

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.
Petitioner,

v.

WIPQTUS INC.
Patent Owner.

Case No. IPR2024-00023
Patent No. 10,038,339

PATENT OWNER WIPQTUS INC.'S PRELIMINARY RESPONSE

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I. INTRODUCTION

Petitioner has failed to establish that there is “a reasonable likelihood” of prevailing against Claim 1, the only independent claim at issue, of U.S. Patent No. 10,038,339 (the “’339 Patent”). 35 U.S.C. § 314(a). Petitioner also sought review of dependent Claims 2, 3, 5, 7 and 9 (“Dependent Claims”), but since Petitioner has failed to carry its burden as to Claim 1, the Board does not need to address these Dependent Claims to deny institution. The Board should exercise its discretion and deny institution as to Claim 1 and the Dependent Claims for at least three reasons:

First, the Petitioner has failed to comply with the requirement of 37 C.F.R. § 42.104(b)(3), which requires the Petitioner to set forth “how the claim is to be construed.” Neither this Board nor the Patent Owner should have to guess as to what construction the Petitioner and its expert have applied. Because the Petitioner did not comply with 37 C.F.R. § 42.104(b)(3), it also did not comply with 37 C.F.R. § 42.104(b)(4), which requires the Petitioner to show “[h]ow the *construed* claim is unpatentable... .” Especially in this case, these requirements are not mere technicalities but crucial to understanding the non-obviousness distinctions between Claim 1, properly construed, and the Petitioner’s three-way combination of Chatterjee, Corbridge, and the knowledge of one skilled in the art.

Second, the invention of Claim is not rendered obvious under a proper construction of at least the terms (1) “impedance network;” (2) “switch network,” and (3) “said first circuitry ... configured to change impedance of said impedance network ... to obtain a modified form of said received power... .”

Third, Petitioner has relied on a legally wrong methodology in evaluating obviousness. Instead of evaluating the Claim 1 as a whole, Petitioner and its expert evaluated each “limitation” as to whether or not it was obvious. *See, e.g.*, Petition, pp. 25 (“Chatterjee in view of the knowledge of POSA renders obvious this limitation.”); 35; 39; 43; 46; 52; 55; 57; 58.

Fourth, Petitioner and its expert repeatedly relied on “knowledge of one skilled in the art” to make-up for the lack of disclosure of five limitations that are missing from the combination of Chatterjee and Corbridge. At least four of these limitations are important (not minor) limitations. However, Petitioner failed to explain how the “knowledge of a POSA” would supply the missing limitations beyond the bare assertion. Petitioner's reliance on the “knowledge of a POSA” does not meet the stringent requirements established by the Federal Circuit regarding the use of such knowledge to supply missing limitations. *See Arendi v. Apple, Inc.*, 832 F. 3d 1355 (Fed. Cir. 2016); *DSS Tech. Mgmt. v. Apple Inc.*, 885

F. 3d 1367 (Fed. Cir. 2018). For this reason, in addition to those above, institution should be denied under 37 C.F.R. § 42.104(b)(4).

II. OVERVIEW OF THE '339 PATENT AND CLAIM 1

A. Overview of The State of The Art In 2012

Today, wireless charging of devices such as smartphones is ubiquitous. That was not the case in 2012. Petitioner and its expert Dr. Phinney rely heavily on the Wireless Power Transfer (“WPT”) Standard (also known as “Qi”), Vol. 1, Part 1, Version 1.0.3, dated September 2011, which was attached as Exhibit 1008¹, in discussing the state of the art in 2012. Petitioner and its expert attempt to give the impression that wireless power charging in 2012 was much more mature than it actually was.

For example, Petitioner states that the Qi Standard, “a widely adopted interface standard for near field wireless power transfer using inductive charging, was first released in 2009, years before the earliest possible effective filing date of the '339 Patent on August 13, 2012.” Petition, p. 2. Notably, Petitioner did not provide the 2009 version of Qi. In 2009 and indeed in 2012, the Qi standard was not the only standard under development. *See* Ex. 2001, Declaration of Dr. Randal

¹ Petitioner has not submitted any evidence that the version of the WPT standard of Exhibit 1008 was publicly available. It may have been available only to members of the WPT consortium. The “copyright” notice (at Ex. 1008, p. 4 of 90) certainly raises some doubts.

H. Direen in Support of Patent Owner's Preliminary Response (the “Direen Decl.”), Section VII(D).

As of 2012, there were no clear winners as to a wireless power standard as shown by the following. By 2012, there were at least three other industry consortia in existence formed for the same purposes for which the WPC was formed. Ex. 2001, Direen Decl., ¶ 54.

One of these consortiums was the “Power Matters Alliance” (“PMA”). Ex. 2001, Direen Decl., ¶ 57. This consortium was co-founded in 2012 by Powermat and Proctor & Gamble. *Id.*

As a second example, another such consortium was the Alliance for Wireless Power (A4WP). Ex. 2001, ¶ 58. This consortium was founded in 2010 at the instigation of Qualcomm, when Qualcomm acquired WiPower, which was a spinoff from the University of Florida that had been founded in 2004. *Id.* A third such consortium was the Wireless Charging Technology consortium, which was initiated by Intel in 2015 as a result of Intel’s development of a particular wireless charging technology. Ex. 2001, ¶ 59.

In addition to these at least somewhat public standards, other companies were developing proprietary standards. One example was WiTricity, which was an

MIT spinoff that was founded in 2007. WiTricity's focus was (and still is) on wireless charging of electric vehicles (EVs.). Ex. 2001, Direen Decl., ¶ 61.

Another example was PowerbyProxi, which was founded in 2007, and was a spinoff from the University of Auckland (New Zealand). PowerbyProxi was a member of WPC, but was also developing its own technology for the wireless charging of "larger" devices that is, "larger" than, for example, a mobile phone or a laptop, but smaller than an EV. PowerbyProxi was acquired by Apple in 2017. Ex. 2001, Direen Decl., ¶ 62.

As just described, in 2012 various companies were developing numerous wireless power transfer technologies and there were various competing standards were under consideration. At that time, no clear winner (or winners) had yet emerged. Direen Decl., ¶ 52. While today the WPC's standards (including the "Qi" standard) are by far the dominant set of standards in the space, as of August 2012 this was not yet the case. Ex. 2001, Direen Decl., ¶ 52. The '339 Patent must be evaluated independently of the "Qi" standard.

B. Overview Of '339 Patent

1. The Parent '929 Patent

The '339 Patent issued from Application No. 15/095,070, which is a continuation-in-part that claims priority to Application No. 13/964,310, filed on August 12, 2013, which issued as U.S. 9,343,929 (the "'929 Patent"), and also claims priority to U.S. Provisional Application No. 61/682,312, filed August 13, 2012. Ex. 2002. The '929 Patent only included the Figures found in the '339 Patent up to Figure 7B. *See, e.g.*, Ex. 1007, p. 45 of 152 (file history of '929 Patent). The specification of the '929 Patent ended at what appears at Col. 17, l. 29 of the '339 Patent. Figures 9 – 10H, and cols. 17, l. 30 – Col. 26, l. 67 were added to the original disclosure in the '339 Patent.

2. Prosecution Histories

As correctly noted by the Petitioner, both the '339 Patent and the parent, the '929 Patent, were allowed in the first office action. The Examiner is presumed to be at least a person of ordinary skill in the art. *Application of Beach*, 152 F.2d 981, 983 (C.C.P.A. 1946).

Notably though, the Petitioner does not quote the examiner's Notice of Allowance for the '339 Patent, wherein the examiner stated:

Regarding Claim 1, the prior art does not disclose, teach or suggest a dual mode wireless power receiver configured to selectively apply a received power to a load device and utilize at least a part of the

stored power to power-up a secondary wireless power receiver and communicate with said secondary wireless power receiver to cause an action or transaction or charge said secondary wireless power receiver's load device, said dual mode wireless power receiver compromising:

said first circuitry, based on an input from said control logic circuit, configured to change impedance of said impedance network and topology of said switch network to obtain a modified form of said received power, and apply said modified form of said power to said load device;

said first circuitry, based on an input from said control logic circuit, configured to change said topology of said switch network and said impedance of said impedance network to transmit at least part of said stored power to said secondary wireless power receiver to power-up said secondary wireless power receiver;

said second circuitry, on power-up of said secondary wireless power receiver, configured to identify a type of said secondary wireless power receiver and identify a wireless power protocol of said secondary wireless power receiver;

said second circuitry, configured to receive and interpret data from said secondary wireless power receiver in said identified wireless power protocol;

said second circuitry, based on said interpretation, configured to perform a function associated with said transmitted power in conjunction with said first circuitry,

in combination with all the other claimed limitations.

Claims 2 – 12 are allowed for depending from Claim 1.

Ex 1006, Notice of Allowance, pp. 175 – 176.

The examiner made these findings in view of four prior art references: (1) 8,248,024; (2) 9,306,401; (3) 9,360,442; and (4) 2012/0153742. *See* '339 Patent.

These references were issued to leaders in the industry. The '024 was assigned to Microsoft. The '401 Patent was issued to LG Electronics. The '442 to Sony Corporation. The '742 Published Application to Qualcomm. Each of these entities is at least currently a member of the Wireless Power Consortium.

