

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.
Petitioner,

v.

WIPQTUS, INC.
Patent Owner.

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

PETITIONER'S REPLY BRIEF

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LIST OF EXHIBITS

Exhibit	Description
Ex. 1001	U.S. Patent No. 10,038,339 to Sankar et al. (“the ’339 patent”)
Ex. 1002	Declaration of Dr. Joshua Phinney (“Phinney”)
Ex. 1003	U.S. Patent Publication No. US2011/0018356 (“Chatterjee”)
Ex. 1004	U.S. Patent Publication No. US2010/0083012 (“Corbridge”)
Ex. 1005	CV of Dr. Joshua Phinney
Ex. 1006	Prosecution History of the ’339 patent
Ex. 1007	Prosecution History of U.S. Patent No. 9,343,929
Ex. 1008	System Description, Wireless Power Transfer, Volume I: Low Power, Part 1: Interface Definition, Version 1.0.3, September 2011 (“WPT”)
Ex. 1009	<i>Hulu LLC v. SITO Mobile R&D IP, LLC et al.</i> , IPR2021-00298, Paper 11 (P.T.A.B. May 19, 2021)
Ex. 1010	<i>WiPQTUS Inc. v. Samsung Elec. Co., Ltd. at al.</i> , Case No. 2:23-cv-00054, Dkt. 28 (Docket Control Order) (E.D. Tex.)
Ex. 1011	<i>Verizon Business Network Services, Inc. v. Huawei Techs. Co.</i> , IPR2020-01141, Paper 12 (Jan. 14, 2021)
Ex. 1012	<i>Sand Revolution II, LLC v. Continental Intermodal Group-Trucking LLC</i> , IPR2019-01393, Paper 24 (P.T.A.B. June 16, 2020)
Ex. 1013	<i>Samsung Elecs. Co. Ltd. v. Dynamics Inc.</i> , IPR2020-00505, Paper 11 (P.T.A.B. Aug. 12, 2020)
Ex. 1014	LinkedIn Profile for Dr. Randal Direen
Ex. 1015	Supplemental Declaration of Dr. Joshua Phinney (“Phinney-Supp”)
Ex. 1016	Exhibit 2 of WiPQTUS’ Infringement Contentions
Ex. 1017	U.S. Patent Publication No. 2009/0243397 (“Cook”)

Ex. 1018	U.S. Patent Publication No. 2013/0062959 (“Lee”)
Ex. 1019	Dr. Randal Direen Deposition Transcript (“Direen-Depo”)

I. Introduction

Patent Owner attempts to overcome Petitioner's challenge by reading limitations into its claims that do not exist. Patent Owner argues that the "first circuitry" in claim 1 requires a specific set of components and that the claimed "impedance network" be "controllably varied during at least the receiving power mode." Patent Owner Response (Paper 9, "POR"), 36, 39. The Board already considered and dismissed both of these arguments in its Institution Decision, and Patent Owner offers no new basis or evidence for the Board to divert from its initial decision. As Patent Owner's arguments are premised upon the Board adopting Patent Owner's improper claim constructions, the Board should dismiss Patent Owner's arguments as not commensurate with the scope of its claims.

Patent Owner dedicates most of its Response to attempts to support its overly complex and indefinite claim construction positions. Yet, Patent Owner's claim constructions are improper and unsupported by the specification. Patent Owner offers little rebuttal to the Petition, other than to argue that the challenge does not meet the requirements of its improper claim construction. Furthermore, Patent Owner had the opportunity but chose not to cross-examine Petitioner's expert, Dr. Phinney, on his testimony that the prior art combination renders the challenged claims obvious. Thus, Dr. Phinney's testimony remains unrebutted. Furthermore, Patent Owner's expert Dr. Direen contradicted Patent Owner's arguments on cross-

examination and his testimony further supports the sufficiency of the proposed combination in obviating claims 1, 2, 3, 5, 7 and 9 (“Challenged Claims”) of U.S. Patent No. 10,038,339 (Ex. 1001 (“the ’339 patent)).

