render the claimed invention inoperable. *See* Doc. No. 612, Ex. B. ("Neikirk Decl.") at ¶¶ 35-38. Dr. Neikirk, Defendants' expert, opines that "if a network device was to receive AC power, the device would likely either fail to function (i.e., because its requisite DC voltage was absent) or would be damaged because its circuitry was not designed to handle AC power." Neikirk Decl. at ¶ 36. He further states that the patent explains that "[t]here are three states which can be determined: no voltage drop, a fixed level voltage drop, or a varying level voltage drop." *Id.* at ¶ 37 (citing '930 Patent at 3:2-4). If the "main power source" was providing AC current, Dr. Neikirk argues it could not detect

the second state—a fixed voltage drop. *Id.* He concludes that if the "main power source" was providing AC current, the "system would be inconsistent with the teachings of the '930 patent." *Id.* "A construction that renders the claimed invention inoperable should be viewed with extreme skepticism." *AIA Eng'g Ltd. v. Magotteaux Int'l S/A*, 657 F.3d 1264, 1278 (Fed. Cir. 2011) (quoting *Talbert Fuel Sys. Patents Co. v. Unocal Corp.*, 275 F.3d 1371, 1376 (Fed. Cir. 2002), *vacated and remanded on other grounds*, 537 U.S. 802 (2002)).

Network-1's expert urges that data nodes, such as the 8-port switches illustrated in Figure 3 of the '930 Patent, could operate on AC power. *See* Doc. No. 618-1 ("Knox Decl.") at ¶¶ 129-138. But Claim 6, for example, recites a limitation of "delivering a low level current from said main power source to the access device over said data signaling pair." '930 Patent at 4:60-62. Network-1 has not demonstrated that the type of operating power that could be used for a data node necessarily has any bearing upon the type of power that must be used for the low level current delivered on the data signaling pair.

Additionally, Network-1's reliance on *Inter Partes* Review ("IPR") proceedings does not account for the broader claim construction standard applied in IPR. *See In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1276-78 (Fed. Cir. 2015), *aff'd, Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131 (2016). Similarly, Network-1 relies on the broad usage of the term "main power source" in a prior art patent or a dictionary definition. *See* Doc. No. 596 at 8-9. However, the '930 Patent uses the term "main power source" in a specific context and should be construed within that context. Therefore, the Court construes the term **"main power source"** to mean **"a DC power source."**

b. "secondary power source" (Claims 6, 9, 14, and 20-23)

Plaintiff's Proposed Construction	Defendants' Proposed Construction
a source of power connected to provide power from the data node to the access device using the data signaling pair; the secondary power source can be the same source of power as the main power source	a source of power connected to provide power between the data node and the access device using the data signaling pair; the secondary power source is physically separate from the main power source

There are two main disputes: (1) whether the secondary power source must be physically separate from the main power source; and (2) whether the Court's prior construction of this term should govern in this case. In *D-Link* and *Cisco*, the Court construed "secondary power source" to mean "a source of power connected to provide power between the data node and the access device using the data signaling pair. The secondary power source is physically separate from the main power source." *D-Link Markman Order* at 6; *Cisco Markman Order* at 14. Again, Defendants propose the same construction as *D-Link* and *Cisco*.

Network-1 argues that the ordinary meaning of "secondary power source" does not require physical separation from the main power source. Doc. No. 596 at 12. Rather, Network-1 argues that by using the modifiers "main" and "secondary," as opposed to "first" and "second," "the claims are drafted such that the 'main power source' and the 'secondary power source' may be the same, different, or overlapping as long as they perform their respective functions." *Id.* at 13 (citing *Linear Tech. Corp. v. International Trade Comm'n*, 566 F.3d 1049, 1055 (Fed. Cir. 2009)). However, this is the same argument that was rejected by the Court in *Cisco*. *Cisco* explained that "[u]nlike in *Linear*, the terms at issue in this case are not 'second' and 'third' as mere identifiers; rather, the terms 'main' and 'secondary' set forth an operational hierarchy." *Cisco Markman Order* at 11.

Furthermore, in Claim 6 of the '930 Patent, whereas the "main power source" supplies

power "to the data node," the "secondary power source" supplies power "from the data node." '930 Patent at 5:56-58. This distinction reinforces that the secondary power source must be physically separate from the main power source. Network-1's reliance on any IPR proceedings to the contrary does not account for the broader claim construction standard applied in the IPR proceeding. Likewise, Network-1 has failed to adequately support its seemingly novel argument that Plaintiff's position in the IPR proceeding gave rise to a disclaimer that would broaden the claim scope in its favor. Doc. No. 596 at 16.

Reaching the same conclusion as *D-Link* and *Cisco*, the secondary power source must be physically separate from the main power source. Plaintiff's reliance on an extrinsic dictionary definition fails to override the intrinsic evidence already considered in *Cisco*. However, Network-1 is correct that *Cisco* explains that "the Court's construction in the *D-Link* case does not require separate *identifiable* physical elements for each of the power sources." *Cisco Markman Order* at 11 (emphasis in original). *Cisco* explains that *D-Link* "requires only that there be physically separate 'driving points.'" *Id.* at 12. Thus the driving points of the secondary power source must be physically separate from the driving points of the main power source. *See Id.* at 10-14; *see also D-Link Markman Order* at 6-7.

Therefore, the Court construes the term **"secondary power source"** to mean **"a source of power connected to provide power between the data node and the access device using the data signaling pair; the driving points of the secondary power source must be physically separate from the driving points of the main power source."**

c. "low level current" (Claims 6, 12-14, 20, and 22-23)

Plaintiff's Proposed Construction	Defendants' Proposed Construction
a current at a level that is sufficiently low that, by itself, it will not operate the access device; a data signal is not a low level current	a current sufficient to cause the access device to start up, but not sufficient to sustain the start up

There are two disputes over the term "low level current": (1) whether the low level current must be sufficient "to start up" the remote device; and (2) whether a "low level current" encompasses a data signal. Defendants propose the same construction from *D-Link* and *Cisco*, while Network-1 advocates for a construction very similar to the construction reached by the PTAB in an IPR of the '930 patent. Doc. No. 596 at 19; Doc. No. 612 at 3.

In *D-Link* and *Cisco*, the Court construed "low level current" to mean "a current sufficient to cause the access device to start up, but not sufficient to sustain the start up." *D-Link Markman Order* at 8-9; *Cisco Markman Order* at 16. Network-1 argues that the construction of "low level current" need not include a lower boundary because other limitations in the claim already impose such a boundary. Thus, Network-1 concludes that the first half of Defendants' proposal is unnecessary. Doc. No. 596 at 17 n. 10.

However, construction is appropriate to give meaning to the constituent term "low." In *D-Link* and *Cisco*, the Court concluded that the low level current must be sufficient to initiate start up. *See D-Link Markman Order* at 8-10; *see also Cisco Markman Order* at 15-16. The current need not be sufficient to result in a completed start up and thus the prior construction from *D-Link* and *Cisco* must be clarified. The current must be sufficient to "begin start up" rather than "cause start up," thus eliminating any implication that the current must be sufficient to result in a completed start-up. *See* '930 Patent at 3:12-17.

As to whether a "low level current" encompasses a data signal, Network-1 has

demonstrated that the patentee disclaimed the scope of "low level current" to exclude a "data signal." *See* Doc. No. 596 at 23 (citing *id.* at Ex. 7, Mar. 12, 2013 Patent Owner's Preliminary Response at 8-10 ("This other art taught using a data signal . . . rather than a 'low level current,' for detection")). Disclaimers can arise during reexamination. *See, e.g., Krippelz v. Ford Motor Co.*, 667 F.3d 1261, 1266 (Fed. Cir. 2012) ("A patentee's statements during reexamination can be considered during claim construction, in keeping with the doctrine of prosecution disclaimer."); *Grober v. Mako Products, Inc.*, 686 F.3d 1335, 1341 (Fed. Cir. 2012); *Golden Bridge Tech., Inc. v. Apple Inc.*, 758 F.3d 1362, 1366-67 (Fed. Cir. 2014).

Therefore, the Court construes the term **"low level current"** to mean **"a non-data-signal current that is sufficient to begin start up of the access device but that is not sufficient to sustain the start up."**

d. "preselected condition"[2] (Claims 6 and 20-23)

Plaintiff's Proposed Construction	Defendants' Proposed Construction
Proposal 1: any condition of the sensed voltage level, selected in advance of the sensing Proposal 2: any condition of the sensed voltage level that indicates whether an access device is capable of accepting remote power	A condition of the sensed voltage level that indicates whether a power supply of the access device begins to start up but is unable to sustain the start up

The parties dispute whether it is a power supply that must be indicated as beginning to start up. In *D-Link* and *Cisco*, the Court construed "preselected condition" to mean "a parameter of the voltage on the signaling pair that indicates whether an access device is able to accept remote power from the data node." *D-Link Markman Order* at 12; *Cisco Markman Order* at 17.

[2] Network-1 also proposed a third alternative construction, similar to the Court's prior construction in *D-Link* and *Cisco* except for the addition of "preselected": "preselected parameter of the voltage on the signaling pair that indicates whether an access device is able to accept remote power from the data node." Doc. No. 596 at 24 n. 11.

Defendants argue that the *Cisco* construction does not resolve the parties' dispute because "the prior construction—like Network-1's proposed constructions—provides insufficient guidance for identifying sensed voltage conditions that indicate an access device can accept remote power in accordance with the teaching of the patent." Doc. No. 612 at 8. Instead, Defendants submit that their proposal "clarifies that it is the power supply of the access device that is attempting to start up, just as the specification discloses." *Id.* at 9 (citing '930 Patent at 3:14-16).

Network-1 contends that "nothing in the words 'preselected condition' or the rest of the claim connotes anything about the remaining concepts in Defendants' proposal: 'a power supply of the access device begins to start up but is unable to sustain the start up.'" Doc. No. 596 at 25. Rather, Network-1 argues that Defendants' proposal improperly imports limitations from preferred embodiments. *Id.* at 25-26.

Claim 6 of the '930 Patent, for example, recites (emphasis added):

> 6. Method for remotely powering access equipment in a data network, comprising,
>
> providing a data node adapted for data switching, an access device adapted for data transmission, at least one data signaling pair connected between the data node and the access device and arranged to transmit data there between, a main power source connected to supply power to the data node, and a secondary power source arranged to supply power from the data node via said data signaling pair to the access device,
>
> delivering a low level current from said main power source to the access device over said data signaling pair,
>
> sensing a voltage level on the data signaling pair in response to the low level current, and
>
> controlling power supplied by said secondary power source to said access device in response to a *preselected condition* of said voltage level.

The claim refers to an access device but does not refer to a power supply thereof. The specification describes a condition of the voltage level that would be caused by an access device power supply beginning to start up but failing to start up completely:

> If a varying voltage level is detected, this identifies the presence of dc-dc switching supply in the remote equipment. The varying level is created by the

> remote power supply beginning to start up but the low current level is unable to sustain the start up.

'930 Patent at 3:12-16.

On balance, this disclosure relates to a feature of a particular embodiment, rather than the claimed invention as a whole, and therefore should not be imported into the construction. *See, e.g., Phillips v. AWH Corp*, 415 F.3d 1303, 1323 (Fed. Cir. 2005); *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1366 (Fed. Cir. 2012) ("It is . . . not enough that the only embodiments, or all of the embodiments, contain a particular limitation."). Defendants point to the Court's language in *Cisco* that: "The claim language ties low level current to producing a varying voltage level, which is the 'preselected condition' of the claim [(Claim 6)], if the access device can accept remote power." *Cisco Markman Order* at 15.

However, this statement appeared in the discussion of "low level current," not "preselected condition." There is no indication that this language was intended to limit the scope of "preselected condition." *See Cisco*, Doc. No. 475, June 30, 2010 Order at 4 (in ruling on a motion to strike expert testimony, noting that "[t]he Court did not suggest in any way that a detectable response must be the illustrative varying voltage level described in the '930 Patent specification"); *see id.* at 4-6 (finding that the expert improperly "restrict[ed] the Court's construction to the preferred embodiment disclosed in the '930 Patent"); *id.* at 8 (rejecting any "reading [of] the term 'preselected condition' as being either a fixed voltage drop, no voltage drop, or a varying voltage level drop such as a sawtooth waveform produced by a DC-DC switching power supply").

Finally, although the parties do not appear to have any dispute as to the significance of the prefix "pre-" in the disputed term, the construction should give meaning to the full term "preselected condition." The construction should therefore reflect that the condition must be

selected prior to sensing the voltage level.

Therefore, the Court construes the term **"preselected condition"** to mean **"a parameter of the voltage on the signaling pair that indicates whether an access device is able to accept remote power from the data node, wherein the parameter is selected in advance of sensing the voltage."**

e. "data node" (Claims 6, 20-23)

Plaintiff's Proposed Construction	Defendants' Proposed Construction
data switch or hub, such as an Ethernet switch	data switch or hub

The parties seem to agree that "data node" includes an "Ethernet switch" but is not limited to Ethernet. *See* Doc. Nos. 596 at 1-2 and 612 at 20-21. The parties have disputed whether an example of a "data node," namely an "Ethernet switch," should be included in the Court's claim construction.

Defendants' proposal is the same construction found by the Court in *Cisco*. *Cisco Markman Order* at 6. Previously, in *D-Link*, the parties agreed that "data node" means "Ethernet switch or hub." *D-Link Markman Order* at 5. However, because the construction was agreed upon by the parties in *D-Link*, the Court "did not resolve whether or not the term was limited to an Ethernet environment." *Cisco Markman Order* at 5. When the Court analyzed this issue in *Cisco*, it rejected the proposed Ethernet limitation and construed "data node" to mean "data switch or hub." *Id.* at 6.

Plaintiff has cited *Charles E. Hill & Associates, Inc. v. Abt Elecs., Inc.*, No. 2:09-cv-313, 2012 WL 72714, at *7 (E.D. Tex. Jan. 10, 2012). In that case, the Court's construction for "graphics data" included the defendants' proposal that "[g]raphics range from simple lines, bars or graphs to colorful and detailed images." *Id.* at *7. The Court noted, however, that "the

examples will assist the jury in distinguishing between 'graphics data' and 'textual data.'" *Id.* *Charles E. Hill* is inapplicable because here there is no such contrast between a "data node" and some other type of node.

In this circumstance, including an example in the construction might tend to be read as limiting rather than as explanatory. Because the parties substantially agree that the scope of "data node" includes Ethernet, but is not limited to Ethernet, Network-1's proposal of the phrase "such as an Ethernet switch" is unnecessary, and any potential benefit is outweighed by the risk that the examples might be perceived as limiting by the finder of fact. *Cf. Funai Elec. Co., Ltd. v. Daewoo Elec. Corp.*, 616 F.3d 1357, 1366 (Fed. Cir. 2010) ("The criterion is whether the explanation aids the court and the jury in understanding the term as it is used in the claimed invention."). At the June 2, 2016 hearing, the parties were amenable to proceeding in this fashion. Doc. No. 634, June 2, 2016 *Hearing Transcript* at 100:11-101:4.

Therefore, the Court construes the term **"data node"** to mean **"data switch or hub."**

f. "from said main power source" / "from a main power source" (Claims 6, 17, 20-23)

Plaintiff's Proposed Construction	Defendants' Proposed Construction
no construction necessary	supplied by a main power source

Network-1 argues that Defendants have not identified any ambiguity in the disputed term and thus no construction is necessary. Doc. No. 596 at 26. Defendants respond that construction is necessary to provide proper context to the claims, and to resolve a dispute between the parties as to the scope of the term. Doc. No. 612 at 19. Defendants argue that "[a]s the term itself suggests, a 'power *source*' is something that supplies, or is the source of, power." *Id.* However, Network-1 counters that the usage of "supply" in other claim language demonstrates that the word "from" should be afforded a different meaning." Doc. No. 618 at 12.

Claim 6 of the '930 Patent, for example, recites in relevant part (emphasis added): "delivering a low level current *from said main power source* to the access device over said data signaling pair." Because surrounding claim language already recites "delivering" the low level current, Defendants' proposal of the word "supplied" would tend to confuse rather than clarify and would improperly limit the disputed terms to a specific feature of a particular disclosed embodiment. Thus, Defendants have not demonstrated that the "source" is necessarily where the current is created.

Therefore, the Court construes the terms **"from said main power source"** and **"from a main power source"** to have their **plain meaning.**

III. Motion for Summary Judgment of Invalidity Under 35 U.S.C. § 305

Defendants argue that, during reexamination, Plaintiff improperly broadened the scope of the terms "secondary power source" and "low level current" by adding new claims that remove the limitations imposed by the Court's constructions in *D-Link* and *Cisco*. Doc. No. 609 at 1. Defendants also argue that Plaintiff added new claims that remove the "sensing means," "sensing a [] voltage level," "control means," and "controlling power" limitations. *Id.* Defendants' arguments are based on the addition of new claims 15, 16, 21, 22, and 23 during reexamination, but Defendants argue that all asserted claims—Claims 6, 11, 13, 14, 17, and 20-23—are invalid as a result. Doc. No. 609 at 6-7.

a. "secondary power source"

Defendants argue that Network-1 impermissibly broadened claim 6 during the '401 reexamination by removing the requirement that the "main power source" and the "secondary power source" be "physically separate." Doc. No. 609 at 7. "Secondary power source" was construed in both *D-Link* and *Cisco* to require the secondary power source to be physically

separate from the main power source. *D-Link Markman Order* at 7; *Cisco Markman Order* at 14. During the '401 reexamination, Network-1 added new dependent claims 15 and 16 to the '930 patent. Claims 15 and 16, added during reexamination, recite:

> 15. Method according to claim 6, wherein said secondary power source is the same source of power as said main power source.
>
> 16. Method according to claim 6, wherein said secondary power source is the same physical device as the main power source.

Defendants argue that these new claims eliminate the requirement that the power sources be "physically separate." Defendants cite to *ArcelorMittal* to show that the addition of a dependent claim can have the "the practical effect of expanding the scope of [the independent claim] to cover claim scope expressly rejected by a previous claim construction ruling." Doc. No. 609 at 8 (citing *ArcelorMittal France v. v. AK Steel Corp*., 786 F.3d 885, 890 (Fed. Cir. 2015)).

Furthermore, Defendants argue that *ArcelorMittal* found that because the independent claim was impermissibly broadened, all of the claims depending from it (that did not include further limitations) were as well. *Id.* Thus, Defendants conclude that the addition of new dependent claims 15 and 16 have the effect of impermissibly broadening independent claim 6, which thereby broadens each claim depending from claim 6, including claims 11, 13, 14, and 17 that are asserted by Network-1. Doc. No. 609 at 8.

Claims 15 and 16 are not asserted in the present case, and Defendants have not adequately demonstrated that any invalidity as to Claim 15 or Claim 16 necessarily renders Claim 6 invalid. The patentee in *ArcelorMittal* conceded that the scope of the original claims was narrower than the scope of the reissue claims, a fact that is disputed in this case. 786 F.3d at 890. Here, Network-1 argues that the claims added during reexamination are consistent with the scope of the Court's claim construction as explained in its analysis in *D-Link* and *Cisco* (as to

there being a requirement of physically separate driving points, but not necessarily entirely separate power supplies). Doc. No. 622 at 18.

ArcelorMittal can be further distinguished because the dispute focused on the "law-of-the-case doctrine[3]," which is inapplicable here. In *ArcelorMittal*, the Federal Circuit had previously affirmed the district court's original claim construction. 786 F.3d at 887. Thus, the law-of-the-case doctrine bound the district court to that construction and prohibited the district court from revisiting the original construction. *Id.* at 898-90. The law-of-the-case doctrine is not applicable here, and thus *ArcelorMittal* is distinguishable. Also of note, *ArcelorMittal* reversed the district court's invalidation of certain claims that the parties agreed were not broadened upon reissue. *Id.* at 888, 890-92.

This result is consistent with *MBO Laboratories, Inc. v. Becton, Dickinson & Co.*, which addressed the "rule against recapture" and which, like *ArcelorMittal*, addressed the analogous forum of reissue: "When a reissue patent contains the unmodified original patent claims and the reissue claims, a court can only invalidate the reissue claims under the rule against recapture. Original patent claims will always survive a recapture challenge under the first step of our rule-against-recapture analysis. Under the first step, we construe the reissued claims to 'determine whether and in what 'aspect' the reissue claims are broader than the [original] patent claims.' The original claims cannot be broader than themselves." 602 F.3d 1306, 1319 (Fed. Cir. 2010) (citations and internal quotation marks omitted).

Therefore, the Court rejects Defendants' invalidity argument based on the usage of "secondary power source" in Claims 15 and 16.

[3] "The law-of-the-case doctrine states that when a court decides upon a rule of law, that decision should continue to govern the same issues in subsequent stages in the same case.'" *ArcelorMittal*, 786 F.3d at 888 (internal quotations omitted). "The mandate rule, encompassed by the broader law-of-the-case doctrine, dictates that an inferior court has no power or authority to deviate from the mandate issued by an appellate court." *Id.* at 888-89 (internal quotations omitted).

b. "low level current"

Defendants argue that the addition of new independent claim 21 results in a construction of "low level current" that is broader than the Court's prior construction of the term and thus claims 6, 20, 22, and 23—which each recite the term "low level current"—are impermissibly broadened. Doc. No. 609 at 14.

In *D-Link* and *Cisco*, the Court construed "low level current" to mean "a current sufficient to cause the access device to start up, but not sufficient to sustain the start up." *D-Link Markman Order* at 8-9; *Cisco Markman Order* at 16. Claim 21, added during reexamination recites (emphasis added):

> 21. Method for remotely powering access equipment in an Ethernet data network, comprising,
> (a) providing
> (i) a data node adapted for data switching,
> (ii) an access device adapted for data transmission,
> (iii) at least one data signaling pair connected between the data node and the access device and arranged to transmit data therebetween,
> (iv) a main power source connected to supply power to the data node, and
> (v) a secondary power source arranged to supply power from the data node via said data signaling pair to the access device,
> (b) *delivering a current from said main power source to the access device over said data signaling pair, said current being insufficient, by itself, to operate said access device connected to the data signaling pair*;
> (c) sensing a voltage level on the data signaling pair in response to the current, and
> (d) controlling power supplied by said secondary power source to said access device in response to a preselected condition of said voltage level.

Defendants argue that "[b]ecause the 'current' recited in claim 21 does not need to be 'sufficient to cause the access device to start up, but not sufficient to sustain the start up,' it is impermissibly broader than the 'low level current' recited in original independent claim 6." Doc. No. 609 at 14. Defendants' argument, however, is based on the premise that the term "low level current" in claim 6 is synonymous with the term "current" in claim 21, and that the language in

claim 21 "describing the recited 'current' functions as a construction of 'low level current' in claim 6." *Id.* at 15; *see id.* at 15-17. Defendants have not shown adequate support for this premise. "When different words or phrases are used in separate claims, a difference in meaning is presumed." *Nystrom v. TREX Co.*, 424 F.3d 1136, 1143 (Fed. Cir. 2005). Defendants have failed to demonstrate that the "current" recited in claim 21 broadens the construction of the "low level current" recited in original independent claim 6. The Court thus rejects Defendants' invalidity argument based on the usage of "current" in Claim 21.

c. "sensing means" and "sensing"

Defendants argue that new independent claims 22 and 23 omit the requirements of a "sensing means" and "sensing a voltage level"—as required by original claims 1 and 6, respectively—and instead recite a "voltage level" that "can be sensed," thus broadening the scope of original claims 1 and 6. Doc. No. 609 at 18. Network-1 points to the language "the sensed voltage level" and "said voltage level" in element (e) of each claim to argue that the voltage level must actually be sensed. Doc. No. 622 at 22 ("'the sensed voltage level' can only exist if the voltage level is actually sensed").

In *Cisco*, the Court found Claim 1 invalid, thus the "sensing means" of Claim 1 is not relevant here. *Cisco Markman Order* at 18-23. Further, Defendants have not adequately shown that elimination of the word "sensing" resulted in a broader claim scope because Claims 22 and 23 each require that a voltage level must have been sensed. The Court therefore rejects Defendants' invalidity arguments in these regards.

d. "control means" and "controlling"

Defendants argue that Claims 22 and 23 are impermissible broadening because they remove the "control means" and "controlling" limitations and instead recite "power . . . is

controlled" and "controlled power," respectively. Doc. No. 609 at 19. Claims 22 and 23 recite, in relevant part (emphasis added):

> 22. . . . a secondary power source arranged to supply power from the data node via said data signaling pair to the access device, wherein the *power* supplied by said secondary power source to the access device *is controlled* in response to a preselected condition of the sensed voltage level.
>
> 23. . . . receiving at said access device *controlled power* supplied by a secondary power source arranged to supply power from the data node via said data signaling pair to the access device, in response to a preselected condition of said voltage level.

Again, because *Cisco* found Claim 1 invalid, the "control means" of Claim 1 is not relevant here. *Cisco Markman Order* at 18-23. As Network-1 argued, if a power source "is controlled," as recited in claim 22, or "controlled power" is received, as recited in claim 23, "controlling power" must have occurred because "[t]here cannot be 'controlled power' unless power is actually controlled." Doc. No. 622 at 23. Thus Defendants have not adequately shown that the elimination of "control means" and "controlling" resulted in broader claim scope. The Court rejects Defendants' invalidity argument in these regards.

e. "providing"

Defendants argue that Claim 23 is impermissibly broader than original claim 6 because it removes the "providing" step that was originally recited. Doc. No. 609 at 20. Original claim 6 requires "providing" all system components recited in claim 6, including the "data node adapted for data switching," "access device adapted for data transmission," "data signaling pair," "main power source," and "secondary power source." *Id.* Defendants argue that claim 23 now only requires "providing" the access device, thus eliminating the requirement of "providing" the other system components, which is impermissibly broadening. Doc. No. 634, June 2, 2016 *Hearing Transcript* at 134:21-24. Network-1 argues that claim 23 requires "a data node, data signaling pair, access device, main power source, and secondary power source all be provided" because

"other claim elements expressly require steps that use them." *Id.* at 140:6-11. Thus, Network-1 concludes that even though claim 23 "does not specifically use the word 'providing' with respect to four elements does not mean that these elements are not required" and that the scope of claim 23 is not broader. Doc. No. 622 at 24.

Claim 23 eliminated the requirements of "providing" the data node, data signaling pair, main power source, and secondary power source and thus resulted in a broader claim scope. Network-1 has not demonstrated that the appearance of such elements as part of other method steps in Claim 23 is equivalent to the recital of the "providing" limitations recited in Claim 6. Claim 23 is therefore invalid.

CONCLUSION

For the foregoing reasons, the Court hereby **ADOPTS** the claim constructions set forth above. For ease of reference, the Court's claim interpretations are set forth in a table in Appendix A. Furthermore, the Court **RECOMMENDS** that Defendants' Motion for Partial Summary Judgment of Invalidity Under § 305 be **GRANTED-IN-PART** and **DENIED-IN-PART**. Specifically, the Court **RECOMMENDS** Defendants' Motion for Partial Summary Judgment of Invalidity be **GRANTED** as to Claim 23, but otherwise be **DENIED**.

Within fourteen days after receipt of the magistrate judge's report, any party may serve and file written objections to the findings and recommendations of the magistrate judge. 28 U.S.C. § 636(b).