<https://www.wirelesspowerconsortium.com/member-directory/>. Collectively, these references represent a snapshot of the state of the art as of 2012. The examiner allowed the claims over these references thus demonstrating that the inventions claimed were both novel and non-obvious over the prior art.

C. OVERVIEW OF CLAIM 1 of '339 PATENT

Claim 1 of the '339 Patent is as follows:

A dual mode wireless power receiver configured to selectively apply a received power to a load device and utilize at least a part of the stored power to ***power-up a secondary wireless power receiver*** and communicate with said secondary wireless power receiver to cause an action or transaction or charge said secondary wireless power receiver's load device, said dual mode wireless power receiver comprising:

one of **coil** and capacitor electrodes;

a first circuitry comprising:

an **impedance network**;

a **switch network**;

a filter capacitor;

a second circuitry comprising:

a control logic circuit; and

a modulator/demodulator circuit;

said **first circuitry** configured to receive said power from a wireless power transmitter;

said **first circuitry**, based on an input from said control logic circuit, configured to change impedance of said impedance network and topology of said switch network to obtain a modified form of said received power, and apply said modified form of said power to said load device;

said **first circuitry**, based on an input from said control logic circuit, configured to change said topology of said switch network and said impedance of said impedance network to transmit at least part of said stored power to said **secondary wireless power receiver** to power-up said secondary wireless power receiver;

said **second circuitry**, on power-up of **said secondary wireless power receiver**, configured to identify a type of said secondary wireless power receiver and identify a wireless power protocol of said secondary wireless power receiver;

said **second circuitry**, configured to receive and interpret data from **said secondary wireless power** receiver in said identified wireless power protocol;

said **second circuitry**, based on said interpretation, configured to perform a function associated with said transmitted power in conjunction with said first circuitry.

'339 Patent, Claim 1 (emphasis added).

Petitioner states that the preamble is limiting, and WiPQTUS agrees that it is. For example, the phrase “a dual mode wireless power receiver” captures one of the patentable aspects of the invention – an all-in-one chip that not only receives power but can also communicate with another device, a “secondary wireless power receiver,” and wirelessly transmit power to that device.

The single all-in-one “dual mode wireless power receiver” was comprised of three primary components: (1) a coil or capacitor; (2) first circuitry; and (3) second circuitry. Further, Claim 1 clearly sets forth the three components of the “first circuitry,” which is distinct from the coil: (1) impedance network, and (2) switch network, and (3) a filter capacitor. Petitioner's highlighting of Figure 1 of the '339 Patent is especially helpful in distinguishing these components:

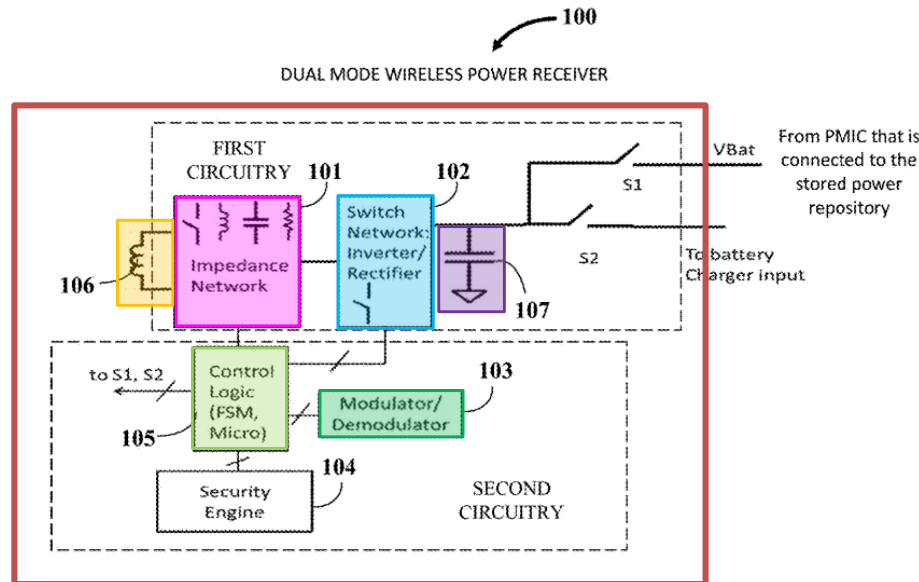


FIG. 1

Petition, p. 10. As shown, the inductor coil 106 (yellow) is distinct from the “impedance network” (shown in magenta). Likewise, the “impedance network” (magenta) is distinct from the “Switch Network: Inverter/Rectifier” 102 (shown in blue).

As will be discussed below, Petitioner and its expert Dr. Phinney conflate these distinct limitations to give the impression that the Ground 1 combination is closer than it is. From the structure of Claim 1 alone, multiple errors in the Petitioner's analysis are apparent. For example, Petitioner points to the "Bi-directional Coil Assembly 632" in Fig. 6B as the impedance network, yet element 632 also includes the induction coil L3. Petition, p. 28.

The separation of these circuits are not the only patentable features of Claim 1. The Claim also recites critical functionality that depends on these elements being separate and which could not be done by prior art circuits, including:

said first circuitry, based on an input from said control logic circuit, ***configured to change impedance of said impedance network*** and topology of said switch network ***to obtain a modified form of said received power***, and apply said modified form of said power to said load device;

As shown by the highlighted portion, the claimed "impedance network" must be capable of changing its topology to provide a different impedance while in at least the receiving power mode. The circuit of Chatterjee does not have this capability. Petitioner does not address this distinction, but instead focuses on changing impedance "in different modes." See Petition, p. 41. However, this is not what Claim 1 requires.

The last three claim limitations of Claim 1 capture the ability of the claimed dual mode device to “power up” and then communicate with another device to perform a function:

said **second circuitry, on power-up of said secondary wireless power receiver**, configured to identify a type of said secondary wireless power receiver and identify a wireless power protocol of said secondary wireless power receiver;

said **second circuitry**, configured to receive and interpret data from **said secondary wireless power** receiver in said identified wireless power protocol;

said **second circuitry**, based on said interpretation, configured to perform a function associated with said transmitted power in conjunction with said first circuitry.

'339 Patent, Claim 1 (emphasis added).

III. OVERVIEW OF PETITIONER'S SINGLE GROUND, THE TRIPLE COMBINATION OF CHATTERJEE, CORBRIDGE, AND ILL-DEFINED KNOWLEDGE OF ONE SKILLED IN THE ART

As an initial matter, Petitioner's entire obviousness analysis is flawed because it repeatedly concludes that an individual claim limitation is “obvious.” *See, e.g.*, Petition, pp. 25 (“Chatterjee in view of the knowledge of POSA renders obvious this limitation.”); 35; 39; 43; 46; 52; 55; 57; 58. It appears that Samsung's “primary” reference, that is, the reference that allegedly teaches the most limitations, is Chatterjee. The legally correct analysis is to first identify the differences between the claimed invention and the primary reference and any other

reference relied upon. This is the second *Graham* factor. *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). The M.P.E.P. correctly summarizes Federal Circuit precedent as follows:

In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 **is not whether the differences themselves would have been obvious**, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983)

M.P.E.P., Ninth Edition, Rev. 07.2022, Pbl. Feb 2023, Section 2141.02

Differences Between Prior Art and Claimed Invention (under heading, I. The Claimed Invention as a Whole Must be Considered”) (emphasis added) (<https://www.uspto.gov/web/offices/pac/mpep/s2141.html>) (last accessed 1/3/2024).

The highlighted portion concisely states the error committed by Petitioner and its expert. They focused on whether each difference between each claim limitation, standing alone, was or was not “obvious,” but never analyzed the claim as a whole.

The following chart summarizes the Petitioner’s position on whether a particular limitation is found in Chatterjee or whether it is relying on Corbridge or some vague “knowledge of one skilled in the art”:

OVERVIEW OF PETITIONER'S ALLEGATIONS OF OBVIOUSNESS				
Pet. No.	Claim 1	Chatterjee	Corbridge	Knowledge of POSA
1.p	A dual mode wireless power receiver configured to selectively apply a received power to a load device and utilize at least a part of the stored power to power-up a secondary wireless power receiver and communicate with said secondary wireless power receiver to cause an action or transaction or charge said secondary wireless power receiver's load device, said dual mode wireless power receiver comprising:	Just Chatterjee (p. 16).		
1.a	one of coil and capacitor electrodes;	Just Chatterjee (p. 22) ("expressly discloses coil").		

1.b	a first circuitry comprising: [i] an impedance network;	Just Chatterjee (p. 25) ("Chatterjee's bi-directional coil assembly discloses the claimed "impedance network").		
1.b	a switch network;	Just Chatterjee (pp. 25; 32) ("its power bridge circuit discloses claimed "switch network").		
1.b	a filter capacitor;	Just Chatterjee (p. 25) ("its power circuit discloses the claimed "filter capacitor").		
1.c	a second circuitry comprising: a control logic circuit; and	Just Chatterjee (p. 35) ("Chatterjee's processor 413 teaches the claimed 'control logic circuit'").		