II. Patent Owner’s Proposed Claim Constructions Are Improper

A. The Proper Construction of “One Of [A] or [B]” is “Either [A] or [B]”

Claim 3 recites “*wherein said impedance network of said first circuitry comprising of elements that are **one of** chosen a priori with fixed values and tuned during operation over a range of values.*”¹ In the Institution Decision, the Board correctly determined that “claim 3 uses the phraseology “one of [A] and [B]” to mean “either [A] or [B].” Decision on Institution (Paper 7, “Dec.,” 32). However, Patent Owner argues that the “one of” phraseology in claim 3 should be construed as requiring both [A] and [B]. POR, 43 (“the component parts of the ‘impedance network’ ... must be chosen ‘a priori’ **and** the components must be ‘tunable during operation.’”) Patent Owner’s arguments should be dismissed because they are (1) contradictory to Patent Owner’s own constructions, (2) contrary to the intrinsic record and the express disclosures in the ’339 patent, and (3) were previously considered by the Board and dismissed.

¹ Italicized text appearing in quotes herein is used to identify claim language, unless otherwise noted.

First, Patent Owner's proposed construction for "one of" in claim 3 directly contradicts its proposed construction for "one of" in claim 1. Claim [1.b] recites "one of coil and capacitor electrodes." Patent Owner argues that this should be construed as requiring either [A] a coil or [B] capacitor electrodes. POR, 33. Specifically, Patent Owner argues that "the invention is described as **using either** inductive coupling or capacitive coupling." POR, 32 ("one embodiment uses inductive coupling and a second uses capacitive coupling."). Patent Owner's expert Dr. Direen conceded on cross examination that the recitation in claim [1.b] of "one of coil and capacitor electrodes," could include an embodiment with only a coil or only capacitor electrodes. Aug. 6, 2024 Deposition of Dr. Randal Direen, ("Direen-Depo(EX1019)"), 57:6-12. Accordingly, Patent Owner applies the plain and ordinary meaning to the phrase "one of [A] and [B]" to mean "either [A] or [B]" for claim [1a]. *Id.* Patent Owner fails to establish why a different meaning for "one of [A] and [B]" should be given to the same phrase in claim 3.

Second, the intrinsic record of '339 patent consistently describes one of [A] and [B]" to mean "either [A] or [B]." Specifically, the '339 patent repeatedly uses the phrase "one of [A] and [B]" in accordance with its plain and ordinary meaning to mean "either [A] or [B]" in both the claims and the specification. For example, claim 2 recites "*said first circuitry is configured as **one of** an inverter and a rectifier.*" EX1001, 27:45-46. A POSITA would have understood that a circuit

cannot simultaneously be both an inverter and a rectifier; thus, the proper construction of the phrase “*one of*” in claim 2 is that “*said first circuitry is configured as*” **either** “*an inverter*” **or** “*a rectifier*.” This is supported by the ’339 patent specification, which states that the “switch network 102 is configured as an inverter **or** a rectifier depending on the mode of operation of the dual mode wireless power receiver 100.” EX1001, 16:33-35. As an additional example, claim 20 recites “on command by user through **one of** hardware switch and software application.” EX1001, 30:58-59. A POSITA would have understood that the command by the user would be implemented by **either** a hardware switch **or** a software application. This too is supported by the ’339 patent specification, which states that “[t]he dual mode wireless power receiver’s communication 15 mode is triggered by the user for example, via a software application, hardware switch, etc.” EX1001, 4:14-16. Accordingly, the ’339 patent describes the command by the user as being **either** with a hardware switch **or** a software application, not both. *Id.* As established by these examples in the specification, the ’339 patent consistently uses “one of [A] and [B]” in accordance with its plain and ordinary meaning to mean “either [A] or [B].”