A party's failure to file written objections to the findings, conclusions and recommendations contained in this Report shall bar that party from *de novo* review by the district judge of those findings, conclusions and recommendations and, except upon grounds of plain error, from attacking on appeal the unobjected-to proposed factual findings and legal conclusions

accepted and adopted by the district court. *Douglass v. United Servs. Auto Assn.*, 79 F.3d 1415, 1430 (5th Cir. 1996) (en banc), *superseded by statute on other grounds*, 29 U.S.C. § 636(b)(1) (extending the time to file objections from ten to fourteen days).

So ORDERED and SIGNED this 2nd day of November, 2016.

K. NICOLE MITCHELL
UNITED STATES MAGISTRATE JUDGE

APPENDIX A

Terms, Phrases, or Clauses	Court's Construction
"adapted for data switching"	"configured to route (switch) data from a sending device to one or more receiving devices addressed by the sending device, using temporary rather than permanent connections"
"access device"	"a device that can receive and transmit data over a network"
"data signaling pair"	"a pair of wires used to transmit data between the data node and the access device"
"controlling power"	No construction necessary
"main power source"	"a DC power source"
"secondary power source"	"a source of power connected to provide power between the data node and the access device using the data signaling pair; the driving points of the secondary power source must be physically separate from the driving points of the main power source"
"low level current"	"a non-data-signal current that is sufficient to begin start up of the access device but that is not sufficient to sustain the start up"
"preselected condition	"a parameter of the voltage on the signaling pair that indicates whether an access device is able to accept remote power from the data node, wherein the parameter is selected in advance of sensing the voltage"
"data node"	"data switch or hub"
"from said main power source" / "from a main power source"	Plain meaning

IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF TEXAS TYLER DIVISION

NETWORK-1 TECHNOLOGIES, INC.	**§**	
	§	
	§	
v.	**§**	
	§	**CIVIL ACTION NO. 6:11-cv-492-RWS-KNM**
	§	
ALCATEL-LUCENT USA, INC., ET AL.	**§**	

ORDER ADOPTING REPORT AND RECOMMENDATION OF UNITED STATES MAGISTRATE JUDGE

Before the Court are the parties' cross-objections to the Report and Recommendation of the United States Magistrate Judge (Docket No. 693) regarding the disputed claim terms in United States Patent No. 6,218,930 ("the '930 Patent"), and regarding Defendants' Motion for Summary Judgment of Invalidity Under 35 U.S.C. § 305.[1] Having reviewed the written objections *de novo*, both Plaintiff's and Defendants' objections are **OVERRULED**. The Magistrate Judge's Report and Recommendation (Docket No. 693) ("Report") is accordingly **ADOPTED**.

PLAINTIFF'S OBJECTIONS

Plaintiff has filed two sets of objections to the Report. First, Plaintiff objects to the Magistrate Judge's construction of certain disputed claim terms. Docket No. 722. Second, Plaintiff objects to the Report regarding Defendants' Motion for Summary Judgment of Invalidity under 35 § 305. Docket No. 723.

[1] The Defendants in this case are Axis Communications AB, Axis Communications, Inc., Hewlett-Packard Company, Avaya, Inc., and Juniper Networks, Inc.

I. Plaintiff's Objections to the Report and Recommendation Regarding Claim Construction (Docket No. 722)

A. Main Power Source

Plaintiff first objects to the Report's construction of "main power source" as a "DC power source." Docket No. 722 at 1. Plaintiff argues that the Report improperly excluded AC power sources because: (1) neither the claim language, specification, nor prosecution history supports such a construction; and (2) construing the term as including an AC power source would not render the claims inoperable since (a) Network-1's proposal encompasses both AC and DC power sources, and therefore would fully encompass an embodiment that used an AC power source; and (b) it is quite common to have infringing switches operate from an AC power source. Docket No. 722 at 2–3.

Plaintiff's first point—that a construction excluding AC power sources is unsupported by the claim language, specification, or prosecution history—is unavailing. The Court discussed this argument in *Cisco*. *See Cisco Markman* at 8–10; *see also Cisco Reconsideration* at 3–4.[2] As the Report noted, Defendants' expert explained that the '930 Patent itself states that "[t]here are three states which can be determined: no voltage drop, a fixed level voltage drop, or a varying level voltage drop." *See* Docket No. 693 at 7 (quoting Docket No. 612, Ex. B ("Neikirk Decl.") at ¶ 37 (citing '930 Patent at 3:2–4)). The Report found persuasive the opinion of Defendants' expert that if the "main power source" provided AC current, it would be unable to detect the second state, a fixed voltage drop. Docket No. 693 at 7–8 (citing Neikirk Decl. at ¶ 37); Docket No. 742 at 2. As the Report concluded, "[a] construction that renders the claimed invention inoperable should be

[2] The Court previously construed terms of the '930 Patent in *Network-1 Security Solutions, Inc. v. D-Link Corp., et al.*, No. 6:05-cv-291, Docket No. 137 (E.D. Tex. Nov. 20, 2006) ("*D-Link Markman*" or "*D-Link*"), and *Network-1 Security Solutions, Inc. v. Cisco Systems, Inc.*, No. 6:08-cv-30, Docket No. 251 (E.D. Tex. Feb. 16, 2010) ("*Cisco Markman*" or "*Cisco*"), Docket No. 328 (May 18, 2010) ("*Cisco Reconsideration*").

viewed with extreme skepticism." Docket No. 693 at 8 (quoting *Talbert Fuel Sys. Patents Co. v. Unocal Corp.*, 275 F.3d 1371, 1376 (Fed. Cir. 2002), *vacated and remanded on other grounds*, 537 U.S. 802 (2002)). *See also CANVS Corp. v. United States*, 126 Fed. Cl. 106, 117 (2016) ("Even if defendant's definition were the more customary meaning accepted in the field at the time of invention, it directly contradicts the intrinsic evidence and thus, cannot stand.") (citing *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998)).

To this end, Plaintiff next objects:

> [T]he argument that an AC power source would render the claims inoperable because it could not detect "a fixed voltage drop" as in the preferred embodiment rests on the false premise that Network-1's proposal *precludes* an AC power source. Network-1's proposal encompasses both AC and DC power sources, and, therefore would fully encompass an embodiment that used an AC power source.

Docket No. 722 at 2–3.

Plaintiff appears to argue that construing the term as an AC power source does not render the claims inoperable because its proposal construes the term to include an AC power source. *Id.* This conclusory argument fails to address the crux of the Magistrate Judge's finding that such a construction would be inconsistent with the specification, as discussed in the above-cited proceedings in *Cisco*, and would render the device inoperable. *See* Docket No. 693 at 7–8. Indeed, Plaintiff has not presented evidence to counter Defendants' evidence, cited in the Report, that it is not feasible to detect a fixed voltage drop in the presence of an AC current. *Id.*

Plaintiff's third point—that it is quite common to have switches operate from an AC power source—even if taken as true, similarly fails because it does not respond to the Report's finding that construing "main power source" to include AC power sources would render the claims inoperable. Docket No. 693 at 7–8 (citing Neikirk Decl. at ¶ 37).

The Court **OVERRULES** Plaintiff's objections as to "main power source."

B. Secondary Power Source

The Report construed "secondary power source" as "a source of power connected to provide power between the data node and the access device using the data signaling pair; the driving points of the secondary power source must be physically separate from the driving points of the main power source." Docket No. 693 at 10. Plaintiff objects to this construction because "it fails to tell the jury explicitly that 'the secondary power source can be the same source of power as the main power source,' as in Network-1's proposal." Docket No. 722 at 3. Specifically, Plaintiff objects:

> [1] [b]y using the modifiers "main" and "secondary" (rather than "first"/"second"), the claims are drafted such that the "main power source" and the "secondary power source" may be the same, different, or overlapping, as long as they perform their respective functions . . . ; and [2] the preferred embodiment expressly uses a single power source as both the "main power source" and the "secondary power source."

Id. at 3–4.

Plaintiff's first argument merely rehashes the argument from its claim construction brief. *See* Docket No. 596 at 13 ("By using the modifiers 'main' and 'secondary' (rather than first/second), the claims are drafted such that the 'main power source' and the 'secondary power source' may be the same, different, or overlapping, as long as they perform their respective functions."). As the Report stated, this exact argument was rejected by the court in *Cisco*, which noted that the terms "main" and "secondary" are not mere identifier terms such as "second" and "third", but rather, the terms "main" and "secondary" set forth an operational hierarchy. Docket No. 693 at 9 (citing *Cisco Markman* at 11 (discussing *Linear Tech. Corp. v. ITC*, 566 F.3d 1049, 1055 (Fed. Cir. 2009))). The Magistrate Judge properly concluded that "main" and "secondary" set forth an operational hierarchy in this case. Docket No. 693 at 9 (citing *Cisco Markman* at 11).

Regarding the second point, Plaintiff also made an identical argument in its claim

construction brief:

> The preferred embodiment in the specification uses a single power source as both the "main power source" and the "secondary power source" . . . .
>
> * * *
>
> Therefore, the specification does not disclaim a device with a single power source that performs all power functions. Instead, it expressly states that a single power source is "the preferred embodiment" in "accordance with the present invention." Accordingly, Defendants' construction would improperly exclude the preferred embodiment.

Docket No. 596 at 14. The specification refers to a "power source 16." *See* '930 Patent at 2:52–57. Nonetheless, as *D-Link, Cisco*, and the Report have all discussed, although the power sources may obtain power from a common origin, the "main power source" and "secondary power source" are recited distinctly. *D-Link* at 6–7; *see also Cisco* at 12; Docket No. 693 at 9. In other words, Plaintiff has not demonstrated that the specification discloses that the main power source and the secondary power source can be one and the same.

The Court therefore **OVERRULES** Plaintiff's objections as to "secondary power source."

C. Low Level Current

Plaintiff next objects to the Report's construction of "low level current" as "a non-data-signal current that is sufficient to begin the start up of the access device but that is not sufficient to sustain the start up." Docket No. 693 at 12.

Specifically, Plaintiff objects that:

> [t]he Report's recommended construction—that a low level current is "sufficient to begin start up of the access device"—is not based on the purpose served by the low level current for the invention, *but instead serves the particular purpose of a preferred embodiment, namely the effect of the dc-dc switching supply of the preferred embodiment*. This is contrary to controlling Federal Circuit law.

Docket No. 722 at 6 (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005))

(emphasis added).

As the Report notes, the *D-Link* and *Cisco* courts ruled that the patentee used the phrase "low level" to have a particular meaning in the context of the patent-in-suit and the relevant art. *See* '930 Patent at 3:12–19; *see also Cisco Markman* at 15–16 ("Thus, the only objective benchmark to guide one skilled in the art is a varying voltage level produced in the return path when the access device is beginning to start up, but is unable to sustain start up. This standard is necessary to guide one skilled in the art in determining a 'low level current' in the context of the '930 Patent and provides a signpost as to whether an accused device is delivering a low level current from the main power supply."); *D-Link Markman* at 8–10. Plaintiff has not persuasively shown any error in this regard.

Plaintiff's remaining objections to the Report's construction of this term revolve around the prosecution history of the term:

> The prosecution history controls the construction of a claim term when the patentee has made a clear and unambiguous disavowal of claim scope . . . . In an IPR [(*Inter Partes* Review)], Network-1 applied the construction of "low level current" to distinguish the prior art: "the claimed 'low level current' must be below a threshold level such that it would not, by itself, operate the access device." . . . "Matsuno does not disclose . . . that the current generated from the 48 volts is insufficient to operate the access devices." . . . This prosecution history constitutes an unambiguous disclaimer. In addition, during a reexamination proceeding, Network-1 submitted the definition from the IPR proceeding, thereby expressly confirming the meaning of "low level current." . . . Under controlling Federal Circuit law, when a patentee in a reexamination submits a claim term definition and manifests agreement with it, that definition is binding in any subsequent litigation.

Docket No. 722 at 5.

However, Plaintiff's reliance on any IPR proceedings does not account for the broader claim construction standard applied in the IPR proceeding. *See In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1276–78 (Fed. Cir. 2015), *aff'd, Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131

(2016). Further, whereas Plaintiff has asserted a disclaimer regarding an upper boundary on the "low level current" (as reproduced above), Plaintiff has not shown that the resulting construction in IPR proceedings should somehow operate so as to preclude any lower boundary on the "low level current."

The Court hereby **OVERRULES** Plaintiff's objections as to "low level current."

II. Plaintiff's Objections to the Report and Recommendation Regarding Motion for Summary Judgment of Invalidity (Docket No. 723)

Plaintiff also objects to the Report's conclusion that Claim 23 is impermissibly broader than original Claim 6 because it removes the "providing" step that was originally recited. Docket No. 693 at 22. Specifically, the Report concluded that Claim 23 was impermissibly broadened during the '401 reexamination[3] because while original Claim 6 requires providing five elements (the data node, the access device, the data signaling pair, the main power source, and the secondary power source), new Claim 23 requires "providing" only one element (an access device). Docket No. 693 at 23.

Plaintiff objects:

> The scope of Claim 6 and Claim 23 are, however, equivalent with respect to the "providing" limitations.
>
> * * *
>
> [B]oth claims expressly require that to perform the method for remotely powering access devices there must be provided [a data node, a signaling pair, a main power source, and a secondary power source].
>
> The difference between the two claims is not in scope, but that Claim 6 recites these limitations (i.e., a data node, a data signaling pair, a main power source, and a secondary power source) in one "providing" element, while Claim 23 recites them in separate elements. That Claim 23 does not specifically use the word "providing" with respect to four components does not mean that it has a different claim scope than Claim 6, because Claim 23 uses *other language* to require that these four components be provided, and

[3] Reexamination Control No. 90/012,401 ("'401 Reexamination").

> Claim 23 *cannot be performed* without providing these four components . . . .

Docket No. 723 at 3–4 (emphasis added).

This objection is substantively similar to the argument Plaintiff made in its claim construction brief and at the *Markman* hearing. *Compare* Docket No. 723 at 24 ("That Claim 23 does not specifically use the word 'providing' with respect to four components does not mean that it has a different claim scope than Claim 6, because Claim 23 uses *other language* to require that these four components be provided, and Claim 23 *cannot be performed* without providing these four components. . . .") (emphasis added) *with* Docket No. 634, June 2, 2016 *Hearing Transcript* at 140:6–11 ("[O]ther claim elements expressly require steps that use them.") and Docket No. 622 at 4 ("That Claim 23 does not specifically use the word 'providing' with respect to four elements does not mean that these elements are not required—they are all claim limitations and are therefore required."). Indeed, the Magistrate Judge's Report noted that Network-1 has not demonstrated that the appearance of such elements as part of other method steps in Claim 23 is equivalent to the recital of the "providing" limitations recited in Claim 6. Docket No. 693 at 23.

This objection is further overruled because it is conclusory. Plaintiff states that "Claim 23 uses other language to require that these four components be provided" and that "Claim 23 cannot be performed without providing these four components." Docket No. 723 at 4. However, Plaintiff has not demonstrated that any "other language" requires affirmatively "providing."

The Court therefore **OVERRULES** Plaintiff's objections to the Report's conclusion that Claim 23 is invalid pursuant to 35 U.S.C. § 305 because of impermissible broadening.

DEFENDANTS' OBJECTIONS

Defendants have filed two sets of objections to the Report. In their first set, Defendants object to the Report's construction of certain disputed claim terms. In their second set, Defendants object to the Report's recommendation regarding Defendants' Motion for Summary Judgment of Invalidity under 35 U.S.C. § 305.

I. Defendants' Objections to the Report and Recommendation Regarding Claim Construction (Docket No. 711)

A. Secondary Power Source

Defendants first object to the Court's construction of "secondary power source" because it includes the phrase "driving points." Docket No. 711 at 1. Specifically, Defendants argue that the phrase "driving points" "finds no support in the '930 Patent, rendering the construction ambiguous and creating a risk of jury confusion."[4] *Id.* Defendants contend that the phrase driving points should not have been included in the Report's construction because the term does not appear in the Court's prior constructions, the patent, the parties' proposals, deposition testimony, or product datasheets. *Id.*

Defendants' argument fails. First, as Plaintiff points out in its Response, there is no rule that the Court may only use words from prior constructions, patents-in-suit, proposals, depositions, or data sheets in its construction of a disputed claim term. Docket No. 736 at 1. Indeed, the relevant question is what a "person of ordinary skill in the art at the time of the invention" would understand the patent claim to mean. *See, e.g.*, *Phillips*, 415 F.3d at 1313 (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys. Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)).

[4] HPE also asks this Court to clarify the construction of the term *secondary power source*, and presents additional arguments for why the Court should remove the phrase "driving points" from its construction of "secondary power source." *See* Docket No. 710, Section II, pg. 1–2. The Court does not address those arguments in this Order. The Court will address HPE's Motion for Clarification in a separate Order.

Second, although the phrase "driving points" is not found in the intrinsic evidence, the Court used the phrase in *D-Link* to explain the separateness required between the main power source and the secondary power source. *See D-Link Markman* at 7 ("The additional driving point . . . would necessarily be physically separate from the main power source driving point because each 'drives' separate loads."); *see also Cisco Markman* at 12 ("The Court's construction in the *D-Link* case requires only that there be physically separate 'driving points' because each power source 'drives' a separate load.").

Third, the concept of "driving points" was discussed on the record by Defendants' own counsel at the *Markman* hearing:

> Now, the claims are an important guide to the meaning of these two terms, and in this case they derive the outcome, they derive the correct construction. As the Court noted in *Cisco*, there are separate loads in the claim. One load is the data node and another load is the access device. Each has its own unique power requirements. Each is being powered separately, one by the main power source, the other by the secondary power source. Each power source is providing the necessary power for those different loads to -- to operate based on their unique needs, and for that reason these two different power sources are *separate driving points*.

Docket No. 634, June 2, 2016 *Hearing Transcript* at 40:4–16 (emphasis added).

Likewise, Defendants' counsel agreed at the *Markman* hearing that the *Cisco Markman* defined "secondary power source" by referencing the phrase driving points:

> THE COURT: In *Cisco*, the Court ultimately determined, though, that what must be separate are these driving points in the circuits and that's what must be separated, not the whole thing?
> MR. COOK: Yes, your Honor.

Id. at 42:8–12.

Finally, Defendants' own expert has agreed that the secondary power source is a separate driving point. *See* Neikirk Decl. at ¶ 54 ("[A] POSITA would understand that the 'main' and 'secondary' power sources are separate power *driving points*.") (emphasis added).

The Court hereby **OVERRULES** Defendants' objections as to "secondary power source."

B. Pre-Selected Condition

Defendants next argue that because the Court's construction of "low level current" refers to beginning "start up of the access device," the construction of "preselected condition" should refer to beginning start up of a "power supply of the access device." Docket No. 711 at 2. Defendants argue that the specification does not disclose any other type of "preselected condition." *Id.* Alternatively, Defendants argue that the construction should at least refer to "voltage level" instead of "voltage." *Id.*

Defendants do not explain why the Court should depart from the Report's finding that "preselected condition" is *not* limited to the disclosed embodiments in which the condition refers to sensing that a *power supply* begins to start up, but is unable to sustain the start up. Docket No. 693 at 14. As to Defendants' alternative argument, because the claims themselves recite a preselected condition "of said voltage level" or "of the sensed voltage level," the word "voltage" in the Report's construction is sufficiently clear in the context of the claims.

The Court **OVERRULES** Defendants' objections as to "pre-selected condition."

II. Defendants' Objections to The Report and Recommendation Regarding Motion for Summary Judgment of Invalidity (Docket No. 713)

A. Elimination of the "Physically Separate" Requirement

Defendants also object to the Report's finding that the addition of Claims 15 and 16, added during the '401 Reexamination, did not impermissibly broaden Claim 6 and render it invalid. Docket No. 713 at 1.

Defendants argue that the fact that Claims 15 and 16 are not asserted in the present case is irrelevant to the issues of claim construction and claim broadening. Docket No. 713 at 1. The Report's discussion in this regard, that Claims 15 and 16 are not asserted in the present case,

provides background to frame the parties' dispute because Defendants did not challenge Claims 15 and 16 themselves. Rather, Defendants argued that because dependent Claims 15 and 16 must be narrower than Claim 6 from which they depended—and because Claims 15 and 16 purportedly suffered from impermissible broadening in violation of 35 U.S.C. § 305—therefore Claim 6 was also impermissibly broadened. *See* Docket No. 609 at 7–8. The Report merely noted that "Defendants have not adequately demonstrated that any invalidity as to [dependent] Claim 15 or Claim 16 necessarily renders [independent] Claim 6 invalid." Docket No. 693 at 18.

In this regard, Defendants object to the Report's treatment of *ArcelorMittal France v. AK Steel Corp.*, 786 F.3d 885, 887 (Fed. Cir. 2015). In its opening claim construction brief, Defendants argued that because "[n]early identical facts were addressed in *ArcelorMittal* . . . ," it controls the instant case. Docket No. 609 at 8. The Report noted that *ArcelorMittal* is distinguishable from the instant case because "[t]he patentee in *ArcelorMittal* conceded that the scope of the original claims was narrower than the scope of the reissue claims, a fact that is disputed in this case." Docket No. 693 at 18 (citing 786 F.3d at 890). Defendants now argue that the Court erred by treating the claim broadening issue as a question of fact rather than a question of law. Docket No. 713 at 2–3.

Defendants have mischaracterized the Report's use of the word "fact." The Report did not treat the broadening dispute as a factual dispute. Rather, the Report distinguished the facts of the *ArcelorMittal* case from the facts of the instant case to conclude that the outcome in *ArcelorMittal* does not control. Docket No. 693 at 18; 786 F.3d at 890.

Further, Defendants object to the Report's conclusion that *ArcelorMittal* is distinguishable from the present case because *ArcelorMittal* involved the "law-of-the-case" doctrine. Docket No. 713 at 4. Defendants argue that improper broadening should be assessed irrespective of whether

law-of-the-case applies. Docket No. 713 at 4 (citing *Quantum Corp. v. Rodime, PLC*, 65 F.3d 1577, 1582 (Fed. Cir. 1995); *Thermalloy, Inc. v. Aavid Eng'g, Inc.*, 121 F.3d 691, 694 (Fed. Cir. 1997)). Defendants urge that "if the law required parties to appeal to the Federal Circuit and obtain a binding claim construction before the issue of claim broadening could be raised, that would seriously undermine the policy against broadening and incentivize patentees to run the risk of improperly broadening their claims." Docket No. 713 at 4.

Defendants' argument assumes the premise that the addition of dependent Claims 15 and 16 had a broadening effect on independent Claim 6. Yet, the central dispute is whether the addition of dependent Claims 15 and 16 in fact had a broadening effect on independent Claim 6. In *ArcelorMittal*, the issue of broadening was not in dispute. 786 F.3d at 890. Rather, the parties disputed whether the law-of-the-case doctrine barred the district court from revisiting the original construction based on subsequent reissue prosecution history. *Id.* Here, unlike *ArcelorMittal*, the issue of broadening is disputed. *Id.* Plaintiff properly urges that to whatever extent dependent Claims 15 and 16 are interpreted as attempting to broaden independent Claim 6, the result would simply be that Claims 15 and 16 are invalid for failure to comply with the requirement that a dependent claim must be narrower than the claim from which it depends. Docket No. 734 at 4; *See* 35 U.S.C. § 112(d) (formerly 35 U.S.C. § 112, ¶ 4); *see also Enzo Biochem Inc. v. Applera Corp.*, 780 F.3d 1149, 1156–57 (Fed. Cir. 2015) ("dependent claims cannot broaden an independent claim from which they depend"). The scope of independent Claim 6 remains unchanged.

Finally, Defendants object to the Report's reliance on *MBO Labs., Inc. v. Becton, Dickinson & Co.*:

> [T]he Report and Recommendation relied on *MBO Labs., Inc. v. Becton, Dickinson & Co.*, which addressed the distinct doctrine of "reissue

> recapture" . . . [and] did *not* address whether the addition of a dependent claim can force a broader scope into an independent claim. In *MBO Labs.*, newly added reissue claims 27, 28, 32, and 33 were found invalid under the recapture doctrine, and there was no suggestion that their invalidity affected any original claims. Unlike *MBO Labs.*, *ArcelorMittal* directly controls the present case because there, as here, the addition of a new dependent claim did have the effect of broadening an original independent claim.

Docket No. 713 at 6 (citations omitted); *see MBO Labs., Inc. v. Becton, Dickinson & Co.*, 602 F.3d 1306 (Fed. Cir. 2010).

For the reasons stated above, *ArcelorMittal* does not control the instant case. Moreover, Defendants' argument against the Court's reliance on *MBO Labs., Inc.* is unavailing. *MBO Labs., Inc.* addressed the general issue of reissue and the rule of recapture:

> Finally, the district court erroneously invalidated the entire [Reissue '885 Patent] based solely on its holding that [the] reissue claim[s] . . . were invalid under the rule against recapture . . . . When a reissue patent contains the unmodified original patent claims and the reissue claims, a court can only invalidate the reissue claims under the rule against recapture."[5]

MBO Labs., Inc., 602 F.3d at 1319.

Thus, the Report properly reasoned that the principles regarding reissue and the rule against recapture are analogous and helpful in analyzing the present dispute regarding reexamination and improper broadening under 35 U.S.C. § 305. *See, e.g., id.* ("The original claims cannot be broader than themselves.").

The Court therefore **OVERRULES** Defendants' objections as to the purported elimination of the "physically separate" requirement.

B. Replacement of "Low Level Current" with "Current"

Defendants submit that the Report erred by failing to address whether Claim 21 (which

[5] Under the rule against recapture, a patentee's reissue claims are invalid when the patentee broadens the scope of a claim in reissue to cover subject matter that he surrendered during prosecution of the original claims. *See MBO Labs., Inc. v. Becton, Dickinson & Co.*, 602 F.3d 1306, 1313 (Fed. Cir. 2010).

was added during reexamination, and which recites a "current") is improperly broader than Claim 6 (which recites a "low level current."). Docket No. 713 at 5. Plaintiff responds that Defendants are attempting to raise a new argument, which, must be rejected. *Id.* at 5.

In the four pages of Defendants' Motion for Summary Judgment of Invalidity that address this point, only one sentence can be construed as supporting the argument that Defendants now advance: "Because the 'current' recited in claim 21 does not need to be 'sufficient to cause the access device to start up, but not sufficient to sustain the start up,' it is impermissibly broader than the 'low level current' recited in original independent claim 6." Docket No. 609 at 14 (emphasis omitted).

However, Defendants' Motion for Summary Judgment primarily argued that Claim 21 defined the "current" in Claim 21, as well as in Claim 6, and therefore improperly broadened the scope of Claim 6. Defendants argued that the Court should invalidate Claim 6 for being improperly broadened by Claim 21 because the "current" in Claim 21 redefined "low level current" in Claim 6 (by removing the lower boundary requirement). *Id*. Defendants did not argue that the Court should invalidate Claim 21 for being improperly broader than Claim 6:

> Network-1's addition of new independent claim 21 during the '401 reexamination is additional intrinsic evidence that improperly broadens the scope of all asserted claims. This claim recites "a current . . . , said current being insufficient, by itself, to operate said access device," and is highly probative of the construction of the term "low level current," as recited in independent claims 6, 20, 22, and 23. Because claim 21 results in a construction of "low level current" that is broader than the Court's *D-Link* and *Cisco* construction of that term, each asserted claim has been broadened by claim 21.
>
> * * *
>
> In the '401 reexamination, Network-1 added new claim 21, which forces a new meaning of "current" and "low level current" into the '930 Patent.
>
> * * *

> Because claim 21 has the effect of broadening the meaning of "low level current" in claims 6, 20, 22, and 23, those claims have been improperly broadened under § 305 and are invalid. Likewise, consistent with *ArcelorMittal* and § 112(d), that broadening is incorporated into dependent claims 11, 13, 14, and 17, rendering all asserted claims in this case invalid.