1.c	a modulator/ demodulator circuit;	Just Chatterjee (p. 35; also 38) ("its communication circuit 414 comprises a modulator 416 and demodulator 417").		
1.d	said first circuitry configured to receive said power from a wireless power transmitter;			"Chatterjee in view of the knowledge of the POSA renders obvious this limitation." (p. 39).
1.e	said first circuitry, based on an input from said control logic circuit, configured to change impedance of said impedance network and topology of said switch network to obtain a modified form of said received power, and apply said modified form of said power to said load device;			"Chatterjee in view of the knowledge of POSA renders obvious this limitation." (p. 40).

1.f	said first circuitry, based on an input from said control logic circuit, configured to change said topology of said switch network and said impedance of said impedance network to transmit at least part of said stored power to said secondary wireless power receiver to power-up said secondary wireless power receiver;			“Chatterjee in view of the knowledge of POSA renders obvious this limitation.” (p. 43).
1.g	said second circuitry, on power-up of said secondary wireless power receiver, configured to identify a type of said secondary wireless power receiver and identify a wireless power protocol of said secondary wireless power receiver;		“Chatterjee in view of Corbridge and the knowledge of POSA renders obvious Limitation [1.g].” (p. 46).	
1.h	said second circuitry, configured to receive and interpret data from said secondary wireless power receiver in said		“Chatterjee in view of Corbridge renders obvious this	

	identified wireless power protocol;		limitation.” (p.55).	
1.i	said second circuitry, based on said interpretation, configured to perform a function associated with said transmitted power in conjunction with said first circuitry.			“Chatterjee in view of knowledge of POSA renders obvious this limitation.” (p. 57).
13	SCORE	7	2	4

As shown, Petitioner relies on the three-way combination of Chatterjee in view of Corbridge and in view of the “knowledge of POSA.” More particularly, using Petitioner's thirteen (13) subdivisions of Claim 1, Petitioner alleges that seven of the thirteen limitations are in Chatterjee, two of the thirteen are present in Corbridge, and four of the thirteen are evidently missing from Chatterjee and Corbridge, but are provided by the “knowledge of POSA.”

IV. LEVEL OF SKILL IN THE ART

For the purposes of this Preliminary Response only, the Patent Owner and its expert Dr. Direen will rely on the definition of the Person of Ordinary Skill in the Art (“POSITA”) provided by Dr. Phinney, which was:

a POSA would have had a bachelor's degree in electrical engineering or similar discipline, and at least two years of professional experience working with wireless power systems. Additional education, such as a master's degree of electrical engineering could substitute for professional experience and significant work experience could substitute for formal education. The POSA would have knowledge about circuitry and controller design in the context of wireless power transfer.

Ex. 1002, ¶ 65.

V. LEGAL STANDARDS

A. Claim Construction

Per the change in the rule in 2018, this Board must apply the same standard for claim construction as the district courts, which are to construe claim based on the standard established in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*); 37 C.F.R. 42.100(a). The principal issue in *Phillips* was “the extent to which we should rely on a patent’s specification in seeking to ascertain the proper scope of claims.” *Id.* In *Phillips*, the Federal Circuit confirmed the supremacy of the specification and file history over extrinsic sources such as dictionaries in determining the “ordinary meaning” of claim terms. *See id.* at 1320-21 (rejecting “such a limited role to the specification”).

Phillips suggested an approach whereby one starts with the claim language itself, then reviews the surrounding claims because “the context in which the term is used can be highly instructive.” *Id.* at 1314. After the review of the claims, one

should turn to the specification as “[u]sually it is dispositive; it is the single best guide to the meaning of a claim term.” *Id.* (citing *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir.1996)). The *Phillips* opinion rejected the dictionary-first approach of *Texas Digital*² and confirmed what every young reader learns, that the meaning of words turns on and may be derived from the context in which they are used. *See Phillips*, 415 F3d at 1319-1324.

“The only meaning that matters in claim construction is the meaning in the context of the patent.” *The Trustees of Columbia University v. Symantec*, 811 F.3d 1659, 1363 (Fed. Cir. 2016) (*citing Phillips* at 1316). As the Court in *Trustees* further explained:

As our *en banc* opinion in *Phillips* made clear, “a claim term may be clearly redefined without an explicit statement of redefinition” and “[e]ven when guidance is not provided in explicit definitional format, the specification may define claim terms by implication such that the meaning may be found in or ascertained by a reading of the patent documents.”

Trustees, 811 F.3d at 1364. “The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction.” *Phillips*, 415 F.3d at 1316.

² *Texas Digital Sys. v. Telegenix, Inc.*, 308 F.3d 1193, 1204 (Fed. Cir. 2002).

B. Petitioner Failed to Comply With 35 C.F.R. § 42.104

Petitioner's expert Dr. Phinney in his Declaration (Ex. 1002) states: “*I have been told* that the terms in the Challenged Claims *do not require construction* to evaluate the prior art in this Petition.” Ex. 1002, ¶ 89 (emphasis added). As explained by the Patent Owner's expert Dr. Direen, this is simply not true.

As will be shown below, as an example, the terms “impedance network” and “switch network” cannot be understood by a POSITA standing alone. To determine the scope of the claims, these terms must be construed. Direen Decl. ¶ 67. Once construed, it is easily shown that the three-way combination of Ground 1 (the only ground) does not render Claim 1 or its dependents obvious.

Petitioner likewise in its Petition failed to provide any construction of any limitations in Claim 1 or its dependents. Instead, Petitioner jumped from the general discussion of the Chatterjee and Corbridge references to attempting to apply on a limitation-by-limitation basis the claim terms to these references without first performing claim construction of those terms. Petition, pp. 15 – 69.

Neither this Board nor the Patent Owner should have to guess as to what meaning the Petitioner and its expert have applied to the terms of the Claims. To avoid guessing or speculation as to the Petitioner's construction, 37 C.F.R. § 42.104 provides as follows:

§ 42.104 Content of petition.

...

(b) Identification of challenge. Provide a statement of the precise relief requested for each claim challenged. The statement must identify the following:

(1) The claim;

(2) The specific statutory grounds under 35 U.S.C. 102 or 103 on which the challenge to the claim is based and the patents or printed publications relied upon for each ground;

(3) **How the challenged claim is to be construed.** ...

(4) How the **construed** claim is unpatentable under the statutory grounds identified in paragraph (b)(2) of this section.

...

37 C.F.R. § 42.104 (emphasis added). This rule reflects the age-old principle that the first step in a validity analysis based on prior art is that the claims must be construed. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 996 n.7 (Fed. Cir. 1995) (Mayer, J., concurring), aff'd, 517 U.S. 370 (1996); *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1351 (Fed. Cir. 2001).

Prior board decisions have denied institution because the Petitioner failed to provide a construction for one or more key terms material to the validity analysis. For example, in *C & D Zodiac, Inc. v. B/E Aerospace, Inc.*, Case IPR2017-01274, 2017 WL 5067555 (PTAB Oct. 31, 2017), the Board denied institution where the Petitioner failed to provide a construction of key terms. As here, the Petitioner,

instead of first construing the claim term, merely asserted that “a person of skill in the art would realize” that the disputed term was present in the reference, but “no explanation ... of how the required comparison [*i.e.*, between the claim and the prior art], was made. The Board denied institution after finding that:

Petitioner has not provided sufficient information for a determination of the scope of certain limitations, such as the “additional space” and, therefore, we cannot conduct the necessary factual inquiry for determining whether the prior art meets this limitation.

Id. at *5.

Similarly, in *SharkNinja Operating LLC v. Flexible Techs., Inc.*, No.2018-00903, 2018 WL 5099590 (PTAB Oct. 17, 2018), the Patent Owner in its Preliminary Response responded that “the Petitioner has failed to satisfy its burden of how the challenged claims are to be construed.” *Id.* at 3. The Board agreed and denied institution because the Petitioner had not met its burden to provide a construction nor to demonstrate a reasonable likelihood of prevailing. *Id.*

Both of these Board decisions were under the older “broadest reasonable construction” standard. *See* 37 C.F.R. § 42.100(b). Under the *Phillips* standard, the requirement under 37 C.F.R. § 42.104 is even more important given that *Phillips* is a more rigorous standard.

An exemplar decision applying the *Phillips* standard is *Volkswagon Group of Am., Inc. v. Michigan Motor Techs., LLC*, No. IPR2020-00229, 2020 WL

3662825 (PTAB July 6, 2020). The Petition at issue concerned “a method of operating an internal combustion engine.” The Petition failed to provide any claim construction. Rather, the Petitioner “provide[d] no more than a generic assertion that '[a]ll claim terms should receive their plain and ordinary meaning... .'” *Id.* at *4. “The specification of the challenged patent provide[d] an express construction of an important claim term.” *Id.* at *4. After noting this fact, the Board stated that “Petitioner's failure to recognize and address the express construction coupled with Petitioner's failure to otherwise address the meaning of the term, is insufficient to satisfy the requirements of 37 C.F.R. § 42.104(b)(3).” The Board denied institution.

Likewise, here, Petitioner's expert Dr. Phinney merely explained that he had “been told that the terms of the Challenged Claims do not require construction... .” Ex. 1002, ¶ 89. He also claimed to have applied “ordinary and customary meaning” to all claim terms. Ex. 1002, ¶ 88. The Petition is wholly deficient in any claim construction, which is no surprise since the attorneys apparently told Dr. Phinney that none was needed.