Third, the Board has already considered and dismissed Patent Owner’s arguments and Patent Owner offers no new basis for the Board to divert from its initial decision. In the Institution Decision, the Board stated that “we disagree with Patent Owner that claim 3 requires that ‘the component parts of the ‘impedance

network’ that have values’ be ‘chosen ‘a priori,’ **and** the components must be ‘tunable during operation.’” Dec., 32. Furthermore, the Board determined that “the ’339 patent repeatedly explains that the one or more capacitors comprising impedance network 101 are ‘chosen a priori (fixed) **or** tuned during operation (variable) to change the impedance of the impedance network 101.’” Dec. 29, (citing EX1001, 21:39–43, 22:9–14, 22:53–57, 23:28–32, 24:5–9, 24:44–48, 25:15–20, 25:52–56). For example, the ’339 patent states that “Capacitors Cs’s and Cp’s capacitance value is **chosen a priori (fixed) or tuned during operation (variable)** to change the impedance of the impedance network 101.” EX1001, 21:41–43. Accordingly, the specification repeatedly supports construing the phrase “one of [A] and [B]” in all Challenged Claims in accordance with its plain and ordinary meaning to mean “either [A] or [B].”

B. Adopting Patent Owner’s Proposed Claim Construction For “Impedance Network” Would be Contrary to *Phillips*

Applying the proper construction of the phrase “one of [A] and [B]” to mean “either [A] or [B],” the Board correctly determined that “the language ‘one of [A] chosen a priori with fixed values and [B] tuned during operation over a range of values’ in claim 3 means either [A] ‘chosen a priori with fixed values’ **or** [B] ‘tuned during operation over a range of values.’” Dec., 32. The Board further determined that construing claim 3 to mean that the components must be “tunable during

operation” “renders claim 3’s language ‘chosen a priori with fixed values’ either ‘void, meaningless, or superfluous.’” Dec., 32. Petitioner agrees. As disclosed in the ’339 patent specification and claims, the “*impedance network*” can be either a fixed value component or a variable component that can be tuned during operation. Accordingly, when construed properly, the claimed “*impedance network*” must not exclude fixed value components.

Patent Owner argues that claim 3 cannot be used to interpret claim 1 because written description support for claim 3 was added when the continuation-in-part application was filed on August 10, 2016. POR, 25. However, it would be improper to construe the term “*impedance network*” for independent claim 1 to exclude an embodiment for the “*impedance network*” recited in dependent claim 3, which depends from claim 1. The claims are linked by their dependency and should be construed holistically as part of the entire patent instrument—not just parts of it. In other words, the term “*impedance network*” cannot be construed narrowly for independent claim 1 (requiring components tunable during operation) and more broadly for dependent claim 3 (requiring only a fixed value passive component). *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. July 12, 2005) (en banc) (“Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.”).

The Federal Circuit precedent in *PowerOasis v. TMobile USA, Inc.* provides instructions as to how to construe terms used in both the original disclosure and a continuation-in-part application. 522 F.3d 1299, 1302 (Fed. Cir., April 11, 2008). In *PowerOasis*, the Patent Owner argued that the claimed “customer interface” could occur on a customer’s laptop, based on disclosure added in a CIP application, but the alleged infringer argued that “customer interface” must be located on the vending machine itself, as disclosed in the original application. 522 F.3d at 1302. The Federal Circuit determined that the term “customer interface” should be given the broader construction to incorporate the embodiment disclosed in the CIP application. *Id.* at 1311. In view of the Federal Circuit’s instructions in *PowerOasis*, the term “*impedance network*” must be construed to include the embodiment disclosed in the CIP application that became the ’339 patent, namely an embodiment in which the components are “chosen ‘a priori’ with fixed values.”

Patent Owner also argues that claims 1 and 2 do not have to be construed to include all embodiments disclosed in the specification. POR, 27. However, contrary to Patent Owner’s arguments, they must be construed to cover at least the embodiments provided in all claims that depend from claim 1, including claim 3. Accordingly, “*impedance network*” cannot be construed for claim 1 in a way that eliminates an embodiment recited in dependent claim 3.