Docket No. 609 at 14, 17.

The *Markman* hearing transcript reaffirms that Defendants originally argued that Claim 6 should be invalidated as being improperly broadened by Claim 21. *See* Docket No. 634, June 2, 2016, *Hearing Transcript* at 129:4–132:18 ("And so for that reason, we believe also the addition of claim 21 has a practical effect of broadening the scope of each of the other independent claims where it recites low level current, but that would necessarily inflict and cause a broader construction on those terms.").

Plaintiff's Opposition to Defendants' Motion for Summary Judgment of Invalidity also confirms that the central dispute between the parties was whether Claim 6 and related claims should be invalidated in light of Claim 21. *See* Docket No. 622 at 8 ("Defendants again challenge independent claim 6 and all other claims that contain 'low level current' on the basis that the scope of the phrase was broadened by virtue of adding independent claim 21. This challenge fails as a matter of law.").

On balance, Defendants' argument urged not that the "current" in Claim 21 is broader than the "low level current" in Claim 6 and other claims that recited the term "low level current," but rather, that Claim 21 defined the "current" for Claim 21 *and* for Claims 6, 20, 22, and 23. Thus, Defendants' objection that the "current" limitation recited in Claim 21 is broader than the corresponding limitation recited in Claim 6 is an argument that was not fully presented to the Court. *See Stangel v. Sparkman*, 2007 WL 2725382, at *1 (E.D. Tex. Sept. 18, 2007) ("It is noted that the Plaintiff is trying to raise new claims in his objections, but issues raised for the first time

in objections to a Report and Recommendation are not properly before the Court.") (citing *Cupit v. Whitley*, 28 F.3d 525, 535 n.5 (5th Cir. 1994); *United States v. Armstrong*, 951 F.2d 626, 630 (5th Cir. 1992)). As a result, the Court hereby **OVERRULES** Defendants' objections to the Court's denial of Defendants' Motion for Summary Judgment of Invalidity as to Claim 21.[6]

C. Elimination of "Sensing"/"Sensing Means" and "Controlling"/"Control Means"

As to Claim 22, Defendants urge as follows regarding "sensing":

> Unlike original claim 1's requirement of a "sensing means" and original claim 6's requirement of an affirmative "sensing" step, new claim 22 makes both requirements of the original claims optional. Claim 22 recites "a voltage level . . . that can be sensed." Based on the language of claim 22, there is no requirement to utilize a "sensing means" or perform a "sensing" operation. . . . Under 35 U.S.C. § 112(f), the "sensing means" is a means-plus-function limitation that imposes a distinct structural limitation on the scope of the claim, requiring the use of the particular corresponding structure disclosed in the specification of the '930 Patent for performing the "sensing" function. Eliminating this structural limitation thus necessarily broadened the claim. For at least these reasons, claim 22 is broader than original claims 1 and 6 and therefore invalid for improper broadening.

Docket No. 713 at 6.

Defendants present a similar argument as to "controlling":

> Similarly, unlike original claim 1's requirement of a "control means" and original claim 6's requirement of an affirmative "controlling" step, claim 22 makes these elements optional as well. Claim 22 passively recites "wherein the power . . . is controlled." Thus, claim 22 is broader as it does not require a "control means" or "controlling" step. While these are affirmative elements of the original claims, claim 22 eliminates these limitations altogether. For this additional reason, claim 22 is broader than original claims 1 and 6 and therefore invalid.

Id. at 7.

Defendant then concludes:

> [W]hile claim 22 refers to a "voltage level . . . that can be sensed" and "power supplied by said secondary power source . . . is controlled in

[6] The Court overrules Defendants' objection to the denial of Defendants' Motion for Summary Judgment of Invalidity as to Claim 21 solely on procedural grounds. This Order does not opine on the merits of Defendants' new argument that Claim 21 should be invalidated for improper broadening.

> response to a preselected condition of the sensed voltage level," there is no actual requirement of a "control means" or "sensing means" or any steps of "sensing" and "controlling" in claim 22. Therefore, in view of the plain language of the claim, claim 22 is necessarily broader than claims 1 and 6, which in contrast include these elements or steps. By eliminating the "controlling" and "sensing" requirements of the original claims, claim 22 has been improperly broadened and, as a matter of law, is invalid.

Id. at 7–8.

Plaintiff responds that "[a]nalyzing claim 22 'as a whole,' demonstrates that it is not broader than original claim 6." Docket No. 734 at 6. Plaintiff submits that "the sensed voltage level" in Claim 22 "can only exist if the voltage level is actually sensed." *Id.* at 7. Likewise, Plaintiff argues that because a "power source is controlled" in Claim 22, "'controlling power' must have taken place." *Id.*

As to whether Claim 22 is improperly broader than the "sensing" limitation in Claim 6, the Report correctly explains that "Defendants have not adequately shown that elimination of the word 'sensing' resulted in a broader claim scope because Claims 22 and 23 each require that a voltage level must have been sensed." Docket No. 693 at 21; *see Anderson v. Int'l Eng'g & Mfg., Inc.*, 16 F.3d 1345, 1349 (Fed. Cir. 1998) ("[T]he question of whether the claims have been materially or substantially enlarged must be determined upon the claim as a whole.").

As to whether Claim 22 is improperly broader than the "sensing means" limitation in Claim 1, Defendants urge: "[t]he Report and Recommendation identifies no authority to suggest that an invalid claim is irrelevant to claim construction." Docket No. 713 at 7.[7] Here, however, the issue is not whether the indefinite claim can be considered for claim construction purposes, but rather whether the breadth of a claim can be compared to the breadth of an indefinite claim. Particularly because "the question of whether the claims have been materially or substantially enlarged must

[7] *Cisco* held that Claim 1 is indefinite because "control means" lacks corresponding structure. *See Cisco Markman* at 18–23.

be determined upon the claim as a whole," Defendants have not shown that such a comparison can be made. *Anderson*, 160 F.3d at 1349.

Regarding whether Claim 22 is improperly broader than the "control means" step of Claim 1 and the "controlling" step of Claim 6, the Report noted that Claim 1 was indefinite based on lack of adequate corresponding structure as to the "control means," which is one of the limitations that Defendants argue was improperly broadened. *See Cisco Markman* at 18–23. Defendants have not explained how broadening can occur with reference to a term that has been deemed indefinite, particularly based on lack of adequate corresponding structure. As to Claim 6, substantially the same analysis applies for "controlling" as is set forth above regarding "sensing." *See Anderson*, 160 F.3d at 1349 ("[T]he question of whether the claims have been materially or substantially enlarged must be determined upon the claim as a whole."). Specifically, whereas Claim 6 recites "controlling power supplied by said secondary power source to said access device in response to a preselected condition of said voltage level," Claim 22 expressly recites: "the power supplied by said secondary power source to the access device *is controlled* in response to a preselected condition of the sensed voltage level." '930 Patent, 2:65– 67; '401 Reexamination, 2:46–49 (emphasis added).

Thus, the Court **OVERRULES** Defendants' objections as to the "sensing," "sensing means," "controlling," and "control means" terms.

CONCLUSION

For the reasons set forth above, the Court **OVERRULES** Defendants' objections regarding claim construction and Plaintiff's objections regarding claim construction. Docket Nos. 711, 722.

The Court further **OVERULES** Defendants' and Plaintiff's Objections to the Report and Recommendation Regarding Defendants' Motion For Summary Judgment of Invalidity Under 35 U.S.C. § 305. Docket Nos. 713, 723. Accordingly, Defendants' Motion for Partial Summary

Judgment of Invalidity is **GRANTED** as to Claim 23, but is otherwise **DENIED**.

SIGNED this 2nd day of May, 2017.

ROBERT W. SCHROEDER III
UNITED STATES DISTRICT JUDGE

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION

NETWORK-1 TECHNOLOGIES, INC.	§	
	§	CIVIL ACTION NO. 6:13-CV-00072-RWS
Plaintiff,	§	
v.	§	
HEWLETT-PACKARD COMPANY, HEWLETT-PACKARD ENTERPRISE COMPANY,	§	
Defendants.		

VERDICT FORM

In answering these questions, you are to follow all of the instructions I have given you in the Final Jury Instructions. Your answers to each question must be unanimous. In this verdict form, "Network-1" refers to Plaintiff Network-1 Technologies, Inc. "HP" refers to collectively Defendants Hewlett-Packard Company and Hewlett-Packard Enterprise Company In this verdict form, "the '930 Patent" refers to U.S. Patent Number 6,218,930.

Question 1

Did Network-1 prove by a preponderance of the evidence that HP infringed the following independent claims of the '930 patent?
Please answer "yes" (for Network-1) or "no" (for HP).

'930 patent claim	Answer Yes or No
Claim 6	No
Claim 20	No
Claim 22	No

If you answered "yes" to claim 6, please answer "yes" or "no" for the following dependent claims. Otherwise, do not answer for the following claims. N/A

'930 patent claim	Answer Yes or No
Claim 13	
Claim 14	
Claim 17	

Question 2

Did HP prove by clear and convincing evidence that any of the following claims of the '930 patent is invalid?
Please answer "yes" (for HP) or "no" (for Network-1).

'930 patent claim	Answer Yes or No
Claim 6	Yes
Claim 13	yes
Claim 14	yes
Claim 17	yes
Claim 20	yes
Claim 22	yes

Question 3

Answer question no. 3 if you have found at least one claim to be infringed and valid. Otherwise, do not answer the remaining questions.

What amount is Network-1 entitled to recover for HP's infringement of the '930 patent? N/A

$_____

Question 4

Did HP prove by a preponderance of the evidence that Network-1 breached its contract to license the '930 patent on reasonable and non-discriminatory terms?

Answer YES or NO: NO

Question 5

N/A

Answer question no. 5 only if you answered "yes" to question no. 4. Otherwise, do not answer question no. 5.

What amount is HP entitled to recover for Network-1's breach of contract?

$_____

You have now reached the end of the verdict form and should review it to ensure it accurately reflects your unanimous determinations. The jury foreperson should then sign and date the verdict form in the spaces below and notify the Court Security Officer that you have reached a verdict. The jury foreperson should retain possession of the verdict form and bring it when the jury is brought back into the courtroom.

Signed this 13 day of November, 2017.

Jury Foreperson

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION

NETWORK-1 TECHNOLOGIES, INC., Plaintiff, v. HEWLETT-PACKARD COMPANY, HEWLETT PACKARD ENTERPRISE COMPANY, Defendants.	§ § § § § § § § § §	CIVIL ACTION NO. 6:13-CV-00072-RWS **SEALED**

MEMORANDUM OPINION AND ORDER

Before the Court are Plaintiff Network-1 Technologies, LLC's ("Network-1") motions for post-trial relief and the parties' proposed findings of fact and conclusions of law. Having considered the argument, written submissions and bench trial in this matter and for the reasons detailed below, the Court rules as follows:

- Network-1's Motion for a New Trial on Infringement (Docket No. 98) is **DENIED**;
- Network-1's Motion for Judgment as a Matter of Law and Motion for New Trial on Validity (Docket No. 99) is **GRANTED**;
- Network-1's Motion to Preclude HP from Presenting Theories of Inequitable Conduct Beyond the Scope of Defendant HP's[1] Complaint (Docket No. 128) is **GRANTED**; and
- the Court concludes HP failed to meet its burden on its inequitable conduct defense.

[1] Currently, the Defendants in this matter are Hewlett-Packard Company and Hewlett Packard Enterprise Company (collectively, "HP").

BACKGROUND

This case has a long, tortured history. On September 15, 2011, Plaintiff Network-1[2] filed an action for patent infringement of U.S. Patent No. 6,218,930 ("the '930 patent") naming several defendants, including Hewlett-Packard Company and Hewlett-Packard Development Company. *See* Case No. 6:11-cv-492. The Court severed the case into numerous individual actions against each set of defendants, assigning each case its own case number and consolidating the cases for pretrial. *See* Case No. 6:11-cv-492 ("Lead Case"), Docket No. 365. On December 5, 2012, another defendant in this action, Avaya, Inc. ("Avaya"), filed a petition for *inter partes* review on the '930 patent, which the Patent Trial and Appeal Board ("PTAB") instituted on May 24, 2013. Defendant Hewlett-Packard Company filed a petition for IPR with Sony Corporation of America on August 6, 2013 asserting the same two grounds instituted in Avaya's IPR, which was instituted and joined with Avaya's IPR.

On January 25, 2013, several Defendants, including Hewlett-Packard Company, moved to stay this case pending *inter partes* review, and the Court granted the motion. Lead Case, Docket No. 410. After the IPR was completed, and the PTAB found the claims not invalid, Plaintiff sought to lift the stay on September 11, 2014. Lead Case, Docket No. 418. The case was reopened on January 5, 2015, but by May 5, 2015, Defendants Sony Corporation, Sony Corporation of America, and Sony Electronics Inc. moved to stay the case pending covered business method ("CBM") review. Lead Case, Docket No. 502. The Court granted the motion, and the case was again stayed until April 8, 2016, when the Court granted Network-1's motion to lift the stay. Lead Case, Docket No. 578.

[2] At the time of filing, Plaintiff was named Network-1 Security Solutions, Inc.

The Court held a jury trial in this matter from November 6, 2017 to November 13, 2017. After the six-day trial, the jury reached a unanimous verdict finding that HP did not infringe the '930 patent and that the '930 patent was invalid. Following the verdict, Network-1 filed a Motion for a New Trial on Infringement (Docket No. 98) and a Motion for Judgment as a Matter of Law and Motion for New Trial on Validity (Docket No. 99). The Court heard argument on these motions on May 14, 2018.

HP also asserted an inequitable conduct defense in this case, and, on May 15, 2018, the Court held a bench trial on this matter. The parties both filed proposed findings of fact and conclusions of law for the Court's consideration. Docket Nos. 148, 149.

The Court now resolves the two post-trial motions and the inequitable conduct defense below.

LEGAL STANDARD

Judgment as a matter of law is only appropriate when "a reasonable jury would not have a legally sufficient evidentiary basis to find for the party on that issue." FED. R. CIV. P. 50(a). "The grant or denial of a motion for judgment as a matter of law is a procedural issue not unique to patent law, reviewed under the law of the regional circuit in which the appeal from the district court would usually lie." *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1332 (Fed. Cir. 2008).

Under Fifth Circuit law, a court is to be "especially deferential" to a jury's verdict and must not reverse the jury's findings unless they are not supported by substantial evidence. *Baisden v. I'm Ready Prods., Inc.*, 693 F.3d 491, 499 (5th Cir. 2012). "Substantial evidence is defined as evidence of such quality and weight that reasonable and fair-minded men in the exercise of impartial judgment might reach different conclusions." *Threlkeld v. Total Petroleum, Inc.*, 211

F.3d 887, 891 (5th Cir. 2000). The Court will "uphold a jury verdict unless the facts and inferences point so strongly and so overwhelmingly in favor of one party that reasonable men could not arrive at any verdict to the contrary." *Cousin v. Trans Union Corp*., 246 F.3d 359, 366 (5th Cir. 2001); *see also Int'l Ins. Co. v. RSR Corp*., 426 F.3d 281, 296 (5th Cir. 2005). However, "[t]here must be more than a mere scintilla of evidence in the record to prevent judgment as a matter of law in favor of the movant." *Arismendez v. Nightingale Home Health Care, Inc*., 493 F.3d 602, 606 (5th Cir. 2007) (citing *Laxton v. Gap, Inc*., 333 F.3d 572, 577 (5th Cir. 2003)).

In evaluating a motion for judgment as a matter of law, a court must "draw all reasonable inferences in the light most favorable to the verdict and cannot substitute other inferences that [the court] might regard as more reasonable." *E.E.O.C. v. Boh Bros. Const. Co., L.L.C*., 731 F.3d 444, 451 (5th Cir. 2013). Although the court must review the record as a whole, it must disregard all evidence favorable to the moving party that the jury is not required to believe. *Ellis v. Weasler Eng'g Inc*., 258 F.3d 326, 337 (5th Cir. 2001). However, a court may not make credibility determinations or weigh the evidence, as those are solely functions of the jury. *See id.* (citing *Reeves v. Sanderson Plumbing Prods., Inc*., 530 U.S. 133, 150–51 (2000)). The Court gives "credence to evidence supporting the moving party that is uncontradicted and unimpeached if that evidence comes from disinterested witnesses." *Arismendez*, 493 F.3d at 606.

Under Federal Rule of Civil Procedure 59(a), a new trial may be granted on any or all issues "for any reason for which a new trial has heretofore been granted in an action at law in federal court." Rule 59(a)(1)(A). The Federal Circuit reviews the question of a new trial under the law of the regional circuit. *Z4 Techs., Inc. v. Microsoft Corp.*, 507 F.3d 1340, 1347 (Fed. Cir. 2007). The court can grant a new trial "based on its appraisal of the fairness of the trial and the reliability of the jury's verdict." *Smith v. Transworld Drilling Co.*, 773 F.2d 610, 612–13 (5th Cir.

1985). "Courts grant a new trial when it is reasonably clear that prejudicial error has crept into the record or that substantial justice has not been done, and the burden of showing harmful error rests on the party seeking the new trial." *Sibley v. Lemaire*, 184 F.3d 481, 487 (5th Cir. 1999) (quoting *Del Rio Distributing, Inc. v. Adolph Coors Co.*, 589 F.2d 176, 179 n. 3 (5th Cir. 1979)). "A new trial may be granted, for example, if the district court finds the verdict is against the weight of the evidence, the damages awarded are excessive, the trial was unfair, or prejudicial error was committed in its course." *Smith*, 773 F.2d at 612–13. The decision to grant or deny a new trial is committed to the sound discretion of the district court. *See Allied Chem. Corp. v. Daiflon, Inc.*, 449 U.S. 33, 36 (1980). "[N]ew trials should not be granted on evidentiary grounds unless, at a minimum, the verdict is against the great not merely the greater weight of the evidence." *Conway v. Chem. Leaman Tank Lines, Inc.*, 610 F.2d 360, 363 (5th Cir. 1980).

I. NETWORK-1'S MOTION FOR JUDGMENT AS A MATTER OF LAW AND MOTION FOR A NEW TRIAL ON VALIDITY (DOCKET NO. 99)

At trial, the only invalidity theory HP presented to the jury was obviousness based on the combination of "the Fisher patents, the Fisher system, Woodmas, and Chang." 11/13/17 Trial Tr. (jury instructions) 63:15–17. The jury returned a verdict of invalidity. Docket No. 70.

In its motion, Network-1 contends that HP failed to meet its burden of showing that the Fisher system was (1) in "public use" or (2) corroborated.[3] Docket No. 99 at 3. According to Network-1, since the system was not in public use nor corroborated, it did not constitute prior art, and HP's resulting arguments were either defective or estopped.

[3] In this Order, the Court references only the pre-AIA version of 35 U.S.C. § 102 because the application date of the only patent in suit—the '930 patent—was filed before March 16, 2013.

A. Public Use

To determine whether a prior use constitutes an invalidating "public use," the Court considers "whether the purported use: (1) was accessible to the public; or (2) was commercially exploited." *Dey, L.P. v. Sunovion Pharm., Inc.*, 715 F.3d 1351, 1355 (Fed. Cir. 2013) (citing *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 424 F.3d 1374, 1380 (Fed. Cir. 2005)).

HP asserts that "[t]here is no evidence that the Fisher system was confidential, secret, private, clandestine, or otherwise not public." Docket No. 125. But this is not the test. On a motion for judgment as a matter of law, the Court considers whether *HP* presented evidence at trial to meet its burden to prove by *clear and convincing* evidence that the Fisher system was "accessible to the public." *See Microsoft Corp. v. I4I Ltd. P'ship*, 564 U.S. 91, 95 (2011); *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1368 (Fed. Cir. 2018) ("Any fact, such as this one, that is pertinent to the invalidity conclusion must be proven by clear and convincing evidence.").

HP suggests that the following evidence supports a finding that the Fisher system was in public use: (1) David Fisher's testimony; (2) a copyright date on a motherboard; (3) a statement from its expert, Dr. Dean Neikirk; and (4) four pages of evidence from the report of Plaintiff's Expert, Dr. Nathaniel Davis, in which Dr. Davis discusses the state of the art. The Court addresses each piece of evidence in turn.

First, the Court considers Mr. Fisher's testimony about the use of the Fisher system. At trial, Mr. Fisher testified via video deposition regarding the Fisher system. From a photo he had taken within a year of trial, Mr. Fisher identified several components of the system as existing in 1996 based upon "the date on the silk screen, on the motherboard." 11/10/17 AM Tr. at 129:11–25; *id.* at 139:25–130:8. He further explained that he developed the system while at 3Com and that he tested the system inside the 3Com offices. *Id.* at 123:14–24, 137:8–25 ("to test it, we

would, you know, plug that in, stick this into the front of the hub, and then take the 10BaseT wiring that was in the building and plug it in").

Fisher did not testify, however, that he or anyone else at 3Com had shown the system to anyone outside of the company; in fact, he stated that he did not know whether the system was concealed from the public. *Id.* at 138:1–17. Relatedly, he explained that he retained no documentation regarding the system. *Id.* at 138:9–12. What is clear from Mr. Fisher's testimony is that there is no evidence in the record that the Fisher system was ever used outside of the 3Com offices. Mr. Fisher admitted that he could not provide that evidence, and no other percipient witness testified at trial about the use of the system. And a company's internal testing of a system is insufficient to create public use. *Invitrogen Corp.*, 424 F.3d at 1383.

Second, HP identifies a copyright date on the motherboard, which it has represented means "that the copyright office had reviewed it and that it was available." 11/10/17 PM Tr. at 192:5–16. But a copyright mark is not indicative, in itself, of public availability. Registration with the U.S. Copyright Office is permissive and is not required before adding the symbol on a work that qualifies for copyright protection. *Baby Buddies, Inc. v. Toys R Us, Inc.*, 611 F.3d 1308, 1321 n.20 (11th Cir. 2010); 17 U.S.C. § 408(a) ("Registration Permissive . . . [T]he owner of copyright . . . may obtain registration of the copyright claim. . .[R]egistration is not a condition of copyright protection."). Moreover, registering an item with the Copyright Office creates a public record of the registration, including an application for registration and a certificate of registration. 17 U.S.C. § 408, § 410(a). But HP has neither offered nor identified any evidence of registration, and that absence of proof suggests that no registration took place.

But even if HP was correct that the copyright mark on the motherboard meant that the motherboard was sent to the Copyright Office, this evidence does not meet HP's burden. That the

Copyright Office possessed a motherboard component is not clear and convincing evidence that the *system* had also been sent to the Copyright Office and was used by Copyright Office employees. At best, the copyright date may be evidence that the motherboard was available in 1996, but there is no evidence that the Copyright Office ever possessed the system, let alone used it. Accordingly, the copyright date does not establish public use.

Third, HP identifies the trial testimony of Dr. Neikirk as evidence of public use. The identified question-and-answer reads as follows: "Q. Dr. Neikirk, was Mr. Fisher's system, was it in public use? A. Yes, I believe it was." 11/10/17 PM Tr. at 22:7–9.

Dr. Neikirk's knowledge of the Fisher system, according to HP, is based upon his conversations with Mr. Fisher, his analysis of the Fisher Statement, and Mr. Fisher's trial testimony. *See* 11/10/17 PM Tr. at 15:6–17 (" In addition to the -- the prior art patents, which I'll go through, I also looked at the Fisher system. And to get more information about that Fisher system, I did speak to -- to Dr. Fisher. Q. And we have the Fisher system here today on the defense table in front of the jury? A. Yes. Q. Have you looked at the Fisher system? A. Yes, I have. Q. Do you know it's the first prior -- Power over Ethernet system we've had in the world? A. Yes. That's what Dr. Fisher told us this morning.").

When asked at trial whether the system was in public use, Dr. Neikirk testified that he believed the system was in public use based on Mr. Fisher's testimony and a copyright date on a motherboard. *Id.* at 22:7–20. ("Q. (By Ms. Doan) Mr. -- Dr. Neikirk, was Mr. Fisher's system, was it in public use? A. Yes, I believe it was. Q. And has it been corroborated here that it was in public use? A. Yes. Dr. Fisher told us this morning that they built a system, they plugged it into the network at their offices and used it. Q. But other than that, do -- do we also have additional evidence of corroboration on the system itself? A. Yes, there is. If you look at the printed circuit

board -- I think Dr. Fisher also mentioned this this morning -- you can look at that board and there's a marking on it that says Copyright 1996.").

To the extent that Dr. Neikirk suggests the system was publicly available because of the copyright date on the motherboard, the Court has already addressed that argument above: A copyright date on a singular component, without more, is not evidence of public availability. According to HP, Dr. Neikirk also believes the system was in public use based on his review of Mr. Fisher's own testimony and statements. But Dr. Neikirk is not a percipient witness and has no knowledge of the system's use aside from his discussions with the inventor and inspection of the system. At bottom, his testimony amounts to a restatement of the inventor's own testimony. A purported inventor cannot create "new" evidence of public use by having an expert repeat his testimony at trial.

Finally, HP relies on four pages of Dr. Davis's report that HP alleges were published to the jury, but these pages were never admitted into evidence and are not part of the trial record. Regardless, the quoted portions of the expert report do not support public use. Specifically, HP directs the Court to the following statements in the Davis expert report: "3Com (now HP) had functional systems for delivering Power over Ethernet to wireless access points . . .; based independently upon my review and analysis of Mr. Fisher's patents, it is my opinion that 3Com/HP created the foundation for Power over Ethernet systems, including before and after the development of the 802.3af standard." Docket No. 110 at 5–6 (citing Docket No. 110-33 (Dr. Davis's Rebuttal Report) at 43). Dr. Davis's opinion that the Fisher *patents* "created the foundation" for Power over Ethernet systems does not amount to evidence that the Fisher system was ever in public use.

HP has failed to provide a sufficient basis for the jury to conclude that the Fisher system was ever in public use: Mr. Fisher could not confirm whether the Fisher system was ever used outside of the 3Com offices; the copyright date on the motherboard of the Fisher system likewise does not establish that the system was ever used or even left the 3Com offices; and Dr. Neikirk's testimony amounts to a restatement of the inventor's testimony. None of the evidence identified by HP establishes public use, let alone at a clear and convincing level.

Accordingly, because HP did not establish by clear and convincing evidence that the Fisher system was ever in public use, the Fisher system does not constitute prior art as a matter of law.

B. Corroboration

Relatedly, HP failed to corroborate both the public use of the system and its key inventive features. Oral testimony by an interested party on its own will generally not suffice as "clear and convincing" evidence of invalidity. *TransWeb, LLC v. 3M Innovative Properties Co*., 812 F.3d 1295, 1301 (Fed. Cir. 2016); *see also Rosco, Inc. v. Mirror Lite Co*., 120 F. App'x 832, 836 (Fed. Cir. 2005) ("Testimonial evidence of invalidity must be corroborated."). Instead, corroboration of oral evidence of prior invention is the general rule in patent disputes. *Woodland Tr. v. Flowertree Nursery, Inc*., 148 F.3d 1368, 1371 (Fed. Cir. 1998). Indeed, "[t]hroughout the history of the determination of patent rights, oral testimony by an alleged inventor asserting priority over a patentee's rights is regarded with skepticism, and as a result, such inventor testimony must be supported by some type of corroborating evidence." *Id.* (citing *Price v. Symsek*, 988 F.2d 1187, 1194 (Fed.Cir.1993)).