Like the challenged patent in *Volkswagon*, here the specification of the '339 Patent explained what the inventors meant by “impedance network,” an important term in Claim 1. As in *Volkswagen*, the Board should deny institution due to the

Petitioner's failure to address this term and other terms, like “switch network,” which terms are ambiguous and do not have a plain and ordinary meaning to a POSITA standing apart from the specification. Direen Decl., ¶ 67 – 69; 98 - 100.

As will be shown below, the Patent Owner is not seeking to take advantage of some mere technical defect; rather, understanding the distinction between, for example, an “impedance network” and a “switch network” is essential to a proper analysis of the single Ground presented by the Petition.

C. Law of Obviousness

1. Claim as a Whole

The legally correct analysis is to first identify the differences between the claimed invention and the references relied upon. *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). The M.P.E.P. correctly summarizes Federal Circuit precedent as follows:

In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 **is not whether the differences themselves would have been obvious**, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983)

M.P.E.P., Ninth Edition, Rev. 07.2022, Pbl. Feb 2023, Section 2141.02. Petitioner never explained how Claim 1 as a whole is rendered obvious by the three-way

combination of Ground 1. Instead, Petitioner and its expert merely concluded that individual limitations were “obvious,” which is not the legally correct approach.

Id.; see, e.g., Petition, pp. 25 (“Chatterjee in view of the knowledge of POSA renders obvious this limitation.”); 35; 39; 43; 46; 52; 55; 57; 58.

2. Rationales to Combine

In order to prove obviousness, the party alleging obviousness must show that all of the claim limitations are present in a combination of prior art references, provided that the party shows a reason or rationale to combine the references, or, subject to other limitations (explained below), “common sense” or “knowledge” of one skilled in the art” provides the missing limitation. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1578 – 79 (Fed. Cir. 1997). The Supreme Court in *KSR* confirmed that a rationale must be given for combining references, and expanded the rationales that might be used beyond the “teaching-suggestion-motivation” (“TSM”) test. *KSR Intern. Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007). The list of rationales found in *KSR* include at least the following:

(a) combining prior art elements according to known methods to yield predictable results (*KSR* at 1731);

(b) simple substitution of one known element for another to obtain predictable results (*KSR* at 1731);

(c) use of known techniques to improve similar devices (methods, or products) in the same way (*KSR* at 1731);

(d) “obvious to try” in the narrow circumstances “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions” (*KSR* at 1731);

(e) known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art (*KSR* at 1731; 1740); and

(f) recourse to “common sense,” provided that where there is an identifiable “reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does” (*KSR* at 1732). (As will be discussed below, the bare assertion of “common sense” to modify a single reference is not enough. The Federal Circuit requires more than the bare assertion. *See, e.g., DSS Technology Management, Inc. v. Apple*, 885 F. 3d 1367, 1374 (Fed. Cir. 2018)).

Here, as to Claim 1, the Petitioner provides a rationale to combine references for only a single limitation 1[g], and appears to rely only on the rationale highlighted above -- use of known techniques to improve similar devices (methods, or products) in the same way -- which will be discussed below. However, Petitioner also relied on the combination of Chatterjee and Corbridge with regards to the deficiency of the teachings of Chatterjee as to limitation 1.h, but failed to provide any rationale. This deficiency provides yet another basis for denying institution under 37 C.F.R. § 42.104 (b)(4).

As to the three limitations 1.d, 1.e, 1.f, as shown in the chart above, Petitioner relies on some ill-defined “knowledge of POSA” to supply these limitations that are missing from Chatterjee. This is akin to the “common sense” referenced in *KSR*. Where a single reference or combination of references is missing a limitation, *KSR* explained that when “common sense “ is relied upon, an identifiable “reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does” must be shown. *KSR*, 127 S. Ct. at 1741.

3. Limitation on use of “Knowledge of POSA” to Account for Missing Material Limitations

The Federal Circuit has provided guidance as to when a “knowledge of one skilled in the art,” also sometimes referred to as “common sense,” may be relied upon to supply a limitation missing from a single reference or combination of references. *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F. 3d 1324 (Fed. Cir. 2009); *Arendi v. Apple, Inc.*, 832 F. 3d 1355 (Fed. Cir. 2016); *DSS Tech. Mgmt. v. Apple Inc.*, 885 F. 3d 1367 (Fed. Cir. 2018). A comparison of *Perfect Web* and *Arendi* provides a limit to the use of “common sense” or “knowledge of one skilled in the art” (as Petitioner casts it) based on whether or not the limitation is a minor or “peripheral” limitations versus a major limitation that go to the “heart of the invention” *Arendi*, 832 F. 3d at 1363.

In *Perfect Web*, the Federal Circuit discussed *KSR*'s "common sense" and "obvious to try" factors at length and upheld the lower court's finding of obviousness where common sense had been used to supply a missing limitation. The Federal Circuit distinguished *Perfect Web* in *Arendi*. It first acknowledged that *Perfect Web* was the only case cited where "common sense" was used to supply a missing limitation. *Arendi*, 832 F. 3d at 1362.

The Court in *Arendi* then distinguished the missing limitation (D) in *Perfect Web* as nothing more than an instruction to repeat the first three steps (A-C) found in the prior art. *Id.* The Court then noted that, "in contrast, the missing search [*i.e.*, the missing limitation in *Arendi*] 'plays **a major role** in the subject matter claimed.'" *Id.* The Court concluded:

[W]hile 'common sense' can be invoked, even potentially to supply a limitation missing from the prior art, it must still be supported by evidence and reasoned explanation. In cases **where 'common sense' is used to supply a missing limitation**, as distinct from a motivation to combine, moreover, our search for a reasoned basis for resort to common senses **must be searching**. And, **this is particularly true where the missing limitation goes to the heart of the invention.**"

Arendi, 832 F.3d at 1363 (emphasis added).

In *DSS Technology Management*, the Federal Circuit applied *Arendi* in reversing the PTAB's ruling of obviousness where a conclusory allegation of "common sense" was relied upon to supply a missing limitation, stating:

As we observed in *Arendi*, “common sense and common knowledge have their proper place in the obviousness inquiry,” at least “if explained with sufficient reasoning.” 832 F.3d at 1361 (quoting *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1328 (Fed. Cir. 2009)). “But,” we cautioned, “there are at least three caveats to note in applying ‘common sense’ in an obviousness analysis.” *Id.* “First, common sense is typically invoked to provide a known motivation to combine, not to supply a missing claim limitation.” *Id.* at 1361–62 [citations omitted] Second, we have invoked common sense to fill in a missing limitation only when “the limitation in question was unusually simple and the technology particularly straightforward.” *Id.* at 1362 (citing *Perfect Web*, 587 F.3d at 1326). “Third, our cases repeatedly warn that references to ‘**common sense**’—whether to supply a motivation to combine **or a missing limitation**—cannot be used as a wholesale substitute for reasoned analysis and evidentiary support, **especially when dealing with a limitation missing from the prior art references specified.**” *Id.*

DSS, 885 F.3d at 1374 (emphasis added).

As will be shown below, Petitioner states its conclusion that the “knowledge of POSA” substitutes for each of four limitations that are missing from the combination of Chatterjee and Corbridge, but it does not explain why. At least three of these limitations – (1.d) “said first circuitry ... configured to change impedance of said impedance network ... to obtain a modified form of said received power...; (1.e) “said first circuitry ... configured to change said topology of ... said impedance network of said impedance network to transmit”; and (1.f) “said second circuitry ... configured to perform a function associated with said transmitted power” – are not mere minor limitations but are major limitations that

collectively capture “the heart of the invention.” *Arendi*, 832 F.3d at 1363. This shortcoming – Petitioner's failure to explain beyond the mere assertion of “knowledge of POSA” – provides an additional basis for denying institution under 37 C.F.R. § 42.104(b)(4).

VI. CLAIM CONSTRUCTION

Starting with the structure of Claim 1, the claimed “dual mode wireless receiver” is comprised of three elements. The first limitation is the coil (or capacitor). Notably, the “coil” in this limitation would be understood in the context of the Claim as well as the specification to be a coil used to receive or transmit power. *See, e.g.*, Col. 8, ll. 56 – 60; Col 10, ll. 17 – 20 (re. transmit mode); Col. 22, ll. 1 – 9 (re. charging, *i.e.*, receiving power, mode); *see also, e.g.*, Figs. 1 – 6 (showing the coil separate from the impedance network and the switch network). The second element is the “first circuitry,” and the third is the “second circuitry.” The limitations “impedance network” and “switch network” are part of the limitation “first circuitry.” From this observation regarding the structure of Claim 1, and in view of the specification, a POSITA would understand that neither the “impedance network” nor the “switch network” includes the coil used to receive or transmit power. Ex. 2001, Direen Decl., ¶¶ 81 - 82.

A. “Impedance network” and “[1.e] said first circuitry, based on an input from said control logic circuit, configured to change impedance of said impedance network ... to obtain a modified form of said received power”

These two limitations will be discussed together since the second, “[1.d] said first circuitry,” further restricts the “impedance network” as explained below.