C. Patent Owner’s Proposed Construction for “Impedance Network” Is Ambiguous and Indefinite

Patent Owner argues that “*impedance network*” be construed as “a collection of two or more electrical components chosen from the list (1) one or more passive components; (2) active components; and (3) switches.” POR, 36. The proposed construction is improper as it is, among other things, ambiguous and indefinite.

First, as conceded by Patent Owner’s expert Dr. Direen, it is unclear whether the two or more electrical components can come from the same category. Direen-Depo(EX1019), 85:22-86:4. For example, an “*impedance network*” with two passive components would constitute “two electrical components chosen from the list.” However, according to Dr. Direen, the “*impedance network*” **must contain at least a passive component and a switch**, such that the passive component can be switched into and out of the circuit to vary the impedance. Direen-Depo(EX1019), 82:10-25. Accordingly, it seems Patent Owner’s proposed construction is incomplete and, to meet Dr. Direen’s stated requirements, it would need to be amended to at least require that the two or more electrical components are from different categories.

Second, if the “two or more electrical components” must come from different categories, it is unclear which categories are required. For example, it is

unclear from the proposed language whether one passive component and one active component without a switch would meet the proposed construction.

According to Dr. Direen, this would not satisfy the claimed “*impedance network*,” because it must be possible to switch the components into and out of the circuit to vary the impedance. Direen-Depo(EX1019), 91:8-93:9 (“[i]t would have to be potentially a capacitor that’s connected to a switch and a priori you close that switch to make that capacitance fixed during the operation of received”). Thus, Patent Owner’s proposed construction for the “*impedance network*” should be dismissed.

D. Claim [1.e] Does Not Require Modification of the Impedance While Receiving Power

Patent Owner argues that claim [1.e] requires the “requires that the impedance of the impedance network be capable of being changed during the mode wherein the dual mode wireless power receiver is receiving power.” POR, 42. Yet, claim [1.e] merely requires the “*first circuitry*” to be “*configured to change impedance*” to “*obtain a modified form of said received power*.” Specifically, claim [1.e] recites “*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*.” The claim does not require realtime modification of the impedance of the impedance network while in the

receiving power mode, but merely that a change of impedance enable the first circuitry to “*obtain a modified form of said received power.*” As Dr. Direen conceded, the “*dual mode wireless power receiver*” claimed in claim 1 can change the “*impedance of said impedance network*” and change the “*topology of said switch network*” in a first instance in time and then, at some later time, the receiver can “*obtain a modified form of said received power.*” Direen-Depo(EX1019), 112:6-113:14. Thus, contrary to Patent Owner’s proposal, claim [1.e] does not require the “that the impedance of the impedance network be capable of being changed during the mode wherein the dual mode wireless power receiver is receiving power.” (POR, 41). Furthermore, Patent Owner fails to identify any disclosure in the specification that supports its proposed construction of changing impedance only while receiving power.

Dr. Direen stated in his declaration that “a POSITA would understand that limitation [1.e] requires that the ‘impedance network’ be ‘controllably varied during at least the receiving power mode.’” Direen(EX2003), ¶121. Upon cross examination, however, Dr. Direen testified that this statement is inaccurate. Direen-Depo(EX1019), 116:3-8 (“Q. So do you believe that your statement in paragraph 121 needs to be corrected to say ‘capable of being controllably varied’? A. I think it needs to be configurable to be controllably varied at least in receiving power mode.”). During his deposition, Dr. Direen testified that this statement in his

Declaration should be corrected to state “**configured to be** controllably varied during at least the receiving power mode.” Direen-Depo(EX1019), 143:23-144:4 (“Does 121 still accurately reflect your opinion? A. I would say yes, but maybe include that the -- it should perhaps say ‘configured to be controllably varied during at least the receive power mode.’”). Thus, Patent Owner’s own expert concedes that Patent Owner’s proposed construction is insufficient and, thereby, disagrees with Patent Owner’s arguments with respect to the requirements of claim [1.e].