A "rule of reason" analysis is used to determine the sufficiency of corroboration, under which "all pertinent evidence is examined in order to determine whether the inventor's story is credible." *TransWeb*, 812 F.3d at 1301. "Documentary or physical evidence that is made contemporaneously with the inventive process provides the most reliable proof that the inventor's

testimony has been corroborated." *Sandt Tech., Ltd. v. Resco Metal & Plastics Corp.*, 264 F.3d 1344, 1350–51 (Fed. Cir. 2001) (citing *Woodland Trust*, 148 F.3d at 1373). "Because documentary or physical evidence is created at the time of conception or reduction to practice, the risk of litigation-inspired fabrication or exaggeration is eliminated." *Id.* Circumstantial evidence about the inventive process, alone, may also corroborate. But the Federal Circuit has "generally been most skeptical of oral testimony that is supported only by testimonial evidence of other interested persons." *TransWeb*, 812 F.3d at 1302.

The Federal Circuit has also provided a list of illustrative factors that may be useful in determining whether a witness's testimony provides sufficient corroboration: "1) the relationship between the corroborating witness and the alleged prior user; 2) the time period between the event and trial; 3) the interest of the corroborating witness in the subject matter in suit; 4) contradiction or impeachment of the witness' testimony; 5) the extent and details of the corroborating testimony; 6) the witness' familiarity with the subject matter of the patented invention and the prior use; 7) probability that a prior use could occur considering the state of the art at the time; and 8) impact of the invention on the industry, and the commercial value of its practice. *Sandt Tech.*,264 F.3d at 1351 (citing *Woodland Trust*, 148 F.3d at 1371).

As evidence of corroboration for the Fisher system, HP points to (1) the copyright date, (2) the Fisher patents, and (3) Dr. Neikirk's testimony. But this evidence is insufficient as a matter of law to meet the exacting clear and convincing evidence standard.

With respect to corroborating the public use of the system, the record is devoid of any evidence that the system was in public use in 1996 aside from the inventor's own testimony. Mr. Fisher's testimony about the "Fisher system" was provided in 2017, more than 20 years after his alleged invention. 11/10/17 AM Tr. at 129:23–25. He is not a disinterested party, as he is a current

HP employee and he developed the Fisher system for 3Com, a company that was acquired by HP. *Id.* at 12:7–17 ("I then moved to a company called BICC Data Networks in 1989, and that's when I first started getting involved in the 802.3 standards committee. And I actually really enjoyed the work we do there. BICC Data Networks then got purchased by a company called 3Com Corporation in 1992. And then in 2010 HP purchased 3Com. So I've actually not changed employer in 28 years now. Q. And you currently are an employee for HP? A. Correct. Employee for HPE now that the split has happened, but, yes.").

And the copyright date is inadequate as a matter of law to establish public availability and appears to be the *only* basis upon which Mr. Fisher states that he invented the Fisher system in 1996. 11/10/17 AM Tr. at 129:19–25 ("QUESTION: Mr. Fisher, you have in front of you what's been marked as Exhibit 1, which is three pictures. Is there any way that you can tell from these pictures when this access device was built? ANSWER: Well, this would have been assembled sometime in 1996 because of the date on the silk screen, on the motherboard."). Finally, Dr. Neikirk, a retained expert, only testified to the public availability of the system as a function of Mr. Fisher's testimony. As to the Fisher patents, HP has not suggested that the patents are coextensive with the system or cited any authority suggesting that the existence of patents establishes public use.

Additionally, as discussed above, Dr. Neikirk's trial testimony about public use was based on the copyright date and on Dr. Fisher's own testimony. Dr. Neikirk, however, is not a fact witness, and his only knowledge of the Fisher system's public availability stems from his discussions with the inventor and inspection of the system. Contrary to HP's assertions, a purported inventor cannot corroborate his testimony by having an expert repeat it at trial. If HP was correct, the corroboration requirement would be a nullity.

With respect to corroboration of the design of the Fisher system, HP was required to corroborate the invalidating functionality in the alleged prior art system. *Finnigan Corp*., 180 F.3d at 1366, 1369 (holding that published article failed to corroborate purported prior inventor's testimony because the article failed to disclose one important element); *Rosco*, 120 F. App'x at 836–37 (Fed. Cir. 2005) (non-precedential) ("testimony was insufficient to establish prior public knowledge or use" when corroborating physical example was missing one key element). For example, Mr. Fisher testified that his system would supply power to an "access point" by using an "authentication process" that would "keep the power limited" during authentication and then increase power. 11/10/17 AM Tr. at 132:2–24. But there is no corroborating evidence in the record that the Fisher system could perform these functions: HP has not identified a single document, any testimony, or demonstration of how the collection of components that formed the Fisher system functioned as Mr. Fisher claimed.

Instead, at trial, HP displayed an access point motherboard, access point, and access point mounting bracket from the first generation Fisher system. Docket No. 102-1; 11/10/17 AM Tr. at 128:24–131:19. But the authentication server and the hub/switch that purportedly performed the power up, detection, and authentication functions Mr. Fisher testified to were never presented to the jury. In fact, the components Mr. Fisher brought to his deposition and that HP brought to trial did not even relate to the version of the system that had staged power up, detection, and authentication functions. Those functions were allegedly present in the second generation of Mr. Fisher's system, but Mr. Fisher only brought first generation components to trial. 11/10/17 AM Tr. at 131:6–15, 135:24–136:14 ("this was a prototype that existed prior to us building it into the hub . . . there's pieces that I don't have here, which was the second generation of this stuff, that would detect whether or not it was an Ethernet or a PoE . . . I don't have that with me").

The Fisher patents also do not corroborate that the Fisher system included an authentication method similar to that in the '930 patent's "low level current" detection. Fisher and 3Com had every incentive to disclose all important elements of their system in their patent applications, both to allow for the broadest patent protection, and because it was required at the time by the "best mode" requirement.[4] *Eli Lilly and Co. v. Barr Laboratories, Inc*., 251 F.3d 955, 963, 58 U.S.P.Q.2d 1869 (Fed. Cir. 2001) ("The best mode requirement creates a statutory bargained-for-exchange by which a patentee obtains the right to exclude others from practicing the claimed invention for a certain time period, and the public receives knowledge of the preferred embodiments for practicing the claimed invention."). Therefore, if the staged power up, detection, and authentication functions to which Mr. Fisher testified were actually in the system he had developed, it is highly likely that those functions would have been mentioned in the Fisher patents. But none of Fisher's patents says anything about those functions. 11/10/17 AM Tr. at 136:20–137:7; Docket Nos. 99-12, 99-14, 99-14, 99-16.

At best, Mr. Fisher provided uncorroborated testimony that his system performed "staged powering up" with a "current limit" to perform "detection and authentication" for "determining whether or not an access point was able to accept Power over Ethernet." The jury had no basis for a finding of invalidity in the absence of corroboration. *Rosco*, 120 F'Appx at 837. Again, that HP could not corroborate the important details of the invention at trial is another reason that the Fisher system does not constitute prior art.

[4] The America Invents Act ("AIA") eliminated best mode as a basis for invalidity and unenforceability defenses under 35 U.S.C. § 282.

C. Estoppel

Before trial, Network-1 moved for partial summary judgment of estoppel on certain of HP's invalidity defenses because HP had participated in an IPR, which resulted in a Final Written Decision that the '930 patent was not invalid.

The plain language of § 315(e)(2) suggests that estoppel applies to certain non-petitioned grounds—grounds that a party failed to raise in an IPR but reasonably could have done so. When a party has knowledge of an invalidity position that *could* be included in an IPR petition but it *chooses* to omit that ground from its filing, estoppel attaches because it "reasonably could have raised" the invalidity ground in its IPR. To find otherwise would frustrate the litigation efficiencies the AIA was designed to produce and would call into question this Court's decision to stay this case pending IPR.[5] See Lead Case, Docket No. 410; *NFC Tech. LLC v. HTC Am., Inc.*, No. 2:13-CV-1058-WCB, 2015 WL 1069111, at *4 (E.D. Tex. Mar. 11, 2015) ("Giving the agency the authority to consider the validity of patents in the *inter partes* review process was designed in large measure to simplify proceedings before the courts and to give the courts the benefit of the expert agency's full and focused consideration of the effect of prior art on patents being asserted in litigation."); *Cobalt Boats, LLC v. Sea Ray Boats, Inc.*, No. 2:15CV21, 2017 WL 2605977, at *3 (E.D. Va. June 5, 2017) ("It would waste this Court's time to allow a stay for a year during IPR proceedings and then review invalidity arguments that Defendants could (and perhaps should) have raised in their IPR petition."). Indeed, the Court struggles to see how the AIA could "limit counterproductive litigation costs" if the AIA permits a petitioner to file an IPR on a set of selected grounds and obtain a stay of the district-court proceedings—only for the petitioner to ask this Court

[5] The Court also stayed this case pending covered business method review at the request of now-dismissed Defendants Sony Corporation, Sony Corporation of America and Sony Electronics, Inc. (Lead Case, Docket No. 558).

and a jury to review invalidity grounds that it could have raised at the PTAB once the stay is lifted. H.R. Rep. 112–98, pt. 1, at 40 (2011), 2011 U.S.C.C.A.N. 67, 69.

Moreover, applying estoppel only to instituted grounds would effectively read out the "reasonably could have raised" language from the statute. *See Oil-Dri Corp. of Am. v. Nestle Purina Petcare Co.*, No. 15-CV-1067, 2017 WL 3278915, at *8 (N.D. Ill. Aug. 2, 2017) ("Under Purina's reading of the statute, the 'reasonably could have raised' language would come into play where a petitioner raises a ground in a petition, the PTAB institutes IPR on that ground, the petitioner abruptly changes course and fails to pursue that ground before the PTAB post-institution, and then later the petitioner changes course once again and seeks to raise that invalidity ground in federal court. The Court has difficulty understanding why a party would pursue such a strategy."). Under HP's reading, grounds that the petitioner "raised" and grounds that "reasonably could have been raised" are coextensive. *See* Docket No. 110 at 11–12. Such an interpretation should be rejected at least because it "violat[es] the rule of statutory construction that Congress does not use unnecessary words." *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1345 (Fed. Cir. 2010) (citing *United States v. Menasche*, 348 U.S. 528, 538–39 (1955)); *Sharp v. United State*s, 580 F.3d 1234, 1238 (Fed. Cir. 2009) ("We therefore reject [an] interpretation, which would violate the canon that we must 'give effect, if possible, to every clause and word of a statute' and should avoid rendering any of the statutory text meaningless or as mere surplusage.").

A number of districts—including this one—have adopted a similar view of the AIA estoppel provision. *See Biscotti Inc. v. Microsoft Corp.*, No. 2:13-cv-01015-JRG-RSP, 2017 WL 2526231, at *3 (E.D. Tex. May 11, 2017) ("Section 315(e) estops Microsoft from asserting at trial . . . grounds not included in a petition that a 'skilled searcher conducting a diligent search reasonably could have been expected to discover. . . .' ") (citing 157 Cong. Rec. S1375 (daily ed.

Mar. 8, 2011) (statement of Senator Jon Kyl)); *Oil-Dri Corp.*, 2017 WL 3278915, at *8; *Cobalt Boats*, 2017 WL 2605977, at *2–3; *Douglas Dynamics, LLC v. Meyer Prods. LLC*, No. 14-cv-886-JDP, 2017 WL 1382556, at *4 (W.D. Wis. Apr. 18, 2017), *reconsideration granted in part on other grounds*, No. 14-cv-886-JDP, 2017 WL 2116714 (W.D. Wis. May 15, 2017); *Parallel Networks Licensing, LLC v. IBM Corp*., No. 13-2072, 2017 WL 1045912, at *11–12 (D. Del. Feb. 22, 2017) (Jordan, J.), appeal filed, No. 17-2115 (Fed. Cir. May 31, 2017); *Clearlamp, LLC v. LKQ Corp*., No. 12 C 2533, 2016 WL 4734389, at *7–8 (N.D. Ill. Mar. 18, 2016).

The Court is not persuaded by the reasoning in the cases holding to the contrary. *See, e.g.*, *Verinata Health, Inc. v. Ariosa Diagnostics, Inc*, No. 12-CV-05501-SI, 2017 WL 235048, at *3 (N.D. Cal. Jan. 19, 2017) ("limiting IPR estoppel to grounds actually instituted ensures that estoppel applies only to those arguments, or potential arguments, that received (or reasonably could have received) proper judicial attention."); *Koninklijke Philips N.V. v. Wangs All. Corp.*, No. CV 14-12298-DJC, 2018 WL 283893, at *4 (D. Mass. Jan. 2, 2018). In one such case, for example, the District of Delaware limited estoppel because it could not "divine a reasoned way around the Federal Circuit's interpretation in *Shaw*," noting that its decision "confound[ed] the very purpose of [PTAB] parallel administrative proceedings." *Intellectual Ventures I LLC v. Toshiba Corp.*, 221 F. Supp. 3d 534, 553–54 (D. Del. 2016). In *Shaw*, the Federal Circuit held that "the plain language" of 35 U.S.C. § 315(e) prohibited the application of estoppel to grounds that were *raised* in a petition but were not instituted by the PTAB. *Shaw Indus. Grp., Inc. v. Automated Creel Sys., Inc.*, 817 F.3d 1293, 1300 (Fed. Cir. 2016). *Shaw* does not speak to the fate of grounds that were not raised in an IPR petition, and the Court agrees with the views expressed by numerous other courts that *Shaw* does not limit the application of estoppel to non-petitioned grounds.

Further, the fact that HP sought joinder with Avaya's IPR does not mean that HP could not have reasonably raised different grounds from those raised by Avaya. And whether to join an IPR and assert identical or different prior art—with the associated estoppel ramifications—was a decision for HP to make. Indeed, "[a]llowing [HP] to raise arguments here that it elected not to raise during the IPR would give it a second bite at the apple and allow it to reap the benefits of the IPR without the downside of meaningful estoppel." *Parallel Networks Licensing*, 2017 WL 1045912, at *12.

Only patents and printed publications can be submitted to the PTAB for review in an IPR. 35 U.S.C. § 311(b) ("SCOPE. – A petitioner in an *inter partes* review may request to cancel as unpatentable 1 or more claims of a patent only on a ground that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications."). Before trial, the Court ruled that each invalidity ground disclosed in HP's invalidity contentions on December 19, 2012 (Lead Case, Docket No. 811-2)—served almost eight months before HP filed its IPR on August 6, 2013 (Lead Case, Docket No. 811-5)—were grounds that reasonably could have been raised in the IPR.

HP was permitted to present an invalidity theory at trial based on the Fisher system because the Fisher system could not have been raised in an IPR. But, as determined above, HP failed to meet its burden to prove that the Fisher system constitutes prior art. Because HP has no remaining invalidity positions that are not estopped, judgment as a matter of law on invalidity is **GRANTED**.[6]

[6] Because the Court concludes that estoppel attaches to HP's invalidity positions, it does not reach the Network-1's remaining technical arguments.

II. NETWORK-I'S MOTION FOR NEW TRIAL ON INFRINGEMENT (DOCKET NO. 98)

In its second motion, Network-1 seeks a new trial on infringement because the jury's noninfringement verdict was against the great weight of the evidence. Specifically, Network-1 contends that (1) a finding that HP's detection current is not a "low level current" would be against the great weight of the evidence and (2) a finding that no HP accused product used a "main power source" would be against the great weight of the evidence.

A. Low level current

The Court construed "low level current" as "a non-data-signal current that is sufficient to begin start up of the access device but that is not sufficient to sustain the start up." Lead Case, Docket No. 693 at 12. Specifically, the Court explained that "[t]he current need not be sufficient to result in a completed start up and thus the prior construction from D-Link and Cisco must be clarified. The current must be sufficient to "begin start up" rather than "cause start up," thus eliminating any implication that the current must be sufficient to result in a completed start-up." *Id.* at 11.

According to Network-1, it presented compelling evidence that the HP detection current begins start up of the access device in the same way as the "low level current" in the '930 patent preferred embodiment: It reaches at least one component in the access device that begins to start up. Docket No. 98 at 4. Network-1 points to the trial testimony of its expert, Dr. Knox, in which he explained that HP's detection current causes multiple components in an access device consume power and begin to start up, including center tap transformers, bridge diodes, capacitors, and integrated circuits. *Id.* at 4–5. Network-1 also identifies trial testimony from HP's witness, Mr. David Tremblay, in which he agreed that several of these components consume power and work during the detection phase. *Id.* at 6 (citing 11/9/17 AM Tr. (Tremblay redirect) 70:20–71:4).

In response, HP takes the position that its detection currents are too low to begin start up. According to HP, the only current that is sent by HP devices which is sufficient to begin start up of the access device is also sufficient to sustain the start up, so these currents do not meet the low level current limitation. Docket No. 109 at 17–18. In support, HP cites to the testimony of its expert Dr. Davis, who testified that the HP products do not infringe because "they do not deliver a current sufficient to begin start up of the access device but not sufficient to sustain start up." *Id.* at 14 (citing 11/9/17 PM Tr. at 12:15–20). HP cites Dr. Davis's testimony that all of HP's devices comply with the 802.3af standard, which he suggests requires a detection current between 2.9 and 10 V. Docket No. 109 at 14. Dr. Davis further testified that these detection voltages are not enough to even begin the start up of the access device because the access device must "receive 30 volts and whatever current is associated with it in order to turn on and begin to operate, to begin startup." *Id.* HP also points to Dr. Davis's testimony about an undervoltage lockout, which "prevents all power, any power from being delivered to the access device unless and until the voltage associate with that power is at least 30 volts." *Id.* Dr. Davis testified that, when the voltage of any current sent is below 30V, no power goes to the operational circuitry, so the access device cannot begin start up. 11/9/17 PM Tr. at 44:19–21.

HP also cites to Dr. David Dwelley's testimony, in which he testified that, during detection, the circuitry in the access device ("PD") "really doesn't do anything." 11/9/17 AM Tr. (Dwelley) at 115:5. Dr. Dwelley likens the operational circuitry to a "picture on the wall" or "passive actor" in the detection process. *Id.* at 115:16–25. HP also points to the testimony of Dr. Tremblay, who testified that the detection currents "are purely going to the isolated side of the circuitry in the IP phone" and that "the detection phase happens before the IP phone or any access device begins to start up." *Id*. at 21:7–9.

Network-1 in its reply suggests that the Davis, Dwelley, and Tremblay testimony are only "general conclusions" from HP witnesses that, when the detection current is applied, "nothing is delivered to the access device itself." Docket No. 115 at 5. But, according to Network-1, HP has not presented any evidence that the components HP identifies as affected by the detection current (the transformers, capacitor, PoE chip, etc.) do not fall within the Court's definition of "access device" or are not used when the device is fully operational. *Id.* Network-1 argues that "HP's complete lack of specific evidence and argument certainly cannot overcome the great weight of the evidence presented by Network-1, which includes admissions by HP's own witnesses (Dr. Davis and Mr. Tremblay) that these components are 'operational circuitry' 'used during the operation of the access device,' and are "an important part of the operation of this access device." *Id.* (citing 11/9/17 PM Tr. (Davis) at 87:20–89:11; 11/9/17 AM Tr. (Tremblay) at 63:18–64:25; 66:3–67:13).

Specifically, in response to Dr. Dwelley's testimony, Network-1 points out that Mr. Dwelley agreed at trial that several access device components "do . . . work during the detection phase." 11/8/17 AM Tr. (Tremblay) at 70:20–71:4; *id*. at 130:25–132:1 ("[t]he detection current must charge that capacitor before detection can proceed").

Even if the Court agreed that Network-1 presented credible evidence that the HP accused devices meet the "low level current" limitation, the jury was likewise presented with HP's evidence that it did not. The jury was entitled to credit Dr. Davis and Mr. Dwelley's testimony to support its finding, even if Mr. Tremblay's testimony was contradictory, and such a finding is not against the great weight of the evidence. The Court does not substitute its judgment for that of the jury on

a new trial motion.[7] *See Conway*, 610 F.2d at 363. Accordingly, Network-1's motion for a new trial based on the "low level current" limitation is **DENIED**.

B. Main power source

Network-1 contends that two types of accused switches, modular switches and switches with redundant power supplies, both used a single power source that provided power for both the switch itself and for the detection current. The '930 claim language includes two requirements for a "main power source": (1) "supply power to the data node," i.e., the switching functionality, and (2) "delivering a low level current from said main power source to the access device." '930 patent at 4:56–62.

For modular switches, Network-1 points to testimony from HP witnesses that the power consumed inside the switch comes from a single power supply. 11/9/17 AM Tr. (Tremblay cross) at 50:22–51:1, 47:6–17, 48:20–49:10 ("all of the power" comes from "that output, that DC power"), 49:16–22, 51:2–8 ("Q. Why didn't you tell the jury that in your direct examination? A. We did not talk about this particular power supply in the direct examination."), 45:14–22.

For switches with redundant power supplies, Network-1 contends that the evidence proved that each supply (the primary and the redundant) both individually perform the two "main power

[7] Network-1 also suggests that it is entitled to a new trial because HP's counsel argued against the Court's claim construction. *See* Docket No. 98 (citing 11/13/17 All Day Tr. at 115:15–19; *id*. at 115:24–25 ("at 10 volts forever, it's never going to start up"). Network-1 also points to HP witness testimony that it believes is contrary to the Court's constructions. *See* Docket No. 98 (citing11/9/17 AM Tr. (Tremblay cross) at 57:3–9(" 'begin start up' . . . refer[s] to the point when the device gets operational power and begins to do its operational functions"); *id.* (Tremblay direct) at 23:24–25:7 ("we know that it's not beginning to start up the access device" because "the phone is not on. . . .. There's no display. Can't make a phone call with it. It's . . . nonoperational"); *id.* at 24:9–25, 26:25–27:13 (the ancillary circuitry in the access device visible to a user also needed to actually turn on and start operating—i.e., "lights turning on . . . red light is turned on"); *id*. at 25:20–23 ("although there's current being sent, the phone is not usable"); *id*. at 19:4–17 (based on HP's detection current, [the phone] is not functioning. You can't make phone call with it"); 11/9/17 PM Tr. (Davis direct) at 18:3–13 ("the way this low level current is going to work" is that "it's going to start up the access device")). However, in each of the cited instances, Network-1 did not object when the testimony was elicited. Network-1 waived any objections by failing to object. *See SSL Servs., LLC v. Citrix Sys., Inc*., 940 F. Supp. 2d 480, 492 (E.D. Tex. 2013) (Plaintiff "waived any objection it might have had to the testimony presented at trial because it failed to object to such testimony during the direct examination at trial.").

source" functions. 11/8/17 AM Tr. (Tremblay via deposition) at 77:2–17 ("[T]he 12-volt is used for the majority of the switching side . . . The 54 volts will be used for PoE-related circuity, such as applying current and voltage in the detection process."); 11/7/17 AM Tr. at 121:8–19, 124:7–17; 11/7/17 PM Tr. at 170:11–13, 171:3–5.

Network-1 also argues that the remaining, non-modular switches and switches without redundant power supplies can be categorized as either structure A or structure B. Docket No. 98 at 14 (citing 11/9/17 PM Tr. (Davis cross) at 107:6–13). For both of these structures, as evidence of a single power supply, Network-1 points to testimony from Dr. Davis to "confirm" that one power supply provides two isolated voltages, one for the detection current and one for the switch. *Id.* at 14–15 (citing 11/9/17 PM Tr. at 115:10–22; *id*. at 110:7–12). Network-1 also points to HP documentation indicating that the HP products use a single internal power supply. *Id.* at 15 (citing Docket No. 98-12 at 79, 83–84, 88, 98, 165).

Conversely, HP points to testimony from Brian Dowling, a VP of Engineering at HP Enterprise: "Q. Is there one power supply that powers both this – the switchboard and the PoE board in the HP Power over Ethernet switches? A. No." Docket No. 109 at 9 (citing 11/8/17 PM Tr. (Dowling) at 106:12–15). HP points to similar testimony from Mr. Tremblay and its expert, Dr. Davis. *See id.* at 9–11.

The jury weighs and determines the credibility of the evidence, and it was presented sufficient evidence from which to conclude that the HP products used more than one power source. *See, e.g.,* 11/9/17 AM Tr. (Tremblay) at 42:13–16 ("Q. Is there any one PoE switch that Hewlett-Packard makes where one power supply provides power both to the switch circuitry and also delivers the detection current? A. No, ma'am. There is no power supply that could do that."); *id.* at 36:8–11 ("Q. Okay. But not one of those [power sources] would do the functions of powering

the data node and delivering detection current? A. Absolutely not. There's no way that one power source can do both of those functions, no."); 11/9/17 AM Tr. (Davis) at 56:10–25 ("Q. Dr. Knox has at times suggested that the 12-volt and 50-volt power sources are really one just – just one power source with two outputs. He also testified otherwise as you saw, but he maintains now that this is really all just one power source. Do you believe Dr. Knox is correct about that? A. He is not correct that this represents one power supply, no. Q. Why not? A. The 12-volts power supply [and] the 50-volt power supply are isolated from one another."). The verdict was not against the great weight of the evidence, and the Court declines to substitute its judgment for that of the jury. *See Conway*, 610 F.2d at 363. Accordingly, Network-1's motion with respect to the "main power source" limitation is **DENIED**.

C. HP's Argument

In response to Network-1's motion, HP argues that Network-1 is not entitled to a new trial on infringement because it did not present competent evidence that the claims require "delivering a low level current from said main power source." Docket No. 109 at 7. HP's argument amounts to a JMOL-type inquiry regarding whether Network-1 met its burden to prove infringement at trial. Because the jury returned a noninfringement verdict, HP did not move for judgment as a matter of law of noninfringement, and this matter is not properly before the Court. Because the Court has rejected the basis raised by the movant Network-1 in its new trial motion, the Court declines to opine on whether Network-1 met its burden to prove infringement at trial.

* * *

Having considered Network-1's arguments for a new trial, the Court **DENIES** Network-1's motion for the reasons detailed above.

III. BENCH TRIAL ON INEQUITABLE CONDUCT

HP also advanced an inequitable conduct defense in this case. Lead Case, Docket No. 650. In its pleadings, HP identified one omission and four alleged misrepresentations by Network-1's representatives during Reexamination No. 90/012,401 ("the '401 reexam") proceeding that were allegedly intended to deceive the United States Patent and Trademark Office ("PTO" or "Patent Office"):

(1) Network-1's representatives failed to properly disclose the Cisco Markman Order to the examiners during the '401 reexam, knowing that if the Court's constructions for certain terms were applied, the claims would improperly broaden the scope of the original claims of the '930 patent. Lead Case, Docket No. 650 ¶ 52.

(2) Network-1 representatives stated that new claims 15 and 16 were not broader than original claim 6, although the representatives knew that claims 15 and 16 "attempt to erase . . . the claim construction for 'secondary power source' adopted in the Cisco Markman Order." *Id*.

(3) Network-1 representatives misrepresented "the Board's construction of 'low level current,' " to gain allowance of claim 21, which is "impermissibly broader than claim 6." *Id.* at ¶ 53.