1. *Phillips Claim Construction Analysis*

As noted by Dr. Direen, “impedance network” would not have a well understood meaning to the POSA, and would be ambiguous standing alone. Direen Decl., ¶ 83. To further understand the meaning of the limitation “impedance network,” a POSITA would review the specification, including the drawings. In the drawings, the “impedance network” and “switch network” are consistently shown as separate networks. Turning to the specification, a POSITA would find the following description of “impedance network”:

The impedance network 101 comprises ***one or more of*** passive electronic components, for example, a resistor, a capacitor, a magnetic device, a transducer, transformer etc.; active electronic components, for example, a diode, a transistor such as a metal oxide semiconductor field effect transistor (MOSFET), a bipolar transistor, etc., operational amplifiers, an optoelectronic device, etc., and electronic switches.

'339 Patent, Col. 9, ll. 4 – 14 (emphasis added). Direen Decl., ¶ 86.

As explained by Dr. Direen, a POSITA would understand “network” to mean two or more distinct electrical components electrically connected together.

Direen Decl., ¶ 88. With this understanding, a POSITA would understand the phrase to mean two or more of the list (1 – 3): (1) one or more passive electronic components..., (2) active electronic components..., **and** (3) electronic switches.

Direen Decl., ¶ 88. This understanding would be further informed by the illustration of “Impedance Network” shown in Figures 1; 3; 5. Therein, the “impedance network” is illustrated as:

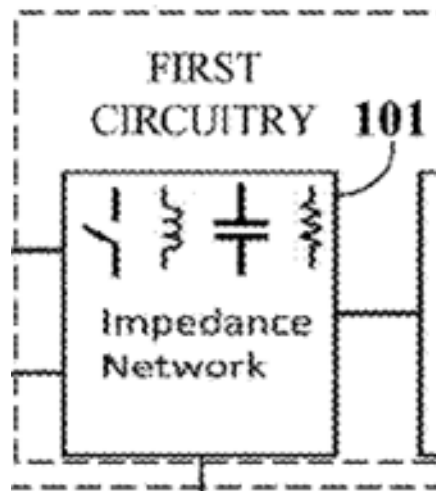


Fig. 1, element 101. Taking the four symbols shown in the box labelled “Impedance Network,” from left to right, a POSITA would understand the illustrations therein to mean a switch, an inductor, a capacitor, and a resistor.

Direen Decl., ¶ 90.

In further reviewing the specification, the POSITA would note an additional characteristic of the “impedance network,” that is, that it must be controllably variable. Direen Decl., ¶ 87. For example, the specification states in connection

with the passage quoted above ('339 Patent, Col. 9, ll. 4 – 14) that “[t]hese electronic components in combination are utilized to vary impedance of the dual mode wireless power receiver 100 prior to transmitting power to a secondary wireless power receiver 300.” Col. 8, ll.11 – 14. The specification further explains: “[o]n receiving sufficient level of power from the wireless power transmitter 200, the control logic circuit 105 adjusts the impedance of the impedance network 101 of the first circuitry.” Col. 10, ll. 63 – 65.

In addition, a POSITA in examining the structure of Claim 1 would note the following limitation:

said [3] first circuitry, based on an input from said control logic circuit, ***configured to change impedance of said impedance network*** and topology of said switch network to obtain a modified form of said received power, ***and*** apply said modified form of said power to said load device;

'339 Patent, Claim 1, Col. 27, ll. 20 – 25. This same claim limitation is also found in Claim 1 of the parent '929 Patent (*see* Col. 15, ll. 33). Ex. 2002 (the “929 Patent”). This limitation captures the controllably variable aspect of the impedance network. While in the receiving wireless power mode, the impedance network of the first circuitry must be capable of changing its impedance in response to input from the control logic. This limitation captures the functionality described at Col. 10, ll. 63 – 65; *see also* Col. 2, ll. 43 – 45. Therefore, based on

the structure of the claim and in light of the specification, a POSITA would understand that if a network cannot change its impedance during the charging mode, such a network would not be an “impedance network” within the meaning of Claim 1. Direen Decl., ¶ 87; 89.

Thus, after reading the specification and reviewing the drawings, a POSITA would understand from the context in which the phrase “impedance network” was used therein that the “impedance network” means *“a collection of two or more electrical components (from the list (1) one or more passive components; active components; and switches), excluding the induction coil used to transmit and receive power (as is evident from Figures 1, 3, and 5), and wherein the impedance of the network can be controllably varied during at least the receiving power mode.”* Direen Decl., ¶ 97; *Trustees*, 811 F.3d at 1364.

2. Dependent Claim 3 Further Supports this Construction

Dependent Claim 3 further supports a construction of “impedance network” to mean “two or more electrical components” as set forth above:

The dual mode wireless power receiver of claim 1, wherein said **impedance network** of said first circuitry *comprising the elements* that are one of chosen *a priori with fixed values* and tuned during operation over a range of values.

’339 Patent, Col. 27, ll. 47 – 51; Direen Decl., ¶ 91. From the structure of the Claim, its meaning is clear.

As shown, the impedance network must be comprised of “elements.” The plural indicates two or more. The use of the verb “are” reflects the plural nature of “elements.” “A priori” simply means “relating to or derived by reasoning from self-evident propositions.” Merriam-webster.com/dictionary/a%20priori. This word – a priori – modifies “chosen.” The word “values,” that is, the thing that must be chosen for the “elements,” is plural. The phrase “and tuned during operation over a range of values” further restricts the collection of elements – they must be “tunable during operation.” Thus, Claim 3 merely places an additional structural restriction on the impedance network, wherein the component parts of the “impedance network” that have values, such as the passive components, must be chosen “a priori,” and the components must be “tunable during operation.” Direen Decl., ¶ 92.

Petitioner attempts to make much of Claim 3 in combination with Fig. 10E (of the '339 Patent) to argue that the “impedance network” can be just a single capacitor. Petition, pp. 27, 59. However, this assertion is wrong in view of the proper construction. Direen Decl., ¶ 97. A single capacitor does not meet the construction “two or more components,” nor can the impedance of a single capacitor be controllably varied. Direen Decl., ¶¶ 88; 97.

The analysis contained in Dr. Phinney's declaration highlights the fact that construction of Claim 3 is necessary, but he and the Petitioner failed to provide any analysis. Ex. 2001, Direen Decl., ¶ 93. Instead, Petitioner asked Dr. Phinney to assume a construction, as shown by Paragraph 180 (of Exhibit 1002):

I have been asked to assume that claim [3] can be met by disclosure of **either one of** "elements that are ... chosen a priori with fixed values" **and** "elements that are ... tuned during operation over a range of values."

Ex. 1002, p. 93. It is important to note that the Petitioner and Dr. Phinney have rewritten the language of Claim 3 with absolutely no explanation as to why. The Patent Owner and this Board should not have to speculate. Again, Petitioner failed to comply with 35 C.F.R. § 42.104.

The motivation of Petitioner in rewriting the claim is clear – it did so that it could then argue that the single capacitor (C1, Fig. 6A or C2 in Fig. 6B) of Chatterjee meets the limitation "impedance network." Ex. 1002, Phinney Decl., ¶ 182. Capacitor (C1 or C2), being a single passive device, does not constitute a "network" much less the "impedance network" as construed above. Direen Decl., ¶¶ 123 - 125.

Petitioner's reliance on Fig. 10E of the '339 Patent in its analysis of "impedance network" is misplaced. Petition, p. 27. Fig. 10E was not in the original disclosure shown in the '929 Patent. Ex. 2002.

The requirement that the “impedance network” have an impedance that is controllably variable while in at least the charging mode is found in the following limitation of Claim 1 of the '339 Patent:

said first circuitry, based on an input from said control logic circuit, configured to change impedance of said impedance network and topology of said switch network to obtain a modified form of said received power, and apply said modified form of said power to said load device;

'339 Patent, Col. 27, ll. 20 – 25. This same limitation appears in Claim 1 of the parent of the '339 Patent, the '929 Patent:

said first circuitry, based on an input from said control logic circuit, configured to change impedance of said impedance network and topology of said switch network to obtain a modified form of said received power, and apply said modified form of said received power to said load device;

Ex. 2002, '929 Patent, Col. 15, l. 65 – Col. 16, l. 4. However, Figures 10A - H were not in '929 Patent. Thus, Petitioner and Dr. Phinney's assumption that Claims 1 and 3 must read on what is shown in Figs. 10A – 10H is misplaced.

B. “Switch Network”

A POSA would not, reading Claim 1 and the limitation “switch network” in a vacuum, have a clear understanding of the meaning of “switch network.” Direen Decl., ¶¶ 99 - 106. Construction is required. Direen Decl., ¶ 100. Therefore, the

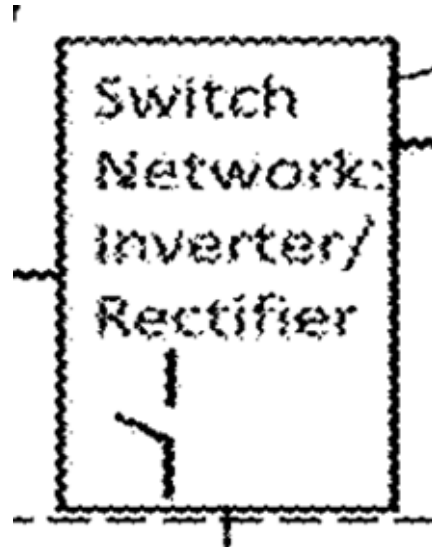
POSITA would review the specification, including the drawings, to determine the meaning of the limitation “switch network” as used in the Claims.