III. Patent Owner Fails to Rebut the Showing that the Proposed Combination of Chatterjee in View of Corbridge and the Knowledge of a POSA Renders the Challenged Claim Obvious

A. Petitioner’s Proposed Combination Teaches Claim [1.e]

Patent Owner argues that “Chatterjee Does Not Show an[] ‘Impedance Network’ that Meets Limitation [1.e].” POR, 55. However, Patent Owner’s arguments are contingent upon the Board adopting its improper claim construction position. Furthermore, the testimony of Patent Owner’s own expert establishes the sufficiency of Petitioner’s proposed combination in teaching the “impedance network” of claim [1.e].

On cross examination, Dr. Direen testified that the ability to switch a capacitor into and out of a circuit changes the impedance of the circuit and, thereby, satisfies the claim [1.e] requirement of being “*configured to change impedance of said impedance network.*” Direen-Depo(EX1019), 92:14-93:9. Thus, Dr. Direen testified

that the “*impedance network*” of claim [1.e] can be met by a (1) passive component, such as a resistor or a capacitor, and (2) a switch. Direen-Depo(EX1019), 74:24-75:2 (“**Q. So is it your understanding that impedance network 101 could be implemented with as little as a resistor and an electronic switch? A. Yes.**”). Specifically, Dr. Direen testified that the following would constitute the claimed “*impedance network*”:

“[i]t would have to be potentially a capacitor that's connected to a switch and a priori you close that switch to make that capacitance fixed during the operation of received. You could afterwards if you go into transmit mode, you could pull that capacitor out completely by unswitching the switch and then you would a priori fix that impedance.”

Direen-Depo(EX1019), 92:14-93:9.

This example configuration of the “*impedance network*” described by Dr. Direen is very similar to the configuration of the “*impedance network*” relied upon in the proposed combination of Chatterjee in view of Corbridge and knowledge of a POSA set forth in the Petition. *See* Pet., 39-43. In the Petition, Petitioner established that “Chatterjee teaches that when the inductive signal interface is set to a power receive mode, processor 413 sends control signals G1 and G2 to turn off the H-bridge branch 611, and signals G3-G6 to operate the shared branch 612 and sync

bridge branch 613, such that the capacitor C2 is not used as part of the circuitry, as shown below in the yellow-highlighted circuitry.” Pet., 40 (citing Chatterjee(EX1003), ¶69, Fig. 6B (annotated); Phinney(EX1002), ¶141)).