(4) Network-1 representatives stated that new claims 22 and 23 were not broader than original claim 6, but Network-1 representatives knew that these claims make the "sensing" requirement "permissive rather than mandatory" and thus "impermissibly broader than claim 6." *Id.* at ¶¶ 54, 55. And

(5) Network-1 representatives stated that claim 23 was not broader than original claim 6, although the representatives knew that this claim eliminated "much of the 'providing' limitation of claim 6" and was therefore broader than claim 6. *Id.* at ¶ 55.

In HP's proposed findings of fact and conclusions of law submitted before the November 2017 jury trial, HP explained that "[t]he central legal issue in the inequitable conduct analysis is whether the Network-1 representatives omitted material information such as the Cisco Markman Order to the PTO and whether the omission and subsequent misrepresentations were made with the specific intent to deceive." Lead Case, Docket No. 1003.

The bench trial, originally set to occur once the jury had begun its deliberations, was instead conducted the day after the post-trial motions hearing. *See* 11/8/17 PM Tr. at 176:1–177:20. Before the trial began, Network-1 filed a motion to limit HP to the theories of inequitable conduct pled in HP's affirmative defense. Docket No. 128.

Inequitable conduct allegations are subject to the higher pleading standard of Fed. R. Civ. P. 9(b). "[T]he pleading must identify the specific who, what, when, where, and how of the material misrepresentation or omission committed before the PTO." *Exergen Corp. v. Wal-Mart Stores, Inc*., 575 F.3d 1312, 1328 (Fed. Cir. 2009). The pleading must, moreover, "include sufficient allegations of underlying facts from which a court may reasonably infer that a specific individual (1) knew of the withheld material information or of the falsity of the material misrepresentation, and (2) withheld or misrepresented this information with a specific intent to deceive the PTO." *Id.* at 1328–1329.

After hearing argument on Network-1's motion, the Court limited HP's inequitable conduct defense to the allegations pled in its Answer and the '401 reexam. Docket No. 147 at 7:3–9:5. Allowing HP to advance new, unpleaded inequitable conduct theories for the first time at trial would deprive Network-1 of an opportunity to fully investigate or defense against the merits of HP's claims. *See Fiber Sys. Int'l v. Applied Optical Sys*., 2010 U.S. Dist. LEXIS 67331, at *25–26 (E.D. Tex. July 7, 2010). Indeed, the heightened pleading requirement would be meaningless

if parties were free to present any new inequitable conduct theory for the first time at trial. At the very least, Rule 9(b)'s goal of providing defendants with fair notice of the precise nature of the claim against them would be undermined. *See, e.g., U.S. ex rel. Grubbs v. Kanneganti*, 565 F.3d 180, 190 (5th Cir. 2009) (noting that Rule 9(b) ensures the complaint "provides defendants with fair notice of the plaintiffs' claims, protects defendants from harm to their reputation and goodwill, reduces the number of strike suits, and prevents plaintiffs from filing baseless claims then attempting to discover unknown wrongs.").

Accordingly, the Court advised the parties that it would consider only evidence "related to the actual claims in the case" which arose from the '401 reexam. In light of the Court's ruling at trial and the above, Network-1's Motion to Preclude HP from Presenting Theories of Inequitable Conduct Beyond the Scope of HP's Complaint (Docket No. 128) is **GRANTED**.

With this background, the Court now sets forth its findings of facts and conclusions of law as required by Fed. R. Civ. P. 52(a).

I. FINDINGS OF FACT

A. Facts relating to the alleged omission of the Cisco Markman Order

(1) **Facts relating to materiality**

[FF1] Network-1 proposed new claims 10–23 during the '401 reexam. D97 at 856–59.

[FF2] As is the PTO's practice, examiners analyzed the scope of the claims to determine whether the new claims were impermissibly broader than the original claims. 5/15/18 Tr. (Bench Trial Transcript) (Doll) at 261:2–5; P230 (MPEP) at 369.

[FF3] The Court credits the evidence demonstrating that the Cisco Markman Order was not material to the examiners; analysis of claim scope and broadening for three reasons: (1) The Patent Office would not have relied on the district court's claim construction because the

Patent Office relies on a different claim construction standard in reexam; (2) the PTAB entered orders detailing the broadest reasonable interpretation of the claim terms of the '930 patent and ordered that the '401 reexam be conducted consistent with those orders; and (3) the Cisco Markman was affirmatively considered by the examiner.

(a) The Patent Office would not have relied on the district court's claim construction because the Patent Office relies on a different claim construction standard in reexamination

[FF4] Examiners in the Patent Office are required to apply a claim construction standard (i.e., the broadest reasonable interpretation, or "BRI") that is different from the standard applied in district court proceedings involving infringement. "Examiners are bound by the guidance in the MPEP, [i.e. the Manual of Patent Examining Procedure]," 5/15/18 Tr. (Doll) at 242:3–7, which explains that the Patent "Office does not interpret claims in the same manner as the Courts." P230 (MPEP) at 56 (citing Federal Circuit authority). This is because "[d]uring patent examination, the pending claims must be given their broadest reasonable interpretation consistent with the specification," but "[p]atented claims are not given their broadest reasonable interpretation during court proceedings involving infringement." *Id.*

[FF5] Because the Cisco Markman was a product of a district-court litigation in this Court and because the Court relied on the *Phillips* claim construction standard, the Cisco Markman Order would not have been material to the examiners' analysis.

[FF6] John Doll, Network-1's expert on Patent Office procedure, testified that the "Cisco Markman Order was [not] material to patentability in the reexam" because "the Patent Office is [required] to use the broadest reasonable interpretation when making patentability determinations" and, therefore, "an examiner in the '401 reexam" could not "have chosen to apply a different interpretation, a district court construction." 5/15/18 Tr. (Doll) at 241:17–243:9.

[FF7] Nicholas Godici, HP's expert on Patent Office procedure, likewise testified that "examiners understand that there is a different standard that is used in court than at the PTO," and "if the examiners were following the rules in the patent manual," "they would use the BRI" and "cannot use" "a construction . . . different from the BRI." 5/15/18 Tr. (Godici) at 211:13–20,191:8–12, 212:25–213:10.

[FF8] Both parties' technical experts also testified that the Patent Office applies the BRI, not the Cisco Markman constructions. 5/15/18 Tr. (HP's technical expert, Dr. Neikirk) at 189:11–18 (examiners cannot apply "a district court construction that is different from the broadest reasonable interpretation" because "[w]ithin the PTO you use the BRI"); Docket No. 148-2 ("Knox Tr.") at 41:13–17 ("my understanding [is] that [it] would be improper" to apply "constructions from the Cisco district court case")

[FF9] The PTAB stayed the '401 reexam until the PTAB completed IPR2013-00071. D97 at 597–99 (Order Staying Concurrent Ex Parte Reexamination). One purpose of the stay was to prevent the '401 examiners from making any determinations that would be inconsistent with the PTAB's own determinations. *Id.* at 598 ("Conducting the reexamination of the '930 patent concurrently with the instant proceeding . . . could potentially result in inconsistencies between the proceedings.").

[FF10] In the IPR, the PTAB considered the Cisco Markman Order and rejected the Court's constructions because they did not follow the broadest reasonable interpretation standard. Applying the broadest reasonable interpretation standard, the PTAB construed the claims differently from the Cisco Markman Order. For the claim term "secondary power source," the PTAB explained that the "district court in the Cisco litigation interpreted the terms such that the main power source and secondary power source must be 'physically separate.' " P502 (Decision:

Institution of Inter Partes Review) at 13. When "[a]pplying the broadest reasonable interpretation of the claim in light of the Specification, [the PTAB] did not interpret claim 6 as requiring the 'main power source' and 'secondary power source' to be physically separate." *Id.* at 13–14; D97 at 611–12 (Final Written Decision). Similarly, for the claim term "low level current," the PTAB explained that the "district court in the Cisco litigation interpreted the term to mean 'a current sufficient to cause the access device to start up, but not sufficient to sustain the start up." P502 at 8. But, "[a]pplying the broadest reasonable interpretation of the claim in light of the Specification, [the PTAB] interpret[ed] 'low level current' to mean a current (e.g., approximately 2[0] mA) that is sufficiently low that, by itself, it will not operate the access device." P502 at 10; D97 at 611 (Final Written Decision).

(b) the PTAB entered orders detailing the broadest reasonable interpretation of the claim terms of the '930 patent and ordered that the '401 reexamination be conducted consistent with those orders

[FF11] On May 22, 2014, the PTAB lifted the stay in the '401 reexam and ordered that the examiners take "action that is consistent with the Board's orders." D97 at 634 ("FURTHER ORDERED that the stay of Reexamination Control No. 90/012,401 is lifted so that any necessary action that is consistent with the Board's orders in Case IPR2013-00071 can be taken.").

[FF12] Because the PTAB's orders included its BRI claim constructions for the key claim terms, and the Cisco constructions were inconsistent with the PTAB's BRI constructions for these claim terms (P502 at 8, 10, 12–13), the examiners were prohibited from applying the Cisco constructions. The examiners were required to apply the PTAB's BRI constructions. 5/15/18 Tr. (Godici) at 200:22–25 ("Q. To be consistent with the Board's orders, the examiners would have used the Board's broadest reasonable interpretation, right? A. For those terms, yes."); 5/15/18 Tr. (Doll) at 245:3–9 ("Q. Now, an examiner in the reexam, after seeing this order, could they choose to apply different claim constructions from [those] in the PTAB's order? A. No. Q. Could they

choose to disregard the broadest reasonable interpretation and apply district court constructions? A. No.").

[FF13] Moreover, the PTAB's Order to the '401 examiners was not a mere suggestion. "The Patent Trial and Appeal Board is the reviewing authoritative body that reviews examiner's decisions with respect to patentability and renders decisions on them. It is very similar to the relationship between the Court of Appeals for the Federal Circuit and a district court." 5/15/18 Tr. (Doll) at 244:1–5; 5/15/18 Tr. (Godici) 193:22–23 ("Q. And when the Appeal Board gives an order, the examiners have to follow it, right? A. Generally, yes."); 5/15/18 Tr. (Doll) at 243:25–244:7 ("Q. Are examiners free to disregard orders from the PTAB? A. No.").

[FF14] Accordingly, because the examiners were explicitly ordered by the PTAB to conduct the reexam in a manner "consistent with the Board's orders" that set forth the PTAB's claim constructions for the '930 patent, and because the PTAB's constructions of the relevant claim terms were inconsistent with the corresponding constructions in the Cisco Markman Order, the examiners could have relied on the Cisco Markman Order's constructions, and the Order was not material to patentability in the reexam proceedings.

[FF15] The examiners in the '401 reexam were required to apply the BRI constructions for the key claim terms and the Cisco Markman Order could not have caused the examiners to change their minds and disallow the claims. If the examiners "followed the rules," the Markman Order "wouldn't have changed the outcome." 5/15/18 Tr. (Godici) at 191:13–192:2.

(c) the Cisco Markman was affirmatively considered by the examiner

[FF16] The evidence demonstrates that the examiners were aware of, and did consider, the Cisco Markman Order before allowing the newly proposed claims. Network-1 presented the newly proposed claims to the examiners in its July 25, 2014, Amendment and Reply. D97 at 856–59. Three days later, on July 28, 2014, Network-1 submitted an Information Disclosure Statement

requesting that the examiners "expressly consider" the cited documents including the Cisco Markman Order. D97 at 867, 861. Three days later, on July 31, 2014—before the examiners expressed their intent to allow the new claims on August 13, 2014 (D97 at 1399–1404)—the examiners confirmed that they did consider the Cisco Markman Order. The IDS form included instructions to the examiner: "EXAMINER: initial if reference considered." *Id.* at 1407. The examiner Peng Ke signed the form and initialed ("/PK/") next to the Cisco Markman Order. *Id.* He also added the confirmatory language "All references considered except where lined through." *Id.* The Cisco Markman Order was not lined through. *Id.*

[FF17] "[T]he Cisco Markman Order was not just disclosed on this IDS[;] it was affirmatively considered by the examiners," who "checked the block or initialed at the bottom that all of the documents in this IDS were considered." 5/15/18 Tr. at 205:14–25.

[FF18] The examiners in the '401 reexam would have readily recognized that the Cisco Markman Order was a district court claim construction order that is not material to the reexam. 5/15/18 Tr. (Godici) at 210:23–211:4. This is especially true because the document states in the caption that it is from the United States District Court from the Eastern District of Texas and because the first line in the text of the Order explains that it is an "Opinion construi[ing] the disputed terms" in the '930 patent. *See* D97 at 1357.

[FF19] Because the examiners were aware of the Cisco Markman Order and nonetheless concluded that the new claims were patentable, the Cisco Markman Order was not material to patentability. As Mr. Doll explained, "the examiners had the Cisco Markman order, they considered it, and they allowed the claims and confirmed the claims in the reexamination in light of, in view of, after considering the Markman order. Therefore, the Markman order by the definition set forth, could not be 'but-for' material." 5/15/18 Tr. at 246:9–14.

[FF20] Accordingly, for the reasons above, the Court credits the evidence favoring Network-1 on this issue and finds that the Cisco Markman was not material to the patentability of the claims.

(2) **Facts relating to omission**

[FF21] HP alleges that (1) Network-1 failed to properly disclose the "Cisco Markman Order as Network-1 was required to do under the MPEP" and, as a result, (2) it was "unlikely that the Examiners ever saw the Cisco Markman Order." Lead Case, Docket No. 1003 at ¶¶ 65, 63.

[FF22] The Court credits the testimony of HP's expert, Mr. Godici, who confirmed that "the Cisco Markman order was submitted to the Patent Office" and "affirmatively considered by the examiners. 5/15/18 Tr. (Godici) at 202:25–203:11; 205:14–25.

[FF23] The Cisco Markman Order was both (1) cited by the Patent Office and (2) submitted in an information disclosure statement.

(a) Cited by the Patent Office

[FF24] The Cisco Markman Order was "cited by the Office" at the outset of the '401 reexam in the July 24, 2012 Litigation Search Report. D97 at 387–388; 5/15/18 Tr. (Doll) at 238:8–240:8.

[FF25] The Litigation Search Report is a "search report that is performed to look for any litigation pending or passed, with respect to the patent that has been requested to be reexamined." 5/15/18 Tr. (Doll) at 238:1721.

[FF26] The '401 reexam file history includes a July 24, 2012 Litigation Search Report (D97 at 385–98) indicating that on July 24, 2012, "a paralegal in the CRU, which is the central reexamination unit [of the Patent Office], performed [a] search and sent it to the examiner who was the lead examiner responsible for the '401 reexamination." 5/15/18 Tr. (Doll) at 238:22–239:13.

[FF27] The "litigation search report shows that the Network-1 vs. Cisco Systems Markman order was cited to the examiner." *Id.* at 239:14–21; D97 at 388 (Litigation Search Report listing Cisco Markman Order as third cited document). Network-1's expert explained—in unrebutted and unchallenged testimony—that, after the Cisco Markman Order was cited by the Office in the Litigation Search Report, any duty to disclose the Cisco Markman Order was deemed to be satisfied under 37 C.F.R. § 1.555. 5/15/18 Tr. at 240:3–8 ("Q. -- did Network-1 have any further obligation to disclose the Cisco Markman order? A. No. Q. Did it have any further obligation to discuss the Cisco Markman order with the reexaminers? A. No.").

(b) Submitted in an IDS

[FF28] "An information disclosure statement is the most popular vehicle by which applicants can submit information to the Patent Office to be considered by a patent examiner." 5/15/18 Tr. (Doll) at 240:9–14.

[FF29] Network-1 submitted the Cisco Markman Order to the Office in the July 28, 2014 Information Disclosure Statement. D97 at 867, 861; 5/15/18 Tr. (Doll) at 240:15–241:11. Network-1's expert explained— in unrebutted and unchallenged testimony—that disclosure of this "IDS [is] a second independent way to also satisfy . . . any duty to disclose . . . the Cisco Markman order." 5/15/18 Tr. (Doll) at 241:12–16.

[FF30] HP's own expert testified that "[t]here is nothing improper about sticking a document like the Cisco Markman on an IDS." 5/15/18 Tr. (Godici) at 213:17–19.

[FF31] There was no reason for Network-1 to discuss the Cisco Markman Order with the examiners because, as described above, the Cisco Markman Order was not material to the patentability issue before the examiners. Instead, the PTAB's own BRI claim constructions controlled. *See* Knox Tr. at 41:13–24 (explaining that Network-1's representatives did not "discuss with the examiners . . . any constructions from the Cisco district court case" and instead

"discuss[ed] . . . the board's constructions" because the board's constructions were the constructions that applied); *id.* at 22:7–11 ("the district court's constructions from the Cisco case" did not "com[e] up" "during the interview" with the Patent Office "[s]ince it wouldn't be relevant"); *id.* at 37:12–17; 5/15/18 Tr. (Godici) 224:24–225:5.

[FF32] HP alleges that it is "unlikely that the Examiners ever saw the Cisco Markman Order." Lead Case, Docket No. 1003 at ¶ 63. This allegation is essential to HP's claim because the Cisco Markman Order cannot be but-for material (as the inequitable conduct standard requires) if the examiners were aware of the Cisco Markman order during the '401 reexam. But the undisputed evidence is clear that the examiners saw and considered the Cisco Markman Order.

[FF33] Examiners cannot simply choose not to look at information included in a properly submitted IDS. Instead, if an IDS is properly submitted (as was the July 28, 2014 IDS that included the Cisco Markman Order), then "the examiner has an obligation to consider the information." P508 (MPEP) at 4.

[FF34] Moreover, the '401 reexam file history includes a copy of the IDS signed and initialed by Peng Ke, lead examiner in the '401 reexam, expressly indicating that he considered the Cisco Markman Order. D97 at 1407. This was confirmed by both parties' experts. 5/15/18 Tr. (Godici) at 205:14–25 ("Q. Now, the Cisco Markman order was not just disclosed on this IDS, it was affirmatively considered by the examiners, true? A. Yes. It is my recollection that the examiner initialed -- checked the block or initialed at the bottom that all of the documents in this IDS were considered."); *id.* (Doll) at 247:8–12 ("[T]he significance of the signature is that the IDS was considered. The initials in the middle expanded portion where it shows /PK/, which are electronic initials, indicate the examiner specifically considered the Markman ruling set forth on this line.").

(3) **Facts relating to deceptive intent**

[FF35] The Court finds that Network-1 did not intend to deceive the Patent Office regarding the Cisco Markman Order based on both direct and circumstantial evidence.

(a) Direct evidence

[FF36] The only direct evidence on intent indicates that Network-1's representatives did not have any intent to deceive. The Court finds the testimony of Mr. Wieland, Dr. Knox, and Mr. Horowitz stating that they had "no deceptive intent" credible. *See* Docket No. 148-3 ("Wieland Tr.") at 82:12–20 ("I know I had no deceptive intent. I know that I didn't do anything that I would think anyone at the patent office or my community would be viewed as wrong."); Knox Tr. at 40:7–17 ("Q. Did you in any way intend to deceive the patent office? A. No, of course not. Q. Are you aware of anyone at Network-1 ever intending to deceive the patent office? A. Not that I'm aware of."); 5/15/18 Tr. (Horowitz) at 67:1–9 ("Q. Did you ever have the intent to deceive the Patent Office? A. No. Q. Are you aware of any act by anyone at Network-1 or on behalf of Network-1 that deceived the Patent Office? A. No.").

[FF37] HP did not present any direct evidence of deceptive intent. For example, HP did not point to any testimony from Network-1's representatives in the '401 reexam or any documents that suggest that the Cisco Markman was material to the examination or that Network-1 wanted to hide the Cisco Markman Order from the examiners.

(b) Circumstantial evidence

[FF38] The circumstantial evidence also demonstrates that Network-1's representatives had no intent to deceive.

[FF39] HP asserts that the Court should infer that Network-1's representatives intended to deceive the Patent Office because they (1) "knew that [the Cisco Markman Order] was material to the reexamination proceedings," and (2) "withheld it from discussions with the Examiners . . .

with the understanding that it would likely never be looked at." Lead Case, Docket No. 1003 at ¶ 65.

[FF40] The Court rejects both of HP's assertions which are refuted by credible evidence. As the Court found above, the Cisco Markman Order was not material to the reexam. And Network-1's attorneys in the '401 reexam, Sean Luner and Charles Wieland, would have known it was not material. Because Mr. Luner and Mr. Wieland are both licensed to practice before the Patent Office, 5/15/18 Tr. at 38:16–18; Wieland Tr. at 23:19–24:2, they would be aware of its rules and procedures, including the requirement that the Patent Office "does not interpret claims in the same manner as the courts." P230 (MPEP) at 56. And because they were both involved in the IPR proceedings, they would be aware of the PTAB's Order instructing the reexam examiners to act "consistent with" its Order that included the PTAB's BRI claim constructions, not the Cisco Markman constructions. D97 at 634.

[FF41] As the Court found above, Network-1's representatives did not withhold the Cisco Markman Order with the understanding it would never be looked at. To the contrary, they knew that the examiners would look at the Cisco Markman Order because they included it in an IDS (D97 at 867, 861, 5/15/18 Tr. (Doll) at 249:7–250:22), and they would have been aware of the requirement that "the examiner has an obligation to consider the information" included in an IDS. P508 (MPEP) at 4.

[FF42] There was no reason for Network-1 to discuss the Cisco Markman Order with the examiners because it was not material to the patentability issue before the examiners. Knox Tr. at 41:13–24; 5/15/18 Tr. (Godici) at 224:24–225:5

[FF43] The evidence reasonably supports an inference that points to a lack of deceptive intent. "If more than one reasonable inference is possible, intent to deceive cannot be found."

TransWeb, 812 F.3d at 1304. Here, the evidence reasonably supports an alternative inference that points to a lack of deceptive intent—that Network-1's attorneys believed the PTAB's constructions were the operable constructions in the reexam and that the Cisco constructions were not material.

[FF44] Network-1's attorneys explicitly confirmed this belief in their submission to the examiners: "Based on the Board's direction . . . the constructions to be used in this reexamination proceeding are the constructions adopted by the Board." D97 at 664 (Network-1's Amendment and Reply).

[FF45] Network-1's disclosure of the Cisco Markman Order is inconsistent with deceptive intent. If Network-1's representatives intended to deceive the Patent Office by concealing the Cisco Markman Order, they would have avoided bringing the Cisco Markman Order to the examiners' attention. But they did bring it to the examiners' attention by disclosing it in the July 28, 2014 IDS. D97 at 867, 861.

[FF46] Network-1's disclosure is inconsistent with an intent to conceal for two additional reasons: (1) There was no requirement for Network-1 to bring the Cisco Markman Order to the examiners' attention at all because it was already cited in the Litigation Search Report, D97 at 387–88, 5/15/18 Tr. at 238:9–240:8; and (2) Network-1 brought the Cisco Markman Order to the attention of the examiners during the exact time period when the newly proposed claims were pending before the examiners. 5/15/18 Tr. (Doll) at 249:6–250:22.

B. Facts relating to alleged misrepresentation about Claims 15 and 16

[FF47] HP alleges that Network-1's statement to the Patent Office that "new dependent claim 15 . . . and new dependent claim 16" "do not broaden the scope of original claim 6" was an intentional misrepresentation because the statement is not "consistent with the Cisco Markman Order['s]" construction of the "term 'secondary power source.' " Lead Case, Docket No. 650 at

¶ 52; Lead Case, Docket No. 1003 at ¶ 54; 5/15/18 Tr. (HP Opening) at 14:12–16, 15:4–12; *id.* (Neikirk) at 87:3–93:12.

(1) **Not a misrepresentation**

[FF48] The Court finds that Network-1's statement that new claims 15 and 16 do not broaden original claim 6 was not a misrepresentation. In the same document that Network-1 made this statement, Network-1 explicitly stated that it was applying the BRI construction adopted by the PTAB. D97 at 664 ("Based on the Board's direction in IPR2013-00071, the constructions to be used in this reexamination proceeding are the constructions adopted by the Board in IPR2013-00071."). It is undisputed that claims 15 and 16 are not broader than claim 6 when "secondary power source" is given the BRI construction adopted by the PTAB.

[FF49] The PTAB's construction was that "the main power source and secondary power source" in claim 6 do not need to be, but can be, "physically separate." P502 at 13–14.

[FF50] Applying this construction, claim 6 encompassed within its scope (a) methods where the main and secondary power sources were physically separate and (b) methods where the main and secondary power sources were not physically separate. Claims 15 and 16 narrowed the claim scope by excluding (a) methods where the main and secondary power sources were physically separate. Claim 15 required the two power sources to be the "same source of power." *See* claim 15 ("Method according to claim 6, wherein said secondary power source is the same source of power as said main power source."). And claim 16 required the two power sources to be the "same physical device." *See* claim 16 ("Method according to claim 6, wherein said secondary power source is the same physical device as the main power source.").

[FF51] Accordingly, under the PTAB's construction that Network-1 said it was applying, new claims 15 and 16 narrowed the scope of claim 6 and were thus not broader than

claim 6. *See* Knox Tr. 42:2–19 (explaining that claims 15 and 16 are not broader than claim 6 under the PTAB's construction); 5/15/18 Tr. (Neikirk) at 111:9–13 (admitting he "never compared [claims 15 and 16] to the PTAB's broadest reasonable interpretation" and instead "only compared [them] to the Cisco Markman").

(2) **Not material to patentability**

[FF52] HP contends that Network-1's statement is material to patentability if the Cisco Markman Order's construction for "secondary power source" is applied to the claims. However, as the Court found above, the Cisco Markman Order's construction for "secondary power source" did not apply in the reexam proceedings. Moreover, it would have been improper to apply the Cisco Markman Order's construction for "secondary power source" in the reexam because the PTAB ordered the examiners and Network-1 to proceed consistent with the PTAB's BRI constructions, and the Cisco Markman Order's construction was inconsistent with the PTAB's BRI construction.

[FF53] HP's expert agreed that, "[t]o be consistent with the Board's orders, the examiners would have used the Board's broadest reasonable interpretation" for "secondary power source." 5/15/18 Tr. (Godici) at 199:19–200:25. He further agreed that the examiners "would have had to use the BRI standard rather than the Cisco standard for those particular claim terms, and then they would have made their decision with respect to broadening based on their analysis." *Id.* at 201:8–16. As set forth above, it is undisputed that, under the BRI construction from the PTAB, new claims 15 and 16 were not broader than original claim 6.

[FF54] A statement is but-for material to patentability only if, in the absence of the statement, the Patent Office would have found a claim unpatentable. *See Ohio Willow Wood Co. v. Alps S., LLC*, 813 F.3d 1350, 1357 (Fed. Cir. 2016). HP has not demonstrated that, in the

absence of Network-1's statement, the Patent Office would have found claims 15 or 16 (or any other claim) unpatentable. "[T]he patent owner makes [the] statement" that "the newly proposed claims are not broader than the original claims" "virtually in every reexamination" because they are advocating for their position. 5/15/18 Tr. (Doll) at 252:8–12. This is a legal argument or conclusion from the Patent Owner (not a misrepresentation of fact, like a falsified date or made-up conversation between inventors).

[FF55] Examiners do not merely accept and adopt a Patent Owner's arguments or conclusions. Wieland Tr. at 266:10–14. Instead, examiners always perform their own independent analysis of the issues—in this case, performing their own "broadening analysis" comparing "the original claim . . . language" to the "new claim language." 5/15/18 Tr. (Doll) at 261:2–11.