Within the specification of the '339 Patent, an explanation of the term “switch network” is found at numerous points in the specification. Early on, the specification states:

The switch network of the first circuitry is configured as an inverter or a rectifier depending on the mode of operation of the dual mode wireless power receiver. In the charging mode, the switch network is configured as a rectifier to covert alternating current to direct current (ac-to-dc). In the communication mode, the switch network is configured as an inverter to convert direct current to alternating current (dc-to-ac).

'339 Patent, Col. 2, ll. 60 - 67. Further instances explaining the switch network of the '339 Patent, may also be found at 3:63-66, 8:37-39, 8:47-51, 10:52-55, 11:24-29, 12:1-7. Direen Decl., ¶ 101.

With regard to the excerpt immediately above (Col.2, ll. 60 - 67), note in particular that the switch network is configured to be either a rectifier or an inverter – depending on the mode of operation. This is consistent with the depiction provided by Figure 1, which illustrates the “switch network” as follows:



'339 Patent, Figures 1. Element 102 is named "Switch Network: Inverter/Rectifier," which comports with the explanation in the specification (quoted above) that the "switch network" will be configured as either an inverter or a rectifier. *See also* Figures 5A, 8A-8C, and 9A-9D. Further, the "switch network" is described in some figures as being in one mode or another and, thus, is configured to be either an inverter or a rectifier. For example, the switch network is shown as being configured as an inverter in Figures 4A-D, 5B, 7A-7B, and 10A-10H, while the switch network is shown as being configured as a rectifier in Figures 2B and 6B. Direen Decl., ¶ 101.

An inverter and rectifier are well-known devices in electrical engineering used to modify current. Direen Decl., ¶ 102. The function of an inverter is to convert DC to AC, and the function of a rectifier is to convert AC to

DC. *Id.* An example of an inverter is a device that draws DC power from a car battery and then converts DC to a 60 Hertz AC source that is compatible with the US standard utility power. *Id.* An appliance such as a toaster can be plugged into this kind of inverter to receive AC power in the same way it could be plugged into a household wall socket. An example of a rectifier is a Full Wave Bridge Rectifier, which takes AC power from a household wall socket and converts it to DC so that a device can draw power in DC form. *Cf.* Col. 16, ll. 39 41. The above two examples are not meant to limit what either an inverter is, or a rectifier is. A POSITA will have invariably been exposed to these devices in all kinds of electronic devices. Direen Decl., ¶ 102.

More broadly, inverters and rectifiers belong to a more general class of devices that modify the form of electrical power. Direen Decl., ¶ 103. For example, and not as a limitation, a device can be constructed with the same components present in a “switch network” that could convert power in the form of DC to a power signal that is the combination of AC and DC (*i.e.*, an AC signal with a DC component). Direen Decl., ¶ 103. Thus, a “switch network” (as it has been inferred from the specification) can modify the form of the power coming into it and apply that power in a different form.

The specification states that the “switch network” is used generically to modify the form of the received power:

The first circuitry, based on an input from the control logic circuit is ***configured to change*** the impedance of the impedance network and ***topology of the switch network to obtain a modified form of the received power, and apply the modified form of the power to the load device.***

'339 Patent at 9:4-14 (emphasis added). The limitation emphasized in the quotation above describes how the topology (the state of the individual switches) of the “switch network” is configured to change for the purpose of modifying the form of the received power and then apply that modified power to a load device. Although such a device could certainly be used to implement the functionality of an inverter or a rectifier, it also has the capability to implement functionality that is more generic. Direen Decl., ¶ 105.

Reading the claim term in light of the specification, including the drawings, a POSITA would understand that the limitation “switch network” ***to mean “an interconnected combination of two or more switches configured to modify the form of power.”*** Direen Decl., ¶ 106. The POSA would also understand that the “switch network” is separate from the “impedance network” and the “coil.” Direen Decl., ¶¶ 81 – 82; 106.

**VII. UNDER PROPER CONSTRUCTION CLAIM 1 IS NOT
RENDERED OBVIOUS BY PETITIONER'S THREE-
WAY COMBINATION**

Under a proper understanding of the terms “impedance network” and “switch network,” institution must be denied because Petitioner and its expert Dr. Phinney have not shown a reasonable likelihood of prevailing on its three-way combination of Ground 1. As will be shown the following analysis, the construction of the terms “impedance network” and “switch network” is essential to the validity analysis and resolving whether or not Claim 1 is rendered obvious under Ground 1. Applying the second *Graham* factor, the following discussion highlights the differences between the invention of Claim 1, properly construed, and each of Chatterjee, Corbridge, and the “Knowledge of POSA” (to the extent such knowledge was particularly stated).

A. Differences Between the Invention of Claim 1 and Chatterjee

1. “Coil” Separate from “Impedance Network”

Petitioner and its expert Dr. Phinney assert that “Chatterjee’s bi-directional coil assembly discloses the claimed “impedance network.”” Petition, p. 25; Ex. 1002, p. 53, ¶ 107. This assertion is not correct. Direen Decl., ¶¶ 120 – 125.

The “bi-direction coil assembly,” referenced as element 412, of Chatterjee is shown in the following diagram:

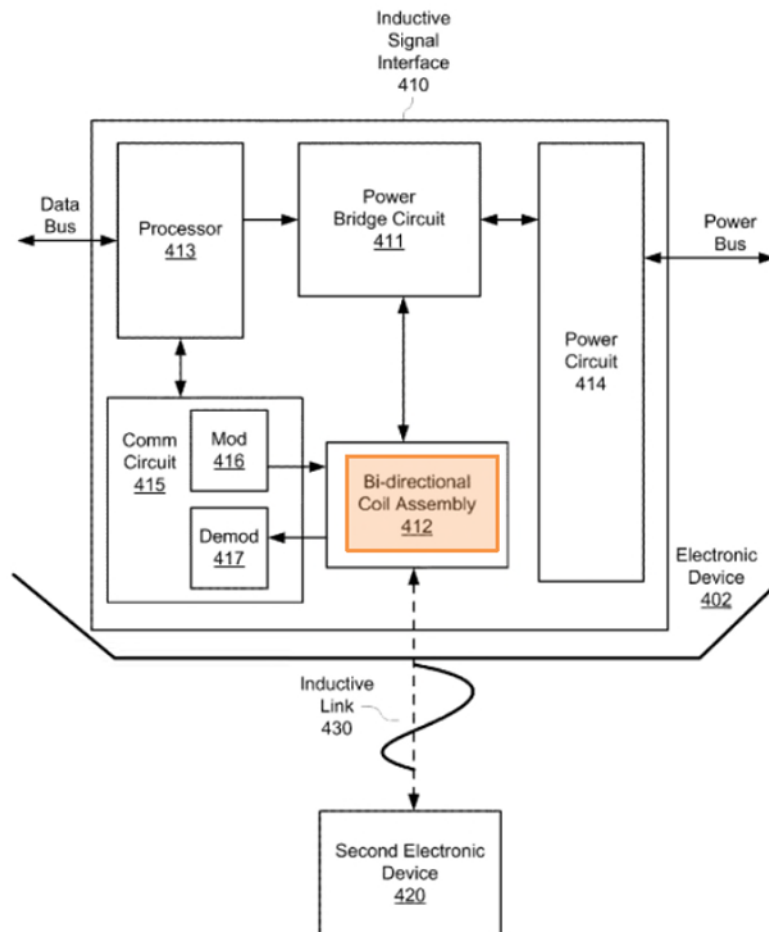


FIG. 4

Ex. 1002, ¶ 104 (showing Fig. 4 of Ex. 1003 with highlighting). The name “coil assembly” alone suggests that the induction coil is part of the named assembly. More detailed drawings and text of Chatterjee confirm this.

Beginning with the abstract, the “coil assembly” “has one or more inductive coils.” Ex. 1003, Abstract. This same statement is found under “Detailed Description,” “[a]n inductive signal interface includes a coil assembly which has

one or more inductive coils.” Ex. 1003, ¶ [0030]; *see also* ¶ [0033]. The “Bi-Directional Coil Assembly” is described as:

[t]he bi-directional coil assembly 412 operates in a similar fashion the bi-directional coil assembly 312 of Fig.3 to transmit and receive the power signal. The bidirectional coil assembly 412 is also coupled to the communication circuit 415 to receive and transmit modulated data signals.

Ex. 1003, ¶ [00045]. Also, “[d]uring the power receive mode, of the inductive signal interface 410, the bi-directional coil assembly 412 receives power over the inductive link 430 from the second electronic device 420.” Ex. 1003, ¶ [0046]. “During the power transmit mode of the inductive signal interface 410, the bi-directional coil assembly 412 is used to carry the modulated power signal to the second electronic device 420.” Ex. 1003, ¶ [0047].