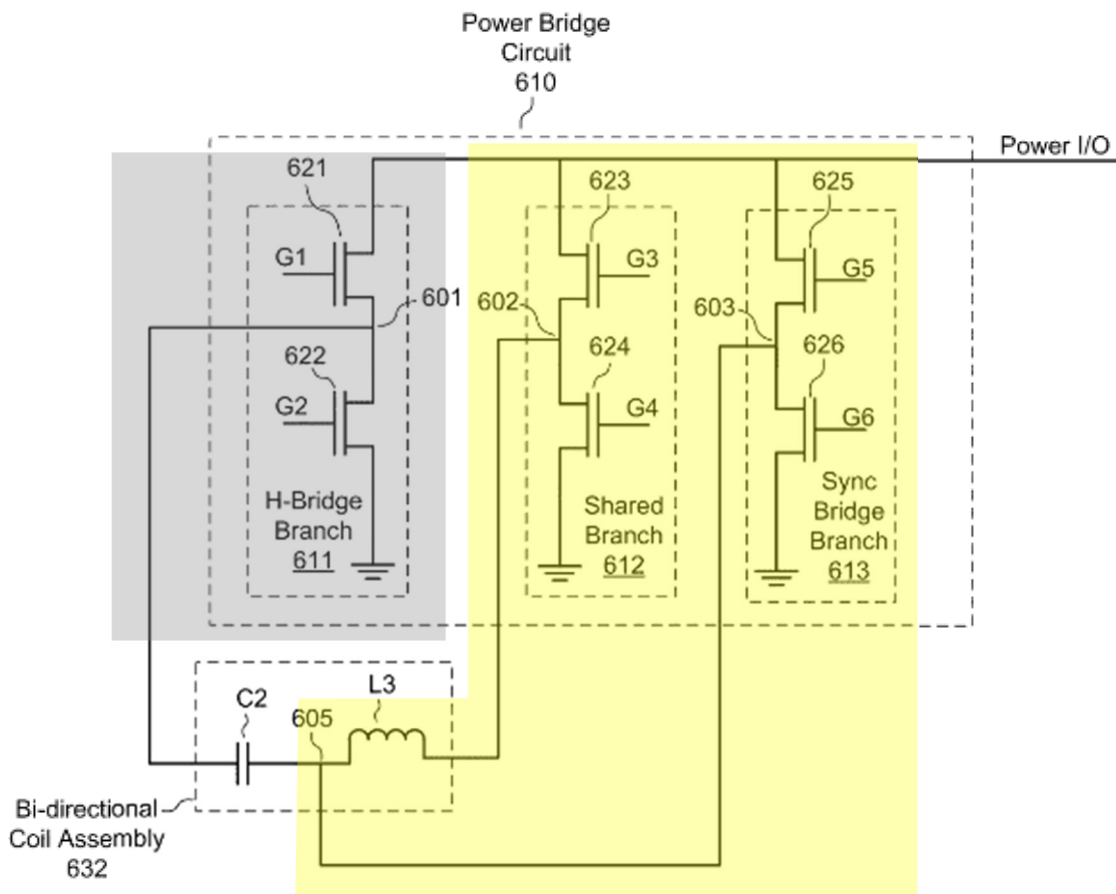


FIG. 6B

As shown in Fig. 6B above and established in the Petition, Chatterjee teaches that its bi-directional coil assembly has a 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 ($Z_L = -1/j\omega C$); and in the power receive mode, it does not ($Z_L = 0$). Pet. 41-42 (citing Phinney(EX1002), ¶142). Therefore, similar to the example for the “*impedance network*” described by Dr. Direen, Chatterjee teaches an “*impedance network*” in which a capacitor, C2, can be switched into and out of the “*first circuitry*” to vary the impedance of the circuit. *Id.*

B. Patent Owner’s Argument Regarding the Requirement for “Two Or More Passive Elements” Contradicts Even Its Own Construction of “Impedance Network”

Patent Owner argues that “the circuits of Figs. 6A – 6D [in Chatterjee] when in the receiving power mode do not meet the limitation ‘*impedance network*’ because the ‘**two or more passive elements**’ required under a proper construction is not met.” POR, 63; *see also* POR, 54 (“there are not ‘**two or more passive components**’ while the device is in the receiving power mode.”). However, not even Patent Owner’s proposed construction for “*impedance network*” requires “two more passive components. Patent Owner’s proposed construction for “*impedance network*” is “a collection of two or more electrical components chosen from the list (1) one or more passive components; (2) active components; and (3) switches.” POR, 48. This construction does not require “two or more passive components,” it only requires “one or more passive components.” *See id.*

When questioned about Patent Owner's proposed construction for "*impedance network*," Patent Owner's expert Dr. Direen testified that the claimed "*impedance network*" requires only one passive component and one active component or switch:

"Q. But your definition says a collection of two or more electrical components from the list, and passive components is on the list; correct?"

A. Passive components is on the list.

Q. So which -- **which categories are required?** I've got three categories -- passive components, active components, and switches. Which are required?

A. **One of them must be a passive component, and one of them at the very minimum needs to be an active component and/or switch.**

Q. So shouldn't your definition read "two or more electrical components from the list, one or more passive components, and active components or switches"?

A. So, yeah, what it should mean is [] that we have -- **we have to have one of the passive components and, yeah, one of the active -- one of an active component that --and/or a switch."**

Direen-Depo(EX1019), 82:5-25. Accordingly, Patent Owner's argument that Chatterjee fails to teach and "*impedance network*" with **"two or more passive elements"** contradicts even Patent Owner's own proposed claim construction for "*impedance network*".