[FF56] Because examiners perform an independent analysis and do not rely on a Patent Owner's own conclusion for legal issues like broadening, the Patent Office would have performed the same analysis and reached the same conclusion in the absence of Network-1's statement. Network-1's statement was therefore not material to patentability.

(3) **No intent to deceive**

[FF57] The Court finds that Network-1's representatives had no intent to deceive the Patent Office. Network-1's representatives credibly testified that they had no intent to deceive. Wieland Tr. at 82:12–20; Knox Tr. at 40:7–17; 5/15/18 Tr. (Horowitz) at 67:1–9. HP provided no contrary evidence that causes the Court to question the truth of this testimony.

[FF58] Network-1's representatives reasonably believed they were supposed to apply the PTAB's construction, not the Cisco construction. They were also explicit that they were applying the PTAB's construction, not the Cisco construction. And when the PTAB's construction is applied, it is undisputed that Network-1's statements were true.

C. Facts relating to alleged misrepresentations about Claim 21

[FF59] The district court in the Cisco case construed "low level current" in claim 6 as "a current sufficient to cause the access device to start up, but not sufficient to sustain the start up." P502 at 8. The PTAB rejected the Cisco district court construction and determined that the broadest reasonable interpretation of "low level current" is "a current (e.g., approximately 2[0] mA) that is sufficiently low that, by itself, it will not operate the access device." P502 at 10; D97 at 611. When Network-1 proposed new claim 21, it incorporated the requirements of the PTAB's "low level current" construction into the claim language of claim 21: "current" that is "insufficient, by itself, to operate said access device."

[FF60] HP makes two inequitable conduct allegations regarding claim 21 that the Court addresses in turn.

(1) **Incorporating the PTAB's construction instead of the Cisco construction**

[FF61] First, the Court addresses HP's argument that, by incorporating into claim 21 the PTAB's broader construction for "low-level current" instead of the narrower Cisco construction, Network-1 "sought to broaden the scope of the '930 patent" "in direct contrast to the scope of the claims assigned in the Cisco Markman Order." Lead Case, Docket No. 1003 at ¶¶ 55–56; 5/15/18 Tr. (Neikirk) 75:4–77:7. Like HP's allegations concerning "secondary power source," this allegation rests on the incorrect premise that the Cisco Markman Order controlled the analysis in the reexamination proceeding.

(a) Not a misrepresentation

[FF62] There was no misrepresentation because Network-1 and its expert Dr. Knox (in an accompanying declaration) were clear they were adopting the PTAB's broadest reasonable interpretation of "low level current," not the construction in the Cisco Markman Order. D97 at 664 (Amendment and Reply); *id.* at 738 (Knox Declaration) ("It is my understanding that, based

on the Board's direction in IPR2013-00071, the constructions to be used in this reexamination proceeding are the constructions adopted by the Board in I PR2013-00071.").

(b) Not material to patentability

[FF63] Network-1's reliance on the PTAB's construction for "low level current," instead of the Cisco Markman Order's construction, was not material to patentability in the reexam because Network-1 and the examiners were required to apply the PTAB's construction and were prohibited from applying the Cisco construction. 5/15/18 Tr. (Godici) at 188:22–189:2, 189:19190:1, 191:8–12, 199:19–200:25, 200:22–25; 5/15/18 Tr. (Neikirk) at 77:24–78:6.

[FF64] Because the Cisco construction for "low level current" did not apply in the reexam, it "wouldn't have changed the outcome" and "is not material." 5/15/18 Tr. (Godici) at 191:13–192:2, 199:19–200:25, 201:8–16; 5/15/18 Tr. (Neikirk) at 110:13–20.

[FF65] In support of its materiality argument, HP relies on this Court's ruling granting HP's motion that the "current" claimed in claim 21 is broader than the "low level current" in claim 6. 5/15/18 Tr. 85:9–86:1 (referring to Lead Case, Docket No. 1035). But that ruling has no applicability here because, as the Court already held, "the basis for Defendants' Motion is the Court's construction, not the Board's construction." Lead Case, Docket No. 1035 at 11. And the examiners "would have made their decision with respect to broadening based on [the Board's construction]," not the Court's construction. 5/15/18 Tr. (Godici) at 201:8–16.

(c) No intent to deceive

[FF66] The Court finds that Network-1's representatives had no intent to deceive the Patent Office. Wieland Tr. at 82:12–20; Knox Tr. at 40:7–17; 5/15/18 Tr. (Horowitz) at 67:1–9.

[FF67] Network-1 reasonably believed it was supposed to apply the PTAB's construction, not the Cisco construction. Knox Tr. at 43:4–17 ("the construction for 'low-level current' that was used here is consistent with the construction of the patent office and the

construction, therefore, that, in my understanding, I'm supposed to use."). Moreover, Network-1 was explicit that it was applying the PTAB's construction, not the Cisco construction. D97 at 664, 738; Knox Tr. at 43:25–44:19.

(2) **Falsely incorporating the PTAB's construction**

[FF68] HP also alleges that, when Network-1 incorporated the PTAB's construction for "low-level current" into claim 21, it failed to do so word-for-word and its representatives, therefore, made "false and material misrepresentations" when they told the examiners that "Claim 21 replaces the phrase 'low level current' with the Board's construction of 'low level current.' " Lead Case, Docket No. 650 at ¶ 53; Lead Case, Docket No. 1003 at ¶¶ 55–56; 5/15/18 Tr. (HP Opening) at 14:20–25, 15:14–22.

[FF69] HP identifies the following two statements as the purported misrepresentations: "Claim 21 . . . replaces the phrase 'low level current' with the Board's construction of 'low level current' ('a current that is insufficient, in itself, to operate the access device'). Replacing a phrase with the construction of the phrase does not change the scope of the claim in which the phrase is found and therefore does not broaden the scope of the claim." D97 at 722 (Network-1's Amendment and Reply).

[FF70] "Proposed claim 21 . . . replaces the phrase 'low level current' with the Board's construction of that phrase, which, by using the definition of the phrase, does [not] broaden the scope of the original claim 6." D97 at 831 (Declaration of James Knox) at 104; Knox Tr. at 27:1–16.

[FF71] HP alleges that a "current that is insufficient in itself to operate the access device," i.e., the language Network-1 included in claim 21, does not reflect the PTAB's construction because the PTAB's construction includes different wording—"sufficiently low"

instead of "insufficient" and an "e.g." phrase, "(e.g., approximately 20 mA)." See D97 at 611 (the PTAB "interpret[s] 'low-level current' to mean a current (e.g., approximately 20 mA) that is sufficiently low that, by itself, it will not operate the access device."). According to HP, Network-1's paraphrasing of the PTAB's construction was "intended to deceive the USPTO" into allowing an improperly broadened claim. Lead Case, Docket No. 650 at ¶ 53; Lead Case, Docket No. 1003 at ¶¶ 55–56.

[FF72] For the reasons set forth below, the Court rejects HP's allegation. HP has not proved any of the necessary requirements of inequitable conduct—i.e., that Network-1's statements about claim 21 were a misrepresentation, were material to patentability in the reexam, and made with specific intent to mislead or deceive the Patent Office.

(a) Not a misrepresentation

[FF73] The Court finds that HP has not met its burden of proving that Network-1's representatives made a misrepresentation when they stated that "claim 21 . . . replaces the phrase 'low level current' with the Board's construction of that phrase" and thus "does [not] broaden the scope of the original claim." D97 at 831, 722.

[FF74] The Court finds Mr. Wieland and Dr. Knox's testimony on this point to be instructive and credible. Mr. Wieland testified that Network-1's statement that "claim 21 . . . replaces the phrase 'low-level current with the board's construction of 'low-level current' " is a "fair" and "correct" statement. Wieland Tr. at 266:15–267:2. He explained, "We did adopt the construction by the board. The fact that we didn't use their exact word formulation is neither surprising nor problematic." *Id.* at 256:20–257:7. He further explained that Network-1 did not seek to change, or broaden, the scope of the claim, but rather sought to maintain the same scope while tweaking the language into proper claim language. *Id.* at 251:11–22. "We did not duplicate the exact language of the board's construction . . . because . . . that's improper claim language."

Id. at 251:11–22. While "e.g." clauses and relative terms like "sufficiently low" are common in constructions of claim language (like the PTAB's construction of "low-level current"), their inclusion in actual claim language is disfavored by the Patent Office. *Id.* at 252:1–17. As Mr. Wieland explained, "the 'e.g.' is improper because you can't have 'e.g.' anything in a claim" and " 'sufficiently low' is a relative term" and "relative terms are discouraged." *Id.* at 252:1–17. Mr. Wieland's explanation is confirmed by the Manual of Patent Examining Procedure, which states that "examples" are not "properly set forth in . . . the claims," and the "use of relative terminology in claim language" can potentially "render the claim indefinite." P230 (MPEP) at 319, 315. Accordingly, Network-1 re-worded the PTAB's construction into what it considered to be proper claim language by eliminating the "e.g." and "chang[ing] 'sufficiently low' to 'insufficient.' " Wieland Tr. at 252:1–17.

[FF75] Moreover, the re-wording of the PTAB's construction into proper claim language did not broaden its scope. Dr. Knox testified that there is not "any difference in scope between the board's construction of 'low-level current' and the 'current' claimed in claim 21.' " Knox Tr. at 48:17–20; *id.* at 49:8–13 (The "current and the limitations imposed on [the] current in claim 21 have the same breadth . . . [as] the low-level current appearing in claim 6."); Wieland Tr. at 252:117 ("we were capturing . . . the meaning of . . . the interpretation by the board"). HP's own expert, Dr. Neikirk, admitted on cross-examination that "a person of ordinary skill in the art would perceive the claims[']s use [of] low level current and current as synonyms in claims 6 and 21" because "the language of claim 21 describes the recited functions as a construction of the low level current in claim 6." 5/15/18 Tr. (Neikirk) at 120:1–6.

(b) Not material to patentability

[FF76] The Court finds that Network-1's representatives' statements that "claim 21 . . . replaces the phrase 'low level current' with the Board's construction of that phrase" and "does

[not] broaden the scope of the original claim," D97 at 722, 831, were not material to patentability in the reexam proceedings for three independent reasons.

[FF77] HP has not demonstrated that, in the absence of Network-1's assertions about the scope of claim 21 (i.e., that it incorporates the PTAB's "low-level current" construction and is not broader than claim 6), the Patent Office would have found claim 21 (or any other claim) unpatentable. As explained above, examiners do not simply accept and adopt a Patent Owner's assertions. Wieland Tr. at 265:17–266:14. Instead, the examiners in a reexamination always perform their own analysis—here an analysis of "the original claim language" (claim 6), the "new claim language" (claim 21), and the construction in "the order that was set forth by the PTAB." 5/15/18 Tr. (Doll) at 261:2–11; Wieland Tr. at 347:7–21. Because examiners perform an independent analysis and do not rely on a Patent Owner's own assertions on claim scope, the Patent Office would have performed the same analysis and reached the same conclusion in the absence of Network-1's statement. Network-1's statement was therefore not material to patentability.

[FF78] HP's allegation depends on the inference that Network-1 caused all three of the examiners in the '401 reexam to perform their broadening analysis with the understanding that the PTAB's "low-level current" construction did not include the words "sufficiently low" or "e.g. (approximately 20 mA)." The Court rejects this inference and finds that the credible evidence supports the opposite inference—that the examiners would be fully aware of the wording of the PTAB's "low-level current" construction. The PTAB's Institution Decision and Final Written Decision, both of which discuss and recite the PTAB's "low-level current" construction, are part of the reexamination record, and would have been read by the examiners. P502 at 10; D97 at 611.

[FF79] The examiners would have read Network-1's Amendment and Reply and the accompanying Knox declaration in their entirety. These documents both include an entire section

discussing the PTAB's "low-level current" construction. D97 at 666–67, 741–743. These documents also reproduce the PTAB's construction word-for-word eight separate times, each time including the "sufficiently low" and "e.g. (approximately 20mA)" language. *Id.* at 658, 665, 666, 667, 738, 741, 742; Knox Tr. at 49:24–50:6.

[FF80] It is highly implausible that all three examiners would have (a) overlooked all eight instances in the Amendment and Reply and accompanying Knox declaration where Network-1 and Dr. Knox reproduced the PTAB's construction of "low-level current" word-for-word, (b) overlooked the entire sections in these documents that Network-1 and Dr. Knox dedicated to the PTAB's construction of "low-level current," (c) and overlooked the PTAB's Institution Decision and Final Written Decision, and instead based their analysis on the instance where Network-1 and its expert paraphrased the construction. See Wieland Tr. at 347:7–21.

[FF81] HP has not met its burden of demonstrating that Network-1's assertions about the scope of claim 21 (i.e., that it incorporates the PTAB's "low-level current" construction and is therefore not broader than claim 6) caused the Patent Office to allow a claim that it otherwise would not have allowed because HP has failed to demonstrate that the Patent Office would have viewed Network-1's position as incorrect.

[FF82] The Patent Office would have reasonably agreed with Network-1 that its construction of "low-level current" and the re-worded version of the construction in claim 21 have the same claim scope. Nework-1's paraphrased construction (1) removed the example current "(e.g., approximately 20mA)" and (2) changed "sufficiently low that it will not operate" to "insufficient to operate." HP has not proved that the Patent Office would have considered either change to affect claim scope.

[FF83] An example current, which merely identifies one of several currents that fall within the scope of the other claim limitations, cannot be a narrowing limitation. HP and its expert did not contend at trial that the removal of the example current "(e.g., approximately 20 mA)" had any impact on claim scope.

[FF84] A current that is "sufficiently low that it will not operate" (i.e., the claim 6 "low level current" construction) means the same thing as a current that is "insufficient to operate" (i.e., the paraphrased version in claim 21). In both cases, it means the current needs to be below the level (i.e., beneath a particular amperage) at which the current will operate the device. This is why Dr. Knox and Dr. Neikirk (in a declaration submitted earlier in the case) opined that these limitations are synonymous. 5/15/18 Tr. (Neikirk) at 118:11–19, 120:1–25 ("a person of ordinary skill in the art would perceive the claims['] use [of] low level current and current as synonyms in claims 6 and 21"); Knox Tr. 49:8–13 ("They're the same").

[FF85] At trial, Dr. Neikirk backtracked on his "synonyms" testimony. He opined that a current can "be a function of time" and therefore "a current that is applied for a relatively short period of time" could be "insufficient to operate the device" but not sufficiently low that the device does not operate. 5/15/18 Tr. 121:25–122:22, 79:5–20. Dr. Knox rebutted this testimony and explained, " 'Current' is not a function of time. 'Current' is a function of amperage." Knox Tr. at 148:21–149:22; 5/15/18 Tr. at 126:13–127:4. Dr. Knox explained that, regardless of whether "you use 'insufficient to operate' the device" or the "exact wording of the Board" (i.e., "sufficiently low that it will not operate"), the "construction . . . does not address . . . this issue of time. It's not in the patent." Knox Tr. at 148:21–149:22; 5/15/18 Tr. at 126:13–127:4.

[FF86] The Court finds Dr. Knox's testimony credible and concludes that the Patent Office would have reasonably adopted the same view—that its construction of "low-level current" and the re-worded version of the construction in claim 21 have the same claim scope.

(c) No intent to deceive

[FF87] Network-1's representatives had no intent to deceive the Patent Office. The direct evidence proves that Network-1's representatives did not have any intent to deceive. Wieland Tr. at 82:12–20; Knox Tr. at 40:7–17; 5/15/18 Tr. (Horowitz) at 67:1–9.

[FF88] Both parties' technical experts agreed that there was no intent to deceive. Dr. Knox credibly testified that "[a]t the time [he] stated to the patent office that claim 21 was not broader than the original claim" he "believe[d] that statement to be true" and he "still" believes that statement to be true. Knox Tr. at 48:1–5. He would not "ever intentionally misrepresent or make misleading statements about the board's construction of 'low-level current' " because doing so "goes against everything that [he] stand[s] for" as "a scientist." *Id.* at 48:11–16. HP's own expert disagreed with Dr. Knox's technical opinion, but he did not doubt that Dr. Knox was giving "an honest opinion." 5/15/18 Tr. (Neikirk) at 126:13–127:4, 127:5–14. Even HP's own counsel, in her Opening Statement, acknowledged that Dr. Knox was "quot[ing] what he thinks the PTAB's construction of low level current is." 5/15/18 Tr. at 14:21–23.

[FF89] Moreover, the Court rejects HP's assertion that the Court should infer deception from the indirect evidence. If the statements that HP identifies in Network-1's Amendment and Reply and accompanying Knox declaration as supporting an inference of deception can also reasonably support an alternative inference that points to a lack of deceptive intent, then HP cannot satisfy its burden of proof on an inequitable conduct claim. Here, the statements reasonably support an alternative inference that points to a lack of deceptive intent—that Network-1's representatives believed they accurately characterized the PTAB's construction and that claim 21

was not broader than claim 6. See Knox Tr. at 48:1–5, 48:11–16, 49:15–22; Wieland Tr. at 252:1–17, 256:20–257:7, 266:15–267:2.

[FF90] The content of Network-1's Amendment and Reply and accompanying Knox declaration is also inconsistent with an intent to deceive. If Network-1 and Dr. Knox intended to conceal, or misrepresent, the PTAB's construction of "low level current" in these documents, they would not have included the construction word-for-word eight separate times in the same documents. Nor would they have included an entire section discussing the PTAB's construction in these same documents.

D. Facts relating to alleged misrepresentation about Claim 23

[FF91] HP alleges that Network-1's representatives falsely asserted that claim 23 was not broader than original claim 6, although the representatives knew that claim 23 eliminated "much of the 'providing' limitation of claim 6" and was therefore broader than claim 6. Lead Case, Docket No. 650 at ¶ 55; Lead Case, Docket No. 1003 at ¶ 58; 5/15/18 Tr. (Neikirk) at 94:19–98:10.

[FF92] The Court finds that HP has not proved any of the necessary requirements of inequitable conduct for this allegation—i.e., that Network-1's assertion was (a) a misrepresentation, (b) material to patentability in the reexam, and (c) made with specific intent to mislead or deceive the Patent Office.

(1) **Not a misrepresentation**

[FF93] The Court finds that HP has not satisfied its burden of proving that Network-1's representatives misrepresented the scope of claim 23. Under the broadest reasonable interpretation of the claim language (i.e., the standard applied in reexamination proceedings), claim 23 includes all of the limitations as, and is not broader than, claim 6.

[FF94] Claim 6 recites five system components: the "data node adapted for data switching," "access device adapted for data transmission," "data signaling pair," "main power source," and "secondary power source."

[FF95] Claim 23 recites the same five system components.

[FF96] Accordingly, "if you want to practice the invention that's claim 23, you have to have all of the same things that are in claim 6." Knox Tr. 55:14–18; 5/15/18 Tr. (Godici) 129:19–22 ("If somebody performs claim 23, they are going to have present all five components that are in claim 6").

[FF97] HP contends that, although the claims include the same five components, claim 6 is still narrower because it requires "providing" all five while claim 23 only requires "providing" the access device. 5/15/18 Tr. (Godici) 129:19–22 (in claim 23, "they don't have to provide all five"). This contention, however, depends on an overly narrow interpretation of "providing."

[FF98] Under the broadest reasonable interpretation of "providing"—i.e., the interpretation that applies in Patent Office proceedings—one way to provide a system component is to make it available to the system, e.g., to connect the component to the system. *Meyer Intellectual Props. Ltd v. Bodum, Inc*., 690 F.3d 1354, 1369 (Fed. Cir. 2012) (adopting the dictionary definition of "providing" and construing "the term 'providing' to mean 'furnishing, supplying, making available, or preparing' "). For example, if you want to provide a power source in an electrical system, one way to do so is to connect that system to the power source (e.g., plug the cord into an outlet).

[FF99] Claim 23 requires connecting all five components to the system. HP's own expert agrees. 5/15/18 Tr. (Neikirk) at 129:19–131:14 ("if somebody performs claim 23 . . . the four other components . . . would be connected") ("claim 23 says" "connected to the data signaling

pair," "connected between the access device and data node," "a main power source connected," and "a secondary power source has to be connected").

[FF100] Because (a) the broadest reasonable interpretation of "providing" includes "connecting," and (b) claim 23 requires "connecting" the system to the same components that must be provided in claim 6, "claim 23 [cannot] be performed without providing the same five items from claim 6" and is therefore "not broader than the original claim [6]." Knox Tr. at 55:14–23. Moreover, this testimony from Dr. Knox is unrebutted. Dr. Neikirk has "not conducted an analysis to determine what the broadest reasonable interpretation of providing would be." 5/15/18 Tr. (Neikirk) at 128:18–129:8. And when asked to assume "the broadest reasonable interpretation of providing [that] encompasses connecting," Dr. Neikirk did not deny that "someone who does [claim 23] would be not just providing an access device, they would be providing the other components." *Id.* at 134:15–135:11. Instead, he sidestepped the question and said, it is "nothing I have ever considered before. It will take a moment." *Id.* That moment passed, his counsel questioned him again, and he never addressed the broadest reasonable interpretation of "providing."

[FF101] Accordingly, the Court finds that HP has not proved that, under the broadest reasonable interpretation of the claim language, claim 23 is broader than claim 6. HP has therefore not met its burden of demonstrating that Network-1's contrary assertion was a misrepresentation.

[FF102] Moreover, that the Court previously found claim 23 invalid as broader than claim 6 in the district court proceeding (Lead Case, Docket No. 860) is not relevant to the broadening analysis before the Patent Office because claims are interpreted differently before the Patent Office. The Court's analysis of broadening did not determine the broadest reasonable interpretation of the claims and then apply that interpretation. Unlike the Court's analysis, the

Patent Office's analysis would necessarily have been based on the broadest reasonable interpretation of "providing."

(2) **Not material to patentability**

[FF103] HP has not demonstrated that, in the absence of Network-1's statement—that claim 23 was not broader than claim 6 because it included all of the limitations of claim 6—the Patent Office would have found claim 23 (or any other claim) unpatentable. As explained above, patent owners make the same type of assertion in nearly every reexam where new claims are proposed, and examiners do not merely accept and adopt the patent owners' assertion. 5/15/18 Tr. (Doll) at 252:8–12; Wieland Tr. at 266:10–14. Instead, examiners always perform their own independent analysis of claim scope and the broadening issue. 5/15/18 Tr. (Doll) at 261:2–11. Accordingly, the examiners would have performed the same analysis and reached the same conclusion in the absence of Network-1's statement. Network-1's statement was therefore not material to patentability.

(3) **No intent to deceive**

[FF104] HP has not presented any credible evidence that, at the time Network-1's representatives stated that claim 23 was not broader than claim 6, they believed the statement to be false. The credible evidence demonstrates the opposite. Wieland Tr. at 350:9–16 ("we thought we were capturing the same limitations in detail"); Knox Tr. at 55:19–23 ("At the time [he] represented to the patent office that claim 23 was not broader than the original claim" he "believe[d] that statement to be true" and he "still" believes that statement to be true.); *id.* at 54:12–55:10; Wieland Tr. at 82:12–20; Knox Tr. at 40:7–17,; 5/15/18 Tr. (Horowitz) at 67:1–9.

[FF105] Accordingly, the Court finds that Network-1's representatives had no intent to deceive the Patent Office.

E. Facts relating to alleged misrepresentation about Claim 22

[FF106] In its pretrial submissions, HP alleged that Network-1 committed inequitable conduct by asserting to the Patent Office that new claim 22 is not broader than claim 6. Lead Case, Docket No. 650 at ¶ 55; Lead Case, Docket No. 1003 at ¶ 57. HP did not pursue this theory of inequitable conduct at trial. HP did not elicit any testimony on claim 22 from any witness, and its counsel never even mentioned claim 22.

II. CONCLUSIONS OF LAW

[CL1] Based on the Findings of Fact set forth above and the Federal Circuit law on inequitable conduct identified below, the Court concludes that Network-1 has not committed inequitable conduct.

A. Legal Standard

[CL2] "Inequitable conduct has been overplayed, is appearing in nearly every patent suit, and is cluttering up the patent system. The habit of charging inequitable conduct in almost every major patent case has become an absolute plague." *Therasense*, 649 F.3d at 1289 (internal quotations and citations omitted).

[CL3] "A patent shall be presumed valid." 35 U.S.C. § 282(a). A party contesting a patent's validity based upon inequitable conduct bears the burden of proving that claim by clear and convincing evidence. *See In re Rosuvastatin Calcium Patent Litig*., 703 F.3d 511, 519 (Fed. Cir. 2012).

[CL4] "To prevail on the defense of inequitable conduct, the accused infringer must prove that the applicant misrepresented or omitted material information with the specific intent to deceive the PTO." *Therasense*, 649 F.3d at 1287.

[CL5] "The accused infringer must prove both elements—intent and materiality—by clear and convincing evidence." *Id.* "If the accused infringer meets its burden, then the district

court must weigh the equities to determine whether the applicant's conduct before the PTO warrants rendering the entire patent unenforceable."

[CL6] Materiality and intent are separate and distinct requirements. "Materiality and intent must be separately established." *Rosuvastatin*, 703 F.3d at 519. "A district court should not use a 'sliding scale,' where a weak showing of intent may be found sufficient based on a strong showing of materiality, or vice versa." *Am. Calcar, Inc. v. Am. Honda Motor Co., Inc*., 651 F.3d 1318, 1334 (Fed. Cir. 2011).

[CL7] The controlling standard for determining whether an alleged omission or misrepresentation is material is "but-for" materiality. A party alleging inequitable conduct must prove that the Patent Office would not have allowed the claim but for the omission or misrepresentation. If the Patent Office would have allowed the claim even if the omitted information had been disclosed or if the alleged misrepresentation had not occurred, then the alleged omission or misrepresentation is not material. *See Ohio Willow Wood Co*., 813 F.3d at 1357 ("To prove the element of materiality, a party claiming inequitable conduct ordinarily must show that the patentee withheld or misrepresented information that, in the absence of the withholding or misrepresentation, would have prevented a patent claim from issuing.") (internal quotations and citations omitted); *Therasense*, 649 F.3d at 1291–1292 ("[A]s a general matter, the materiality required to establish inequitable conduct is but-for materiality. When an applicant fails to disclose prior art to the PTO, that prior art is but-for material if the PTO would not have allowed a claim had it been aware of the undisclosed prior art. Hence, in assessing the materiality of a withheld reference, the court must determine whether the PTO would have allowed the claim if it had been aware of the undisclosed reference. In making this patentability determination, the court

should apply the preponderance of the evidence standard and give claims their broadest reasonable construction.").

[CL8] Information that is cumulative of information already considered by the Patent Office is not material. *See Eisai Co. v. Dr. Reddy's Labs*., Ltd, 533 F.3d 1353, 1361 (Fed. Cir. 2008) ("cumulative evidence is definitionally not material evidence"); 37 C.F.R. § 1.555 ("information is material to patentability in a reexamination proceeding when it is not cumulative to information of record or being made of record in the reexamination proceeding").

[CL9] To prove inequitable conduct, it is not enough for an accused infringer to show by clear and convincing evidence that the patentee misrepresented or omitted material information. The accused infringer must also show by clear and convincing evidence that the patentee did so with specific intent to mislead the Patent Office, and that deceptive intent was the single most reasonable inference to be drawn from the evidence. *See Ohio Willow Wood Co*., 813 F.3d at 1357 ("A party seeking to prove inequitable conduct must show by clear and convincing evidence that the patent applicant made misrepresentations or omissions material to patentability, that he did so with the specific intent to mislead or deceive the PTO, and that deceptive intent was the single most reasonable inference to be drawn from the evidence.").