“Fig. 6A illustrates a circuit level embodiment of the power bridge circuit 311, 411, 511 and the bi-directional coil assembly 312, 412, 512 of Figs. 3, 4, and 5 respectively.” Ex. 1003, ¶ [0061]. Again, Petitioner and Dr. Phinney rely on element 412. Ex. 1002 ¶¶ 104, 108. Figure 6A is as follows:

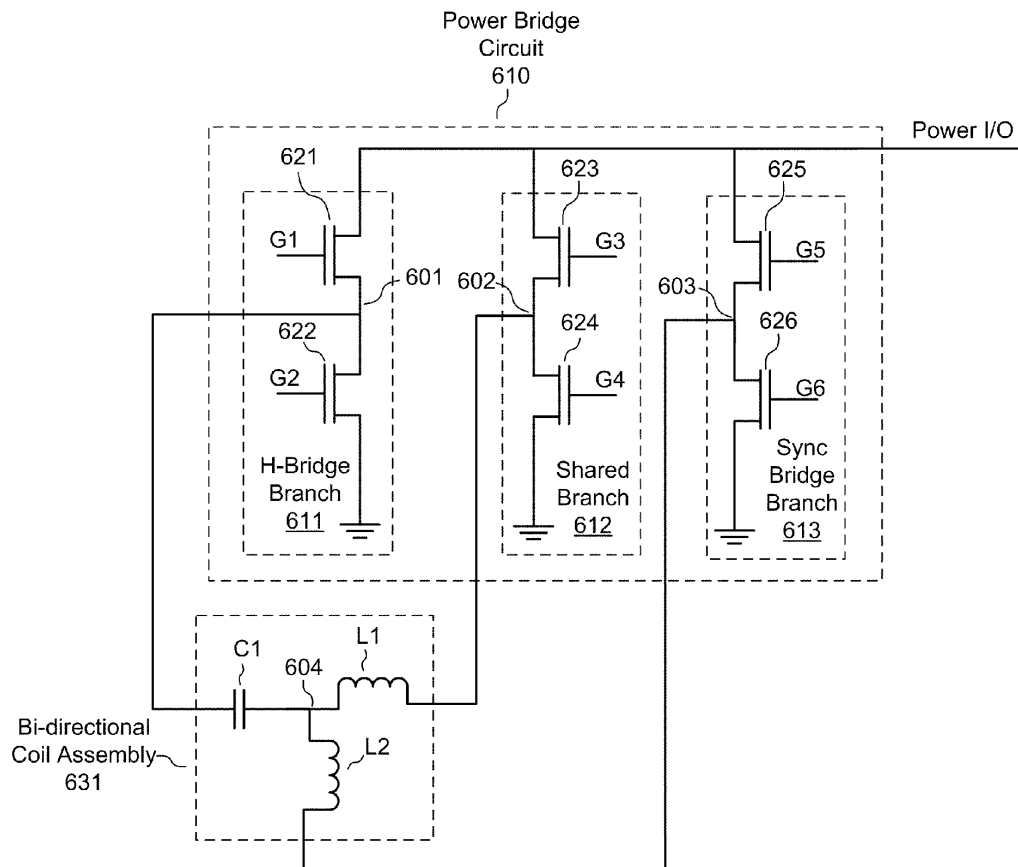


FIG. 6A

This Figure 6A is described in relevant part to “Bi-directional Coil Assembly 631” as follows: “The bi-directional coil assembly 631 is coupled to all three branches of the power bridge circuit and includes a capacitor C1 and two inductive coils L1 and L2.” Ex. 1003, ¶ 62.

Dr. Phinney does not cite to any of the more detailed Figures 6 in asserting that the “coil” limitation is met. See Ex. 1002, ¶ 104-105. As to “impedance

network,” Dr. Phinney relies on Figure 6B. Para. 113. Ex. 1002, ¶¶ 113 - 115. A similar analysis as applied to Fig. 6A applies to Fig. 6B, which is as follows:

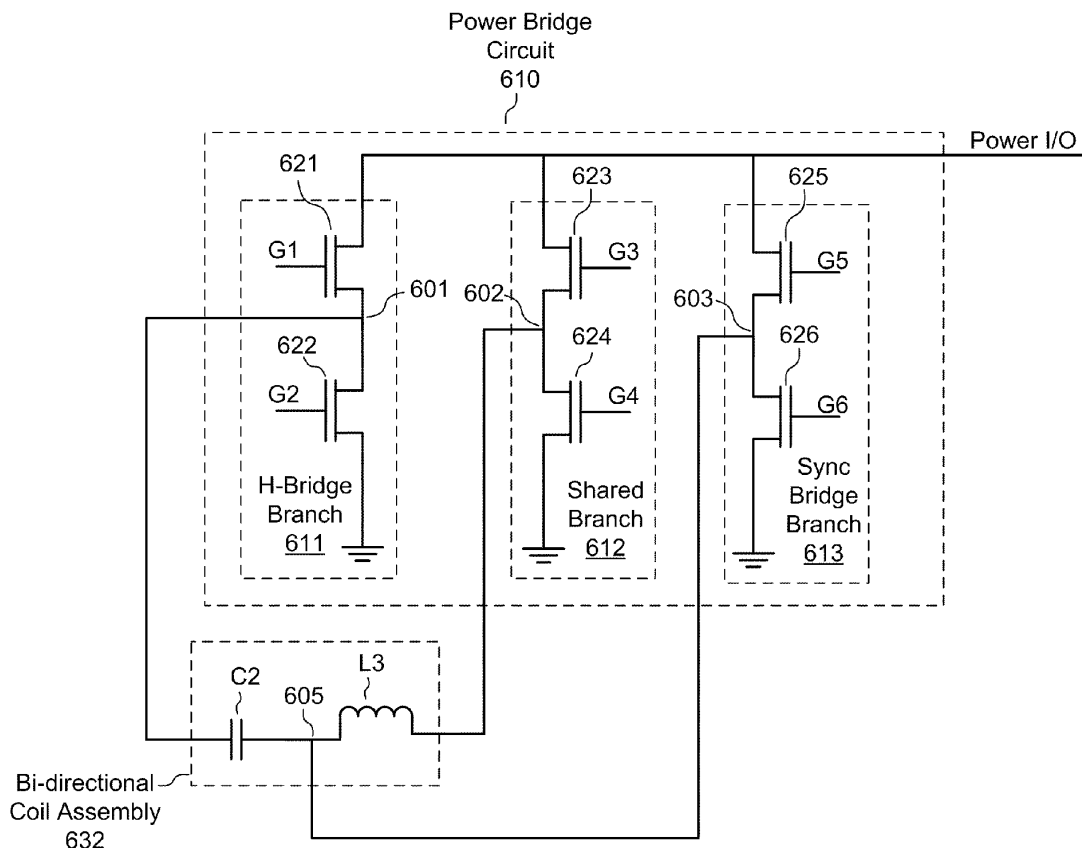


FIG. 6B

Figure 6B is described as follows: “FIG. 6B is [sic] illustrates the power bridge circuit of FIG. 6A coupled to another bi-directional coil assembly under another embodiment.” Ex. 1003, ¶ 0012. Later in the specification, the following description is given: “FIG 6B illustrates the power bridge circuit 610 pf FIG. 6A

coupled to another embodiment of the bi-directional coil assembly. The bi-directional coil assembly 632 includes a capacitor C2 and an inductive coil L3.”

Ex. 1003, ¶ 0068. L3 is used to receive and transmit power. Ex. 1003, ¶¶ 0068, 0069; Direen Decl., ¶ 119.

As shown and explained in Chatterjee, the two inductor coils L1 and L2 in the embodiment of Fig. 6A and the coil L3 in the embodiment of Fig. 6B are used to receive or transmit power. Direen Decl., ¶ 119. Thus, while these coils L1 and/or L2 in Fig. 6A or coil L3 in Figure 6B meet the limitation “coil” of Claim 1, these coils are not part of the “impedance network” of the “first circuitry” as alleged by Dr. Phinney. 1002, ¶¶ 113 - 115; Direen Decl., ¶ 119. The “coil” of Claim 1 is independent and apart from the “first circuitry” including the “impedance network.” Direen Decl., ¶ 119. Therefore, a POSA would understand that the “Bi-Directional Coil Assembly” (labelled 412; 631, 632) does not meet the limitation “impedance network” as will be explained below. Direen Decl., ¶ 120.

2. “Impedance Network” Not Present in Chatterjee

As set forth above, “impedance network” is properly construed as:

a collection of two or more electrical components (from the list (1) one or more passive components; (2) active components; and (3) switches), excluding the induction coil used to transmit and receive power (as is evident from Figures 1, 3, and 5), and wherein the impedance of the network can be controllably varied during at least the receiving power mode.

Direen Decl., ¶ 97. The last portion in italics stems from the additional structural limitation imposed by the limitation 1.e, “said first circuitry, based on an input from said control logic circuit, configured to change impedance of said impedance network ... to obtain a modified form of said received power, and ...,” which will be addressed immediately below in subsection 3.

Dr. Phinney relies on Fig. 6B to assert that element 632, the Bi-Directional Coil Assembly,” meets the limitation “impedance network,” stating:

Therefore, it is my opinion that Chatterjee's bid-directional coil assembly discloses the claimed 'impedance network' such as by providing a capacitor C2 with capacitive impedance and a wire with no impedance that can be selectively connected with the inductive coil under different modes to provide variable impedance under different modes.