[CL10] If more than one reasonable inference is possible, intent to deceive cannot be found. *TransWeb*, 812 F.3d 1295 at 1304 ("Intent to deceive may be found only if specific intent to deceive is the single most reasonable inference able to be drawn from the evidence. . . . If more than one reasonable inference is possible, intent to deceive cannot be found.") (internal quotations and citations omitted).

[CL11] "Proving that the applicant knew of a reference, should have known of its materiality, and decided not to submit it to the PTO does not prove specific intent to deceive." *Therasense*, 649 F.3d at 1290.

[CL12] "Knowledge of the reference and knowledge of materiality alone are insufficient after *Therasense* to show an intent to deceive. Moreover, it is not enough to argue carelessness, lack of attention, poor docketing or cross-referencing, or anything else that might be considered negligent or even grossly negligent." *1st Media, LLC v. Elec. Arts, Inc.*, 694 F.3d 1367, 1374–75 (Fed. Cir. 2012); *Therasense*, 649 F.3d at 1290 ("A finding that the misrepresentation or omission amounts to gross negligence or negligence under a 'should have known' standard does not satisfy this intent requirement.").

[CL13] "[T]he patentee need not offer any good faith explanation unless the accused infringer first . . . prove[s] a threshold level of intent to deceive by clear and convincing evidence. The absence of a good faith explanation for withholding a material reference does not, by itself, prove intent to deceive." *Therasense*, 649 F.3d at 1291 (internal citations and quotations omitted).

B. Alleged omission of the Cisco Markman Order:

[CL14] For HP to prevail on its inequitable conduct claim with respect to the omission of the Cisco Markman Order, it must prove that (1) Network-1 omitted information, (2) that the information was material to patentability, and (3) that Network-1 did so with the specific intent to mislead or deceive the PTO. *Rosuvastatin*, 703 F.3d at 519.

(1) **Network-1 did not omit the Cisco Markman**

[CL15] As detailed above, Network-1 disclosed the Cisco Markman to the Patent Office. *See* FF29.

[CL16] HP asserts that it was "unlikely that the Examiners ever saw the Cisco Markman Order." Lead Case, Docket No. 1003 at ¶¶ 65, 63. But the Court concludes otherwise. The Cisco

Markman was disclosed to the office in both an IDS and was cited by the Office in a 2012 Litigation Search Report. FF28–34; FF21–27.

[CL17] Relatedly, the examiner indicated that he affirmatively considered the Cisco Markman. FF34.

(2) **The Cisco Markman was not material**

[CL18] The examiners could not have relied on the Cisco Markman because it applied the *Phillips* standard, whereas the PTAB applies the BRI standard. FF4–10. The examiners were bound to apply the PTAB's claim construction for the '930 patent, which also relies on the BRI standard. FF11–15.

(3) **Network-1 did not intend to deceive the Patent Office**

[CL19] The direct evidence and circumstantial evidence in this case support the conclusion that Network-1 did not exhibit any intent to deceive the Patent Office. FF35–46.

[CL20] Because none of the requirements for this claim are met, HP's inequitable conduct defense as to the omission of the Cisco Markman Order fails as a matter of law.

C. Alleged misrepresentation about Claims 15 and 16

[CL21] HP alleges that Network-1's statement to the Patent Office that "new dependent claim 15 . . . and new dependent claim 16" "do not broaden the scope of original claim 6" was an intentional misrepresentation because the statement is not "consistent with the Cisco Markman Order['s]" construction of the "term 'secondary power source.'" Lead Case, Docket No. 650 at ¶ 52; Lead Case, Docket No. 1003 at ¶ 54; 5/15/18 Tr. (HP Opening) at 14:12–16, 15:4–12; *id.* (Neikirk) at 87:3–93:12.

[CL22] HP failed to carry its burden for each requirement of inequitable conduct. HP has not proved that any of the identified statements by Network-1 or its representatives was a misrepresentation to the Patent Office. HP has not proved that any identified statement was

material to patentability—i.e., that the Patent Office would have found a Network-1 claim unpatentable if Network-1 had not made the identified statement. HP has not proved that Network-1 intended to mislead or deceive the Patent Office.

[CL23] Network-1's statement that new claims 15 and 15 do not broaden original claim 6 was not a misrepresentation. Claims 15 and 16 were not broadened with respect to claim 6 under the BRI construction standard. FF48–51.

[CL24] A statement is but-for material to patentability only if, in the absence of the statement, the Patent Office would have found a claim unpatentable. *See Ohio Willow Wood Co.*, 813 F.3d at 1357. The Cisco Markman was not material to the examiner's analysis because it did not apply the BRI standard. FF52–56. HP has not made a showing that, in the absence of Network-1's statement, the PTO would have found any claims unpatentable. FF54–56.

[CL25] As indicated above, Network-1's representatives had no intent to deceive the Patent Office. Network-1's representatives credibly testified that they had no intent to deceive. Wieland Tr. at 82:12–20; Knox Tr. at 40:7–17; 5/15/18 Tr. (Horowitz) at 67:1–9. HP provided no contrary evidence that causes the Court to question the truth of this testimony. FF57–58.

[CL26] Because none of the requirements for this claim are met, HP's inequitable conduct claim as to the misrepresentation of claims 15 and 16 in light of the Cisco Markman Order fails as a matter of law.

D. Alleged misrepresentations about Claim 21

(1) **Incorporating the PTAB's construction instead of the Cisco construction**

[CL27] HP first alleges that, by incorporating into claim 21 the PTAB's broader construction for "low-level current" instead of the narrower Cisco construction, Network-1 "sought to broaden the scope of the '930 patent" "in direct contrast to the scope of the claims

assigned in the Cisco Markman Order." Lead Case, Docket No. 1003 at ¶¶ 55–56; 5/15/18 Tr. (Neikirk) 75:4–77:7.

[CL28] Like HP's allegations concerning "secondary power source," this allegation rests on the incorrect premise that the Cisco Markman Order controlled the analysis in the reexamination proceeding.

[CL29] There was no misrepresentation because Network-1 and its expert Dr. Knox (in an accompanying declaration) were clear they were adopting the PTAB's broadest reasonable interpretation of "low level current," not the construction in the Cisco Markman Order. D97 at 664 (Amendment and Reply); *id.* at 738 (Knox Declaration) ("It is my understanding that, based on the Board's direction in IPR2013-00071, the constructions to be used in this reexamination proceeding are the constructions adopted by the Board in IPR2013-00071."). FF62.

[CL30] Because the Cisco construction for "low level current" did not apply in the reexam, it "wouldn't have changed the outcome" and "is not material." FF63–65.

[CL31] Although the Court ruled that the "current" claimed in claim 21 is broader than the "low level current" in claim 6, the Court's ruling was under the *Phillips* standard. 5/15/18 Tr. 85:9–86:1 (referring to Order, Lead Case, Docket No. 1035). That ruling has no applicability here because, as the Court already held, "the basis for Defendants' Motion is the Court's construction, not the Board's construction." Lead Case, Docket No. 1035 at 11.

[CL32] The Court finds that Network-1's representatives had no intent to deceive the Patent Office. Wieland Tr. at 82:12–20; Knox Tr. at 40:7–17; 5/15/18 Tr. (Horowitz) at 67:1–9. *See* FF66–67.

(2) **Falsely incorporating the PTAB's construction**

[CL33] HP also alleges that, when Network-1 incorporated the PTAB's construction for "low-level current" into claim 21, it failed to do so word-for-word and its representatives therefore made "false and material misrepresentations" when they told the examiners that "Claim 21 replaces the phrase 'low level current' with the Board's construction of 'low level current.'" Lead Case, Docket No. 650 at ¶ 53; Lead Case, Docket No. 1003 at ¶¶ 55–56; 5/15/18 Tr. (HP Opening) at 14:20–25, 15:14–22.

[CL34] For the reasons set forth below, the Court rejects HP's allegation. HP has not proved any of the necessary requirements of inequitable conduct—i.e., that Network-1's statements about claim 21 were (i) a misrepresentation, (ii) material to patentability in the reexam, and (iii) made with specific intent to mislead or deceive the Patent Office.

[CL35] The Court finds that HP has not met its burden of proving that Network-1's representatives made a misrepresentation when they stated that "claim 21 . . . replaces the phrase 'low level current' with the Board's construction of that phrase" and thus "does [not] broaden the scope of the original claim." D97 at 831, 722; FF73.

[CL36] Network-1's rewording of the PTAB's construction into proper claim language (removing the e.g.,) did not did not seek to change, or broaden, the scope of the claim, but rather sought to maintain the same scope while tweaking the language into proper claim language. FF74.

[CL37] Moreover, the re-wording of the PTAB's construction into proper claim language did not broaden its scope. FF75.

[CL38] HP has not demonstrated that, in the absence of Network-1's assertions about the scope of claim 21 (i.e., that it incorporates the PTAB's "low-level current" construction and is

not broader than claim 6), the Patent Office would have found claim 21 (or any other claim) unpatentable. FF76–77.

[CL39] Because examiners perform an independent analysis and do not rely on Patent Owner's own assertions on claim scope, the Patent Office would have performed the same analysis and reached the same conclusion in the absence of Network-1's statement. Network-1's statement was therefore not material to patentability. FF78.

[CL40] The examiners would have read Network-1's Amendment and Reply and the accompanying Knox declaration in their entirety. These documents both include an entire section discussing the PTAB's "low-level current" construction. D97 at 666–67, 741–743. These documents also reproduce the PTAB's construction word-for-word eight separate times, each time including the "sufficiently low" and "e.g. (approximately 20mA)" language. *Id.* at 658, 665, 666, 667, 738, 741, 742; Knox Tr. at 49:24–50:6. FF79–80.

[CL41] HP has not met its burden of demonstrating that Network-1's assertions about the scope of claim 21 (i.e., that it incorporates the PTAB's "low-level current" construction and is therefore not broader than claim 6) caused the Patent Office to allow a claim that it otherwise would not have allowed because HP has failed to demonstrate that the Patent Office would have viewed Network-1's position as incorrect. FF81.

[CL42] The Patent Office would have reasonably agreed with Network-1 that its construction of "low-level current" and the re-worded version of the construction in claim 21 have the same claim scope. Nework-1's paraphrased construction (1) removed the example current "(e.g., approximately 20mA)" and (2) changed "sufficiently low that it will not operate" to "insufficient to operate." HP has not proved that the Patent Office would have considered either change to affect claim scope. FF82–86.

[CL43] Network-1's representatives had no intent to deceive the Patent Office. The direct evidence and expert testimony proves that Network-1's representatives did not have any intent to deceive. Wieland Tr. at 82:12–20; Knox Tr. at 40:7–17; 5/15/18 Tr. (Horowitz) at 67:1–9. FF87–90.

[CL44] Because none of the requirements for this claim are met, HP's inequitable conduct claim as to the this alleged misrepresentation fails as a matter of law.

E. Alleged misrepresentation about Claim 23

[CL45] HP alleges that Network-1's representatives falsely asserted that claim 23 was not broader than original claim 6, although the representatives knew that claim 23 eliminated "much of the 'providing' limitation of claim 6" and was therefore broader than claim 6. Lead Case, Docket No. 650 at ¶ 55; Lead Case, Docket No. 1003 at ¶ 58; 5/15/18 Tr. (Neikirk) at 94:19–98:10.

[CL46] The Court finds that HP has not proved any of the necessary requirements of inequitable conduct for this allegation—i.e., that Network-1's assertion was (a) a misrepresentation, (b) material to patentability in the reexam, and (c) made with specific intent to mislead or deceive the Patent Office.

[CL47] The Court finds that HP has not proved that, under the broadest reasonable interpretation of the claim language, claim 23 is broader than claim 6. HP has therefore not met its burden of demonstrating that Network-1's contrary assertion was a misrepresentation. FF93–101.

[CL48] Moreover, that the Court previously found claim 23 invalid as broader than claim 6 in the district court proceeding (Lead Case, Docket No. 860) is not relevant to the broadening analysis before the Patent Office because claims are interpreted differently before the Patent Office. The Court's analysis of broadening did not determine the broadest reasonable

interpretation of the claims and then apply that interpretation. Unlike the Court's analysis, the Patent Office's analysis would necessarily have been based on the broadest reasonable interpretation of "providing." FF102.

[CL49] HP has not demonstrated that, in the absence of Network-1's statement—that claim 23 was not broader than claim 6 because it included all of the limitations of claim 6—the Patent Office would have found claim 23 (or any other claim) unpatentable. Accordingly, the examiners would have performed the same analysis and reached the same conclusion in the absence of Network-1's statement. Network-1's statement was therefore not material to patentability. FF103.

[CL50] HP has not presented any credible evidence that, at the time Network-1's representatives stated that claim 23 was not broader than claim 6, they believed the statement to be false. Accordingly, the Court finds that Network-1's representatives had no intent to deceive the Patent Office. FF104–105.

F. Alleged misrepresentation about Claim 22

[CL51] In its pretrial submissions, HP alleged that Network-1 committed inequitable conduct by asserting to the Patent Office that new claim 22 is not broader than claim 6. Lead Case, Docket No. 650 at ¶ 55; Lead Case, Docket No. 1003 at ¶ 57. HP did not pursue this theory of inequitable conduct at trial. HP did not elicit any testimony on claim 22 from any witness, and its counsel never even mentioned claim 22. Moreover, the evidence demonstrates that Network-1's assertions were correct, not material to patentability, and made with no intent to deceive. Knox Tr. 54:4–11 ("If someone uses the apparatus of claim 22 . . . they [are] using the method of claim 6" and therefore "claim 22 was not broader than the original claims."). FF106.

III. CONCLUSION

Accordingly, for the reasons set forth above. The Court concludes that HP has failed to meet its burden to establish inequitable conduct by Network-1.

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION

NETWORK-1 TECHNOLOGIES, INC., Plaintiff, v. HEWLETT-PACKARD COMPANY, HEWLETT PACKARD ENTERPRISE COMPANY, Defendants.	§ § § § § § § § § §	CIVIL ACTION NO. 6:13-CV-00072-RWS

FINAL JUDGMENT

On this date, the Court entered its Memorandum Opinion and Order granting Plaintiff Network-1 Technologies, Inc.'s Motion for Judgment as a Matter of Law on Validity (Docket No. 99) and denying Plaintiff's Motion for a New Trial on Infringement (Docket No. 98). The Court also issued its findings of fact and conclusions of law that Defendants failed to meet their burden on their inequitable conduct defense.

A decision having been duly rendered as to all claims and consistent with the Court's Memorandum Opinion and Order, the Court hereby enters **FINAL JUDGMENT**.

The Clerk of the Court is directed to close the case.

So ORDERED and SIGNED this 29th day of August, 2018.

Robert W Schroeder III

ROBERT W. SCHROEDER III
UNITED STATES DISTRICT JUDGE

U 7596309

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office

August 05, 2016

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THIS OFFICE OF:

U.S. PATENT: *6,218,930*
ISSUE DATE: *April 17, 2001*

By Authority of the
Under Secretary of Commerce for Intellectual Property
and Director of the United States Patent and Trademark Office

SYLVIA HOLLEY
Certifying Officer

US006218930B1

(12) **United States Patent**
Katzenberg et al.

(10) **Patent No.: US 6,218,930 B1**
(45) **Date of Patent: Apr. 17, 2001**

(54) **APPARATUS AND METHOD FOR REMOTELY POWERING ACCESS EQUIPMENT OVER A 10/100 SWITCHED ETHERNET NETWORK**

(75) Inventors: **Boris Katzenberg**, Trumbull; **Joseph A. Deptula**, Watertown, both of CT (US)

(73) Assignee: **Merlot Communications**, Bethel, CT (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/520,350**

(22) Filed: **Mar. 7, 2000**

Related U.S. Application Data

(60) Provisional application No. 60/123,688, filed on Mar. 10, 1999.

(51) **Int. Cl.**[7] **M04M 11/04**

(52) **U.S. Cl.** **340/310.01**; 340/310.02; 340/310.06; 340/310.07; 379/386; 379/400; 379/32

(58) **Field of Search** 340/310.01, 310.07, 340/825.16, 310.02, 310.06; 379/386, 400, 32

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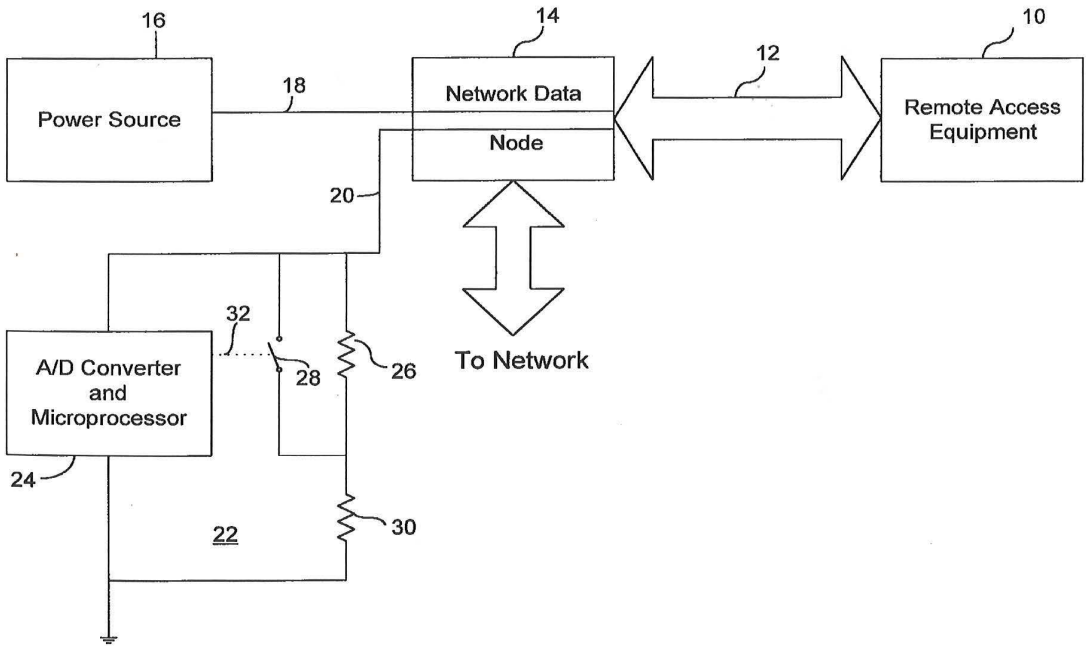
Primary Examiner—Jeffery A. Hofsass
Assistant Examiner—Tai T. Nguyen
(74) *Attorney, Agent, or Firm*—William C. Crutcher

(57) **ABSTRACT**

Apparatus for remotely powering access equipment over a 10/100 switched Ethernet network comprises an Ethernet switch card with a phantom power supply for remote access equipment and added circuitry for automatic detection of remote equipment being connected to the network; determining whether the remote equipment is capable of accepting remote power in a non-intrusive manner; delivering the phantom power to the remote equipment over the same wire pairs that deliver the data signals, and automatically detecting if the remote equipment is removed from the network.

9 Claims, 3 Drawing Sheets



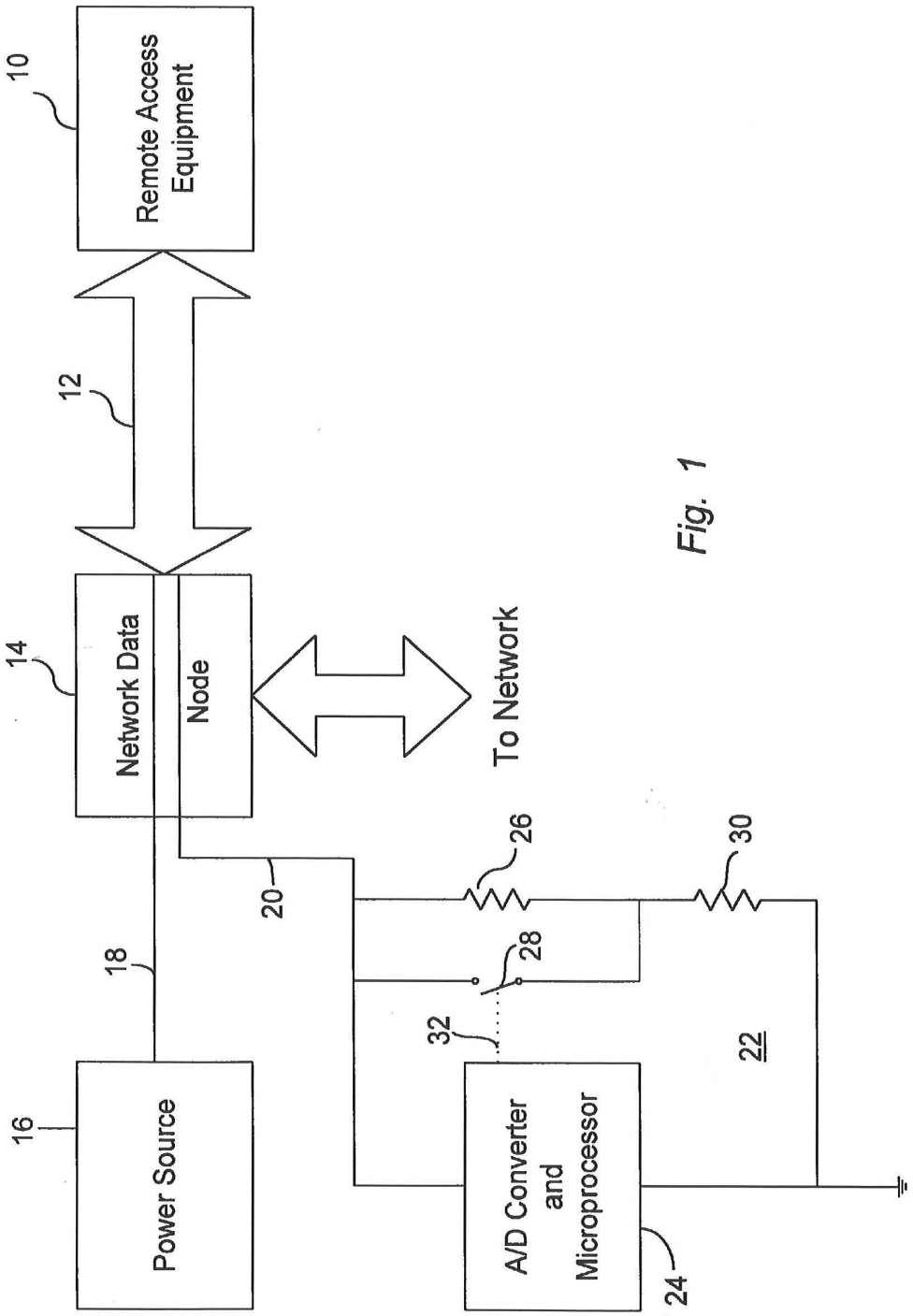


Fig. 1

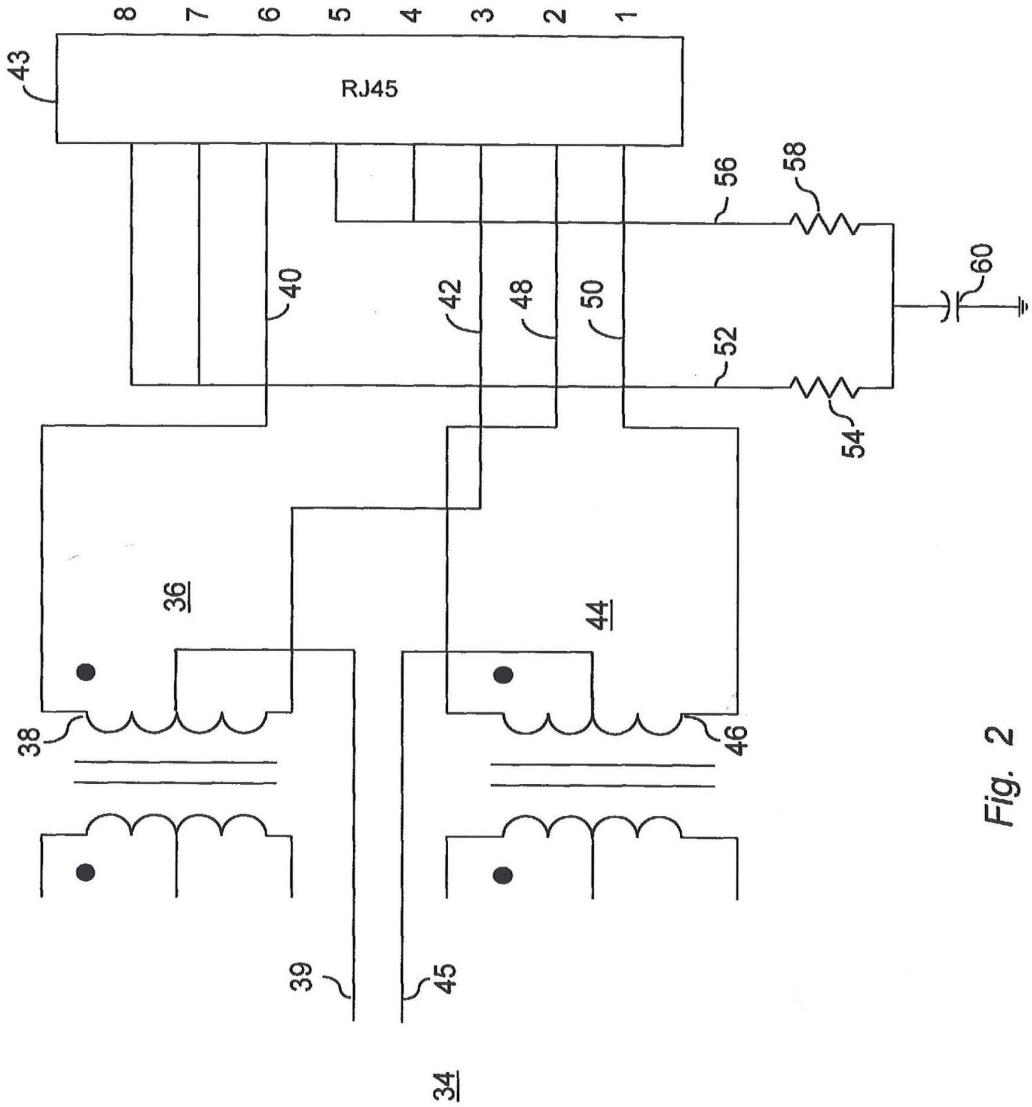


Fig. 2

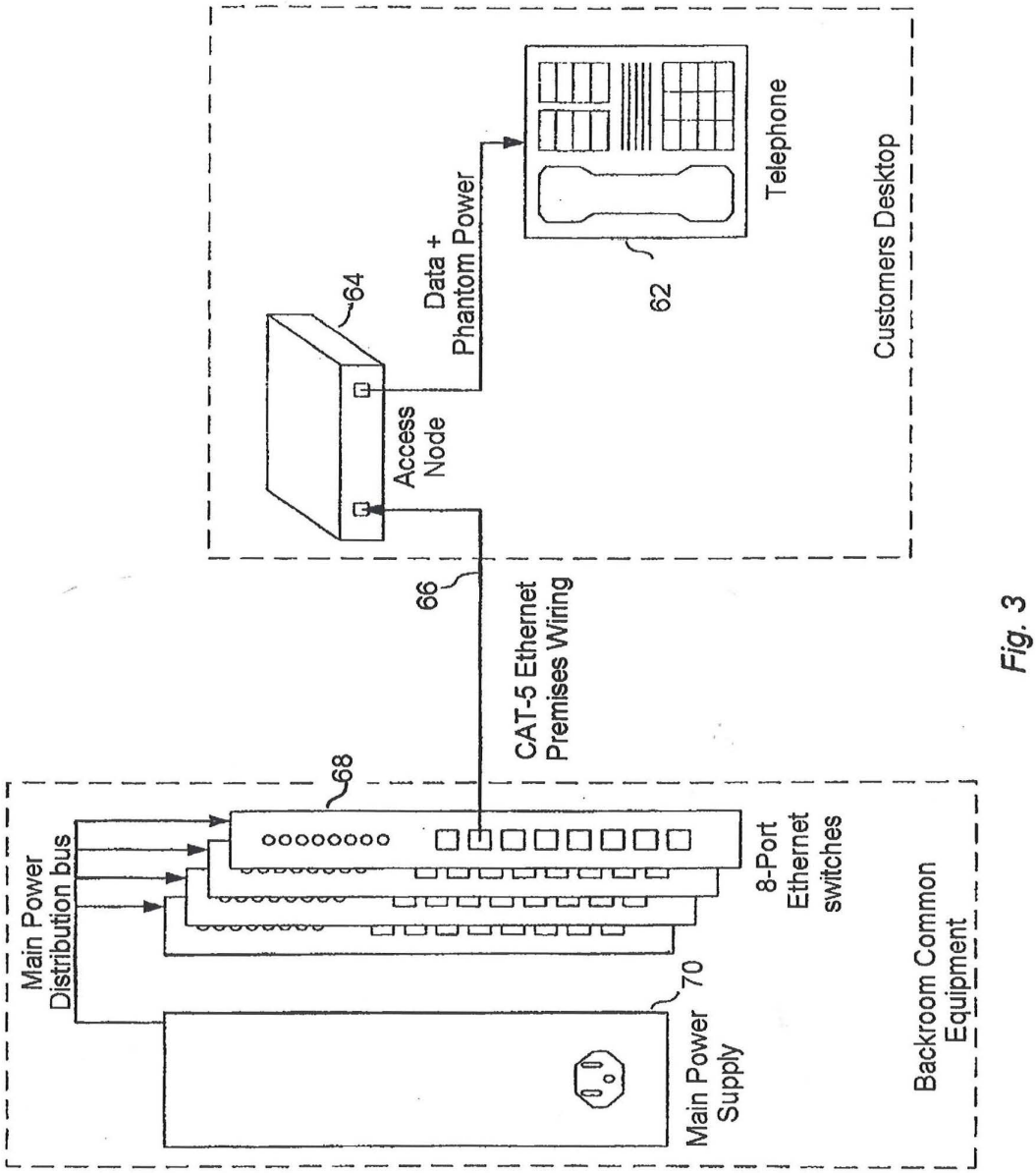


Fig. 3

APPARATUS AND METHOD FOR REMOTELY POWERING ACCESS EQUIPMENT OVER A 10/100 SWITCHED ETHERNET NETWORK

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the benefits of prior filed, application Ser. No. 60/123,688 filed Mar. 10, 1999.

FIELD OF THE INVENTION

This invention broadly relates to the powering of 10/100 Ethernet compatible equipment. The invention more particularly relates to apparatus and methods for automatically determining if remote equipment is capable of remote power feed and if it is determined that the remote equipment is able to accept power remotely then to provide power in a reliable non-intrusive way.

BACKGROUND OF THE INVENTION

A variety of telecommunications equipment is remotely powered today. Telephones and Network Repeater devices are examples of remotely powered equipment. Obviously there are many advantages to remotely powering equipment, however this technique has not migrated to data communications equipment for several reasons. Data communications equipment has traditionally required high power levels to operate which has made it prohibitive to implement. The widely distributed nature as well as the use of shared media used in data networks has also made remote power impractical.

The desire to add remotely powered devices to a data network is being pushed by the convergence of voice and data technologies. The advent of IP Telephony, Voice over IP and Voice over Packet technologies has brought traditional telephony requirements into the data environment. It is not desirable to have a phone powered by a local wall transformer. It is desirable to have a centrally powered system that can be protected during a power outage.

It is therefore an object of the invention to provide methods and apparatus for reliably determining if a remote piece of equipment is capable of accepting remote power.

It is another object of this invention to provide methods and apparatus for delivering remote power to remote equipment over 10/100 switched Ethernet segments and maintain compliance with IEEE 802.3 standards.

SUMMARY OF THE INVENTION

In accord with the objects of the invention an apparatus for remotely powering access equipment over a 10/100 switched Ethernet network comprises: automatic detection of remote equipment being connected to the network; determining whether the remote equipment is capable of accepting remote power in a non-intrusive manner; delivering the power to remote equipment over the same wire pairs that deliver the data signals; automatic detection of remote equipment being removed from the network.

The complete apparatus comprises a data node adapted for data switching, an access device adapted for data transmission, at least one data signaling pair connected between the data node and the access device and arranged to transmit data therebetween, a main power source connected to supply power to the data node, a secondary power source arranged to supply power from the data node via the data signaling pair to the access device, sensing means for delivering a low level current from said main power source to the access device over the data signaling pair and sensing a resulting voltage level thereon, and control means responsive to said voltage level and adapted to control power supplied by the secondary power source to said access device in response to a preselected condition of the voltage level.

The method includes the steps of delivering a low level current from the main power source to the access device over the data signaling pair, sensing a voltage level on the data signaling pair in response to the low level current, and controlling power supplied by the secondary power source to the access device in response to a preselected condition of the voltage level.

DRAWINGS

The invention will be more clearly understood by reference to the following description, taken in connection with the accompanying drawings, in which:

FIG. **1** is a simplified schematic diagram of the remote power automatic detection system of the present invention, shown in conjunction with a single unit of remote access equipment connected as part of an Ethernet local area network,

FIG. **2** is a simplified schematic drawing of a power feed configuration for supplying power to the remote access equipment on the local area network, and

FIG. **3** is a simplified physical layout of a portion of a switched Ethernet network segment showing a telephone device powered through the network data carrying medium.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIG. **1** of the drawing, a remote access device **10** which is compatible with 10/100 Ethernet requirements is connected through a data communications network interface adapter to a high data rate network cable **12**. Remote access device **10** requires power to carry out its operation and includes an internal dc-dc switching supply which, in the absence of the present invention, would be supplied by an ac transformer adapter plugged in to the local 110 volt supply. Cable **12** is preferably Category **5** wiring such as 100BaseX suitable for 100 Mb/s data communications over a switched Ethernet network, and is connected to a port in a network data node **14**, such as a switch or hub. Ethernet frames containing data are transmitted over cable **12** between node **14** and device **10**, and from node **14** to and from the network in accordance with selected protocols in a conventional manner known in the art.

In accordance with the present invention, a power source **16**, which may be the same as the conventional main power supply used to power the node **14**, is connected to cable **12** via lines **18** to supply a power level sensing potential to the remote access equipment **10** over one of the cable conductors. A return path from remote access equipment **10** is connected through a lead **20** to an automatic remote power detector, shown generally as **22**. Detector **22** includes an A/D converter and microprocessor control unit **24**, operating a detection circuit consisting of a resistor **26**, with shunting switch **28**, both connected in parallel to a resistor **30**, providing a path to ground. Switch **28** is actually an internal software controlled switch depicted diagrammatically as actuated by operator **32**.

Automatic detection of remote equipment being connected to the network is accomplished by delivering a low

level current (approx. 20 ma) to the network interface and measuring a voltage drop in the return path. There are three states which can be determined: no voltage drop, a fixed level voltage drop or a varying level voltage drop. If no voltage drop is detected then the remote equipment does not contain a dc resistive termination, and this equipment is identified as unable to support remote power feed. If a fixed voltage level is detected then the remote equipment contains a dc resistive termination (a "bob smith" is typical for Ethernet terminations), and this equipment is identified as unable to support remote power feed.

If a varying voltage level is detected, this identifies the presence of dc-dc switching supply in the remote equipment. The varying level is created by the remote power supply beginning to start up but the low current level is unable to sustain the start up. This cycle continues to be repeated creating a "sawtooth" voltage level in the return path. When this cycle is confirmed, switch **S1** is closed which increases the power output to the remote equipment. When the power to the remote equipment reaches the proper level the remote power supply turns on and the remote equipment becomes active. At this point a second, software level, confirmation takes place. The remote equipment must respond to a poll using a coded response with a unique MAC address. When this process is complete the remote equipment is identified as known access equipment capable of accepting remote power.

Referring now to FIG. **2** of the drawing, a suitable remote power supply is shown generally as **34**, which may be conveniently incorporated into an Ethernet 8 port switch card. A first center tap data transformer **36** includes a transformer winding **38** with opposite ends connected by leads **40**, **42** to terminals **6**, **3** respectively of an RJ45 connector **43**. A second center tap transformer **44** with a transformer winding **46** has its opposite ends connected via leads **48**, **50** to terminals **2**, **1** respectively of the connector **43**. Power feed is through a center tap lead **39** and power return is through a center tap lead **45**. Inactive terminals **7**, **8** of connector **43** are connected via lead **52** to a resistor **54**. Inactive terminals **1**, **2** of connector **43** are connected via lead **56** to a resistor **58**. A junction between resistors **54** and **58** is connected to ground via a capacitor **60**.

Remote power is delivered to the remote equipment over the existing data signaling pairs (phantom power feed). Although it is typical that all 8 signal leads are delivered to remote equipment, only the 4 signaling leads are guaranteed in practice. See FIG. **2** for the power feed configuration.

Once the remote equipment is operating and confirmed as a known remote power enabled device, the logic circuit shown in FIG. **1** begins to look for removal of the remote equipment or an overload fault condition. If the measured voltage level drops, then this indicates that the remote equipment has been removed and the logic circuit returns to the initial hunt state. If an overload condition is detected then the logic circuit returns to its initial state. It can then be programmed to either wait for the fault state to be cleared or continue to cycle through the state machine.

FIG. **3** illustrates the physical layout of components corresponding to the schematic diagram of FIG. **1**. The remote access equipment in this case is a telephone **62** equipped to handle data communications as well as voice and is connected through an access node **64** to premises wiring **66**, comprising a Category 5 Ethernet 100BaseX cable of 4 sets of unshielded twisted pairs, which carry both data and power to the telephone **62**. Wiring **66** is connected to one of the ports of an 8 port Ethernet switch **68** which is powered from a main power supply **70**. The Ethernet switch card incorporates the automatic remote power detector **22** discussed in FIG. **1** and the remote power supply **34** discussed in FIG. **2**. The power is provided over the wiring **66** both to the remote access node **64** and telephone **62**.

While there is disclosed what is considered to be the preferred embodiment of the invention, other modifications will occur to those skilled in the art.

What is claimed is:

1. Apparatus for remotely powering access equipment in a data network, comprising:

a data node adapted for data switching,

an access device adapted for data transmission,

at least one data signaling pair connected between the data node and the access device and arranged to transmit data therebetween,

a main power source connected to supply power to the data node,

a secondary power source arranged to supply power from the data node via said data signaling pair to the access device,

sensing means for delivering a low level current from said main power source to the access device over said data signaling pair and sensing a resulting voltage level thereon, and

control means responsive to said voltage level and adapted to control power supplied by said secondary power source to said access device in response to a preselected condition of said voltage level.

2. Apparatus according to claim **1**, wherein there are at least two data signaling pairs connected between the data node and the access device to supply phantom power from the secondary power source to the access device, and wherein said access device includes a pair of data transformers having center taps connected for locally powering the access device.

3. Apparatus according to claim **1**, wherein said preselected condition comprises a varying "sawtooth"voltage level detected by said sensing means which causes said control means to increase the power supply from the secondary power source to the access device.

4. Apparatus according to claim **1**, wherein the data node is an Ethernet switch card incorporating said secondary power supply, said sensing means and said control means.

5. Apparatus according to claim **1**, and further including a software program associated with said control means and arranged to poll the access device to identify itself and confirm that it is capable of accepting remote power.

6. Method for remotely powering access equipment in a data network, comprising,

providing a data node adapted for data switching, an access device adapted for data transmission, at least one data signaling pair connected between the data node and the access device and arranged to transmit data therebetween, a main power source connected to supply power to the data node, and a secondary power source arranged to supply power from the data node via said data signaling pair to the access device,

delivering a low level current from said main power source to the access device over said data signaling pair,

sensing a voltage level on the data signaling pair in response to the low level current, and

controlling power supplied by said secondary power source to said access device in response to a preselected condition of said voltage level.

7. Method according to claim **6**, including the step of:

increasing power supplied to the access device in response to a "sawtooth" voltage level sensed on the data signaling pair.

8. Method according to claim **6**, including the step of polling the access device to identify it and confirm that it is capable of accepting remote power.

9. Method according to claim **6**, including the step of continuing to sense voltage level and to decrease power from the secondary power source if voltage level drops on the data signaling pair, indicating removal of the access device.

* * * * *

US006218930C1

(12) **EX PARTE REEXAMINATION CERTIFICATE** (10326th)

United States Patent
Katzenberg et al.

(10) **Number: US 6,218,930 C1**
(45) **Certificate Issued: Oct. 14, 2014**

(54) **APPARATUS AND METHOD FOR REMOTELY POWERING ACCESS EQUIPMENT OVER A 10/100 SWITCHED ETHERNET NETWORK**

(75) Inventors: **Boris Katzenberg**, Trumbull, CT (US); **Joseph A. Deptula**, Watertown, CT (US)

(73) Assignee: **Network-1 Security Solutions, Inc.**, Framingham, MA (US)

Reexamination Request:
No. 90/012,401, Jul. 20, 2012

Reexamination Certificate for:

Patent No.:	**6,218,930**
Issued:	**Apr. 17, 2001**
Appl. No.:	**09/520,350**
Filed:	**Mar. 7, 2000**

Related U.S. Application Data

(60) Provisional application No. 60/123,688, filed on Mar. 10, 1999.

(51) **Int. Cl.**
H04L 12/10 (2006.01)

(52) **U.S. Cl.**
USPC **370/200**; 340/12.32; 340/12.37; 340/12.38; 379/386; 379/400

(58) **Field of Classification Search**
None
See application file for complete search history.

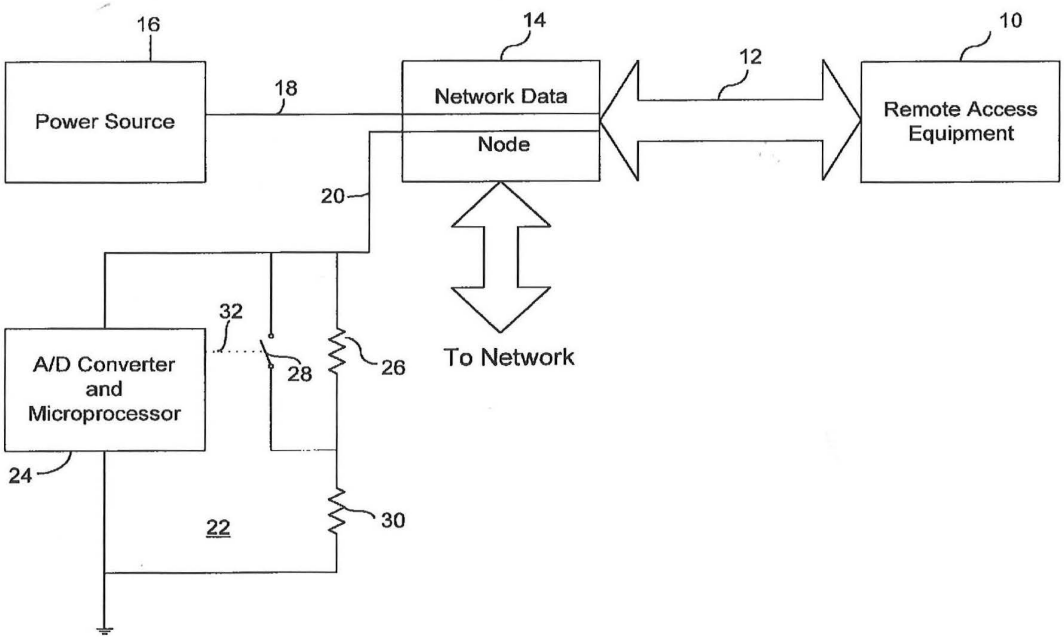
(56) **References Cited**

To view the complete listing of prior art documents cited during the proceeding for Reexamination Control Number 90/012,401, please refer to the USPTO's public Patent Application Information Retrieval (PAIR) system under the Display References tab.

Primary Examiner — Simon Ke

(57) **ABSTRACT**

Apparatus for remotely powering access equipment over a 10/100 switched Ethernet network comprises an Ethernet switch card with a phantom power supply for remote access equipment and added circuitry for automatic detection of remote equipment being connected to the network; determining whether the remote equipment is capable of accepting remote power in a non-intrusive manner; delivering the phantom power to the remote equipment over the same wire pairs that deliver the data signals, and automatically detecting if the remote equipment is removed from the network.



EX PARTE REEXAMINATION CERTIFICATE ISSUED UNDER 35 U.S.C. 307

THE PATENT IS HEREBY AMENDED AS INDICATED BELOW.

Matter enclosed in heavy brackets [ ] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **6**, **8** and **9** is confirmed.

New claims **10-23** are added and determined to be patentable.

Claims **1-5** and **7** were not reexamined.

10. Method according to claim 6, wherein said data node is an Ethernet switch.

11. Method according to claim 6, wherein said data signaling pair is a pair of wires used to transmit data within an Ethernet cable.

12. Method according to claim 6, wherein said low level current is a current used to determine whether the access device is capable of accepting remote power.

13. Method according to claim 6, wherein said low level current is insufficient to operate said access device, but sufficient to generate a voltage level on said data signaling pair that is used to determine whether said access device is capable of accepting remote power.

14. Method according to claim 6, wherein controlling power supplied by the secondary power source involves increasing the level of the low level current to a level sufficient to operate said access device.

15. Method according to claim 6, wherein said secondary power source is the same source of power as said main power source.

16. Method according to claim 6, wherein said secondary power source is the same physical device as the main power source.

17. Method according to claim 6, wherein said main power source provides a DC current flow.

18. Method according to claim 6, wherein there are at least two data signaling pairs connected between the data node and the access device.

19. Method according to claim 6, wherein sensing the voltage level on the data signaling pair includes at least two sensed measurements.

20. Method for remotely powering access equipment in an Ethernet data network, comprising,

(a) providing

(i) an Ethernet data node adapted for data switching,

(ii) an access device adapted for data transmission,

(iii) at least one data signaling pair connected between the data node and the access device and arranged to transmit data therebetween,

(iv) a main power source connected to supply power to the data node, and

(v) a secondary power source arranged to supply power from the data node via said data signaling pair to the access device,

(b) delivering a low level current from said main power source to the access device over said data signaling pair,

(c) sensing a voltage level on the data signaling pair in response to the low level current,

(d) determining whether the access device is capable of accepting remote power based on the sensed voltage level, and

(e) controlling power supplied by said secondary power source to said access device in response to a preselected condition of said voltage level.

21. Method for remotely powering access equipment in an Ethernet data network, comprising,

(a) providing

(i) a data node adapted for data switching,

(ii) an access device adapted for data transmission,

(iii) at least one data signaling pair connected between the data node and the access device and arranged to transmit data therebetween,

(iv) a main power source connected to supply power to the data node, and

(v) a secondary power source arranged to supply power from the data node via said data signaling pair to the access device,

(b) delivering a current from said main power source to the access device over said data signaling pair, said current being insufficient, by itself, to operate said access device connected to the data signaling pair;

(c) sensing a voltage level on the data signaling pair in response to the current, and

(d) controlling power supplied by said secondary power source to said access device in response to a preselected condition of said voltage level.

22. Apparatus for remotely powering access equipment in a data network, comprising:

(a) a data node adapted for data switching,

(b) an access device adapted for data transmission,

(c) at least one data signaling pair connected between the data node and the access device and arranged to transmit data therebetween,

(d) a main power source connected to supply power to the data node and deliver a low level current from said main power source to the access device over said at least one data signaling pair resulting in a voltage level on the data signaling pair that can be sensed in response to the low level current,

(e) a secondary power source arranged to supply power from the data node via said data signaling pair to the access device, wherein the power supplied by said secondary power source to the access device is controlled in response to a preselected condition of the sensed voltage level.

23. Method for remotely powering access equipment in an Ethernet data network, comprising:

(a) providing an access device adapted for data transmission;

(b) connecting said access device to at least one data signaling pair connected between the access device and a data node adapted for data switching, wherein said at least one data signaling pair is arranged to transmit data therebetween;

(c) receiving at said access device a low level current from a main power source over said data signaling pair, wherein said main power source is connected to supply power to the data node; and wherein a voltage level is generated on the data signaling pair in response to the low level current;

(d) producing a voltage level on the data signaling pair in response to the low level current, wherein said voltage level can be sensed;

(e) *receiving at said access device controlled power supplied by a secondary power source arranged to supply power from the data node via said data signaling pair to the access device, in response to a preselected condition of said voltage level.*

* * * * *

US006218930C2

(12) **EX PARTE REEXAMINATION CERTIFICATE** (10759th)

United States Patent
Katzenberg et al.

(10) **Number: US 6,218,930 C2**
(45) **Certificate Issued: Nov. 9, 2015**

(54) **APPARATUS AND METHOD FOR REMOTELY POWERING ACCESS EQUIPMENT OVER A 10/100 SWITCHED ETHERNET NETWORK**

(75) Inventors: **Boris Katzenberg**, Trumbull, CT (US); **Joseph A. Deptula**, Watertown, CT (US)

(73) Assignee: **NETWORK-1 SECURITY SOLUTIONS, INC.**, Framingham, MA (US)

Reexamination Request:
No. 90/013,444, Feb. 16, 2015

Reexamination Certificate for:

Patent No.:	**6,218,930**
Issued:	**Apr. 17, 2001**
Appl. No.:	**09/520,350**
Filed:	**Mar. 7, 2000**

Reexamination Certificate C1 6,218,930 issued Oct. 14, 2014

Related U.S. Application Data

(60) Provisional application No. 60/123,688, filed on Mar. 10, 1999.

(51) **Int. Cl.**
H04L 12/10 (2006.01)
H04L 12/931 (2013.01)

(52) **U.S. Cl.**
CPC ***H04L 12/10*** (2013.01); *H04L 49/351* (2013.01); *H04L 49/40* (2013.01)

(58) **Field of Classification Search**
None
See application file for complete search history.

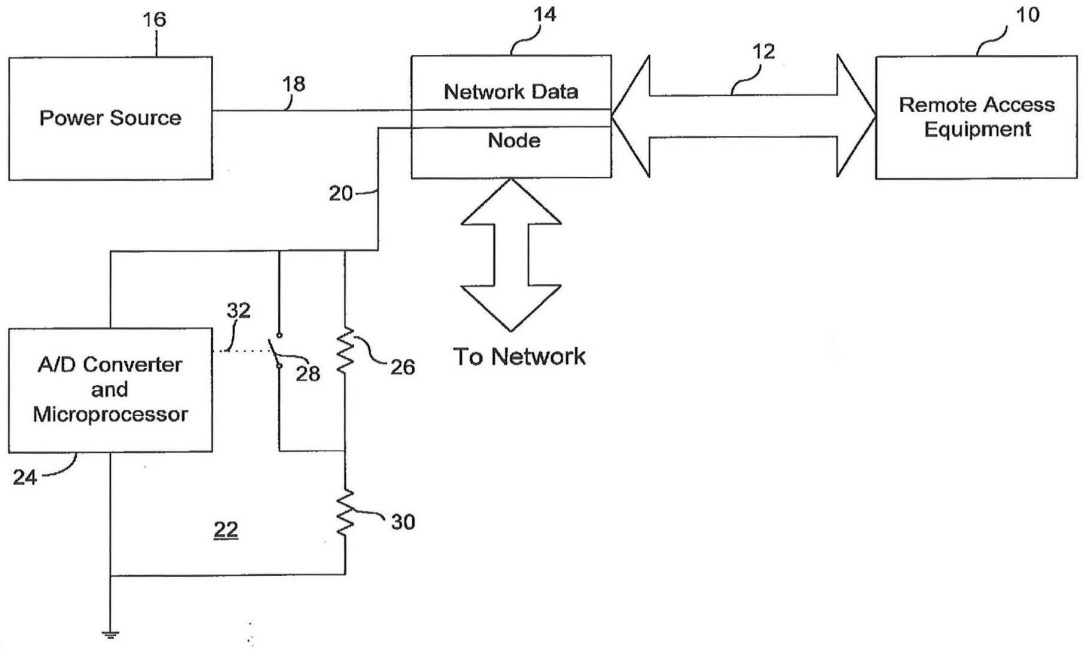
(56) **References Cited**

To view the complete listing of prior art documents cited during the proceeding for Reexamination Control Number 90/013,444, please refer to the USPTO's public Patent Application Information Retrieval (PAIR) system under the Display References tab.

Primary Examiner — Mark Sager

(57) **ABSTRACT**

Apparatus for remotely powering access equipment over a 10/100 switched Ethernet network comprises an Ethernet switch card with a phantom power supply for remote access equipment and added circuitry for automatic detection of remote equipment being connected to the network; determining whether the remote equipment is capable of accepting remote power in a non-intrusive manner; delivering the phantom power to the remote equipment over the same wire pairs that deliver the data signals, and automatically detecting if the remote equipment is removed from the network.



EX PARTE REEXAMINATION CERTIFICATE

NO AMENDMENTS HAVE BEEN MADE TO THE PATENT

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **6** and **8-23** is confirmed.

Claims **1-5** and **7** were not reexamined.

* * * * *

CERTIFICATE OF SERVICE

Counsel hereby certifies that on January 18, 2019, I electronically filed the foregoing Brief of Appellant Network-1 Technologies, Inc. with the Clerk of the Court for the United States Court of Appeals for the Federal Circuit by using the appellate CM/ECF system.

Participants in the case who are registered CM/ECF users will be served by the appellate CM/ECF system.

Upon acceptance by the Clerk of the Court of the electronically filed document, the required number of paper copies of the Brief of Appellant Network-1 Technologies, Inc. will be delivered to the Office of the Clerk, United States Court of Appeals for the Federal Circuit in accordance with the Federal Circuit Rules.

Date: January 18, 2019

/s/Gregory S. Dovel
Counsel for Plaintiff-Appellant Network-1 Technologies, Inc.

CERTIFICATE OF COMPLIANCE

1. This brief complies with the type-volume limitation of Fed. R. App. P. 28.1(e)(2) or 32(a)(7)(B), which were in effect on the docketing date of this case, because:

   [X] this brief contains 13,665 words, plus an additional 202 words in images that were not counted, for a total of 13,867 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii); *or*

   [ ] this brief uses a monospaced typeface and contains [*state the number of*] lines of text, excluding the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii).

2. This brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6) because:

   [X] this brief has been prepared in a proportionally spaced typeface using [*Microsoft Word 2016*] in [*14pt Times New Roman*]; *or*

   [ ] this brief has been prepared in a monospaced typeface using [*state name and version of word processing program*] with [*state number of characters per inch and name of type style*]

Date: January 18, 2019

Respectfully submitted,

/s/Gregory S. Dovel
Counsel for Plaintiff-Appellant Network-1 Technologies, Inc.