Ex. 1002, ¶¶ 113; 115 This assertion is not correct. Direen Decl., ¶ 123.

As an initial matter, a “wire” does not constitute a “component” such as “electrical components (from the list (1) one or more passive components; (2) active components; and (3) switches).” Direen Decl., ¶ 124. Furthermore, the single capacitor C2 (shown in Fig. 6B) does not constitute an “impedance network” under the proper construction given above, which requires “two or more components... .” Therefore, the limitation “impedance network” is missing from Chatterjee. Direen Decl., ¶ 125.

3. Limitation 1.e, “said first circuitry, ... configured to change impedance of said impedance network ... to obtain a modified form of said received power...” is not met by Chatterjee

As shown above, the Petitioner and its expert Dr. Phinney assert that “Chatterjee’s bi-directional coil assembly discloses the claimed ‘impedance network.’” Petition, p. 25; Ex. 1002, p. 53, ¶ 107. This assertion is not correct for the reasons just shown, including (1) the coil used to transfer power is not separate from the alleged “impedance network” as Claim 1 requires, and (2) excluding the coils L1 and L2 (Fig. 6A) or L3 (in Fig. 6B) , the single capacitor C1 does not constitute an “impedance network,” which requires two or more components... .” Direen Decl., ¶ 126.

In addition to these differences, the limitation 1.e is not met by Chatterjee. As to this limitation, Petitioner and its expert allege as follows:

a POSA would have understood that Chatterjee’s bi-directional coil assembly has different impedance in different modes because its impedance network – capacitor C2 between node 601 and 605 and the wire between node 603 and 605 – **provides different impedance under different modes:** in the power transmit mode, the impedance network provides capacitive reactance ...; and in the power receive mode, it does not... . Phinney (EX1002, ¶142.

Petition, p. 42 (emphasis added). As shown in the bolded portion, Petitioner concedes that, even counting the coil L3 (of Fig. 6B) as part of the “Bidirectional Coil Assembly 632,” which Petitioner alleges is the “impedance network,” the

Petitioner's alleged "impedance network" is not capable of changing its impedance in *the same mode* of operation, the receive mode, as required by this limitation of Claim 1.

A POSA would understand from the structure of the claim language -- "a modified form of said received power, and apply said modified form of said power to said load device" -- to be requiring at least a change of impedance when the claimed dual mode wireless receive is in the receiving power mode, that is, it is charging the load device (*e.g.*, the battery). See Section VI(A) above (construing "impedance network"). This admission - that Chatterjee can only change impedance "under different modes" - alone justifies denial of institution because the alleged impedance network does not meet this limitation, nor did Petitioner cite any evidence that would render this limitation obvious. Direen Decl., ¶ 127.

B. Differences Between the Invention of Claim 1 and Corbridge

Corbridge (Ex. 1004), published in 2010, discloses a system having two devices, one device "capable of transmitting a power signal to a second device." Col. 2, ll. 64 – 65. The first device acting as a charger is capable of "receiving feedback from the second device in order to regulate the power signal. Still further a communication protocol may be established to enable the real-time regulation of

the power signal based on power conditions existing on the device receiving the power signal.” Col. 2, l. 64 – Col. 3, l. 3.

The devices of Corbridge are different than the device of Claim 1 of the '339 Patent. For example, separate coils were used to transfer power and transfer data. *See, e.g.*, Fig. 9A (elements 830 and 832). Direen Decl., ¶ 131. Also, Petitioner's expert Dr. Phinney did not address the "on power-up of secondary wireless power receiver." *Id.* Direen Decl., ¶ 133. Other differences exist.

Petitioner relies on Corbridge's disclosure of the communication protocol. More particularly, Petitioner relies on Corbridge to provide two limitations it concedes are missing from Chatterjee,

[1.g] said second circuitry, on power-up of said secondary wireless power receiver, configured to identify a type of said secondary wireless power receiver and identify a wireless power protocol of said secondary wireless power receiver;

[1.h] said second circuitry, configured to receive and interpret data from said secondary wireless power receiver in said identified wireless power protocol;

See Chart above; Petition, pp. 46, 55. Even assuming *in arguendo* that these limitations are met, and Patent Owner reserves the right to explain differences in the event institution is not denied, institution should be denied regardless of the assertions made as to Corbridge regarding these two limitations because, as explained below, Ground 1 does not render Claim 1 obvious.

C. Claim 1 Petitioner's Assertions of “Knowledge of POSA” are Vague and Do Not Make-Up for the Missing Disclosure of Chatterjee

Petitioner and Dr. Phinney rely on “knowledge of POSA” as to limitations 1.d (Ex. 1002, ¶¶ 138 – 139), 1.e (Ex. 1002, ¶¶ 145), 1.f (¶¶ 146 – 151), and 1.i (Ex. 1002, ¶¶ 174 – 177). For the purposes of this Preliminary Patent Owner's Response *only*, Patent Owner will assume *in arguendo* that the assertions as to 1.d, 1.f, and 1.i are correct.

However, as to limitation 1.e, as explained above, Chatterjee does not teach limitation 1.e: “said first circuitry, ... configured to change impedance of said impedance network... .” Direen Decl., ¶ 136. Neither Petitioner nor Dr. Phinney has explained how the “knowledge of the POSA” would supply the missing disclosure as to this limitation.

It appears that Dr. Phinney only relies on the “knowledge of a POSA” as to portion of limitation 1.e; ““configured to” “apply said modified form of said power to said load device.” Ex. 1002, ¶ 145. Contrary to Dr. Phinney's assertion, merely applying the power received “because it is DC and not AC” meets the limitation “modified power.” Direen Decl., ¶ 136.

D. Claim 1 would not be Obvious to a POSA under Ground 1

As demonstrated above, under a proper construction numerous limitations are not met by Chatterjee standing alone. Even assuming that there was a rationale for combining Chatterjee with Corbridge, Corbridge does not make up for the missing limitations, including “impedance network” and limitation 1.e. Direen Decl, ¶ 138. Furthermore, Petitioner’s ill-defined “knowledge of a POSA” does not make up for the limitations that are missing from the combination of Chatterjee and Corbridge. *Id.* For example, a POSA in 2012 would not have found it obvious to modify the device of Chatterjee and/or Corbridge to add an “impedance network” “wherein the impedance of the network can be controllably varied during at least the receiving power mode.” *Id.* Furthermore, the lack of disclosure of these important limitations cannot be provided by the vague allegations by Dr. Phinney as to the “knowledge of POSA.” *See Arendi*, 832 F.3d at 1363 (emphasis added). As shown by Dr. Direen, viewing Claim 1 as a whole, the invention of Claim 1 would not have been obvious to the POSITA in view of Ground 1, the only ground raised in the Petition. Direen Decl., ¶¶ 138 - 139.

VIII. CONCLUSION

As the precedent makes clear, the first step in a validity analysis is the construction of the claims. Petitioner failed to construe numerous important

limitations but instead instructed its expert Dr. Phinney that no construction was required. As shown herein and by Dr. Direen, the claim terms “impedance network” and “switch network” are ambiguous standing alone, and would have had no “ordinary and customary meaning” to a POSA. A POSA would need to consult the specification to determine the scope of the claims before attempting a validity analysis. Petitioner, therefore, failed to meet its burdens under 37 C.F.R. § 42.104(b)(3) and 37 C.F.R. § 42.104(b)(4).

Furthermore, Petitioner failed to follow precedent, including *Graham* and *KSR*. Instead of first identifying differences between the invention of Claim 1 and each reference, and then considering the question of obviousness applied to Claim 1 as a whole, it instead went through limitation by limitation to conclude whether or not each limitation was obvious. In taking this legally incorrect approach, Petitioner has further failed to carry its burden.

Last, Petitioner and its expert rely on vague assertions of “knowledge of POSA” “as a wholesale substitute for reasoned analysis” to account for important limitations missing from the combination of Chatterjee and Corbridge. *DSS*, 885 F.3d at 1374; *see also Arendi*, 832 F.3d at 1363. Institution may be denied for this reason alone.

Because Petitioner has failed to show a reasonable likelihood of prevailing,
the Board should deny institution as to Claim 1 and the Dependent Claims.

Date: January 17, 2024

Respectfully Submitted,

/s/ Brian A. Carpenter
Brian A. Carpenter
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CERTIFICATE UNDER 37 C.F.R. § 42.24(d)

This Preliminary Response complies with the type-volume limitation of 14,000 words. As calculated by the word count feature in Microsoft Word, it contains 11,249 words, excluding the parts exempted by 37 C.F.R. §§ 42.24(a)-(b).

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CERTIFICATE OF SERVICE

I, Brian A. Carpenter, hereby certify that on the 17th day of January 2024,
the foregoing PATENT OWNER'S PRELIMINARY RESPONSE was served on
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LIST OF EXHIBITS

Exhibit Number	Exhibit
2001	Declaration of Dr. Randal H. Direen in Support of Patent Owner's Preliminary Response (the "Direen Decl.")
2002	U.S. Patent No. 9,343,929 (the "'929 Patent")