C. Patent Owner’s Construction of an “Impedance Network” is Incorrect, But Even Under This Construction Petitioner’s Proposed Combination Teaches an “Impedance Network”

Patent Owner argues that Chatterjee’s teachings with respect to Fig. 6B do not teach the claimed “*impedance network*” because “the single capacitor C2 (shown in Fig. 6B) does not constitute an ‘*impedance network*’ under the proper construction . . . which requires ‘two or more components.’” POR, 53. Patent Owner’s arguments fail for a number of reasons.

First, as the Board correctly determined in the Institution Decision, adopting Patent Owner’s “two or more components” requirement for the “*impedance network*” excludes “two of the three preferred embodiments of the impedance network 101” disclosed in the ’339 patent and illustrated in Figures 10C and 10E. Dec., 26. Patent Owner argues that Figures 10C and 10E were not part of the original disclosure, but the Board correctly dismissed this argument on basis that “Patent Owner does not explain how the absence of that disclosure in the ’929 patent undermines reliance on the ’339 patent’s preferred embodiments to interpret the ’339 patent’s claims.” Dec., 27. As show in Figures 10C and 10E of the ’339 patent reproduced below, the ’339 patent discloses that its impedance network 101 can be comprised of a single capacitor, C_p for Figure 10C and C_s for Figure 10E.

FIRST CIRCUITRY OF DUAL MODE WIRELESS POWER RECEIVER

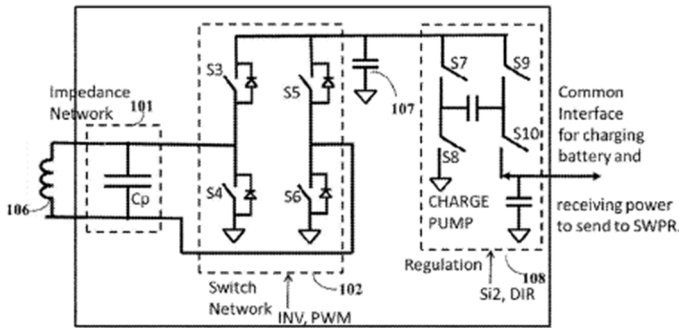


FIG. 10C

FIRST CIRCUITRY OF DUAL MODE WIRELESS POWER RECEIVER

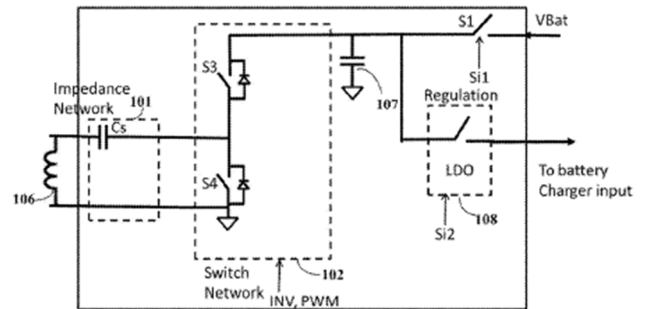


FIG. 10E

EX1001, Fig. 10C and Fig. 10E. Dr. Direen conceded that the impedance networks 101 illustrated in the embodiments illustrated in Figures 10C and Figure 10E of the '339 patent constitute the claimed “*impedance network*” when the “receiver is in the charging mode.” Direen-Depo(EX1019), 89:4-16, 95:15-20 (“Q. Do you agree that Figure 10C shows an impedance network that corresponds to your definition of impedance network? A. Under the received mode of operation, assuming that this was placed in there by the control logic, yes.”), 96:2-97:14. “The ‘person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent,’ including the patent’s preferred embodiments. *Id.* (citing *Phillips*, 415 F.3d at 1313).

The embodiments of the “*impedance network*” shown in in Figures 10C and 10E of the '339 patent are very similar to the embodiment of the “*impedance network*” taught in Figure 6B of Chatterjee relied upon in the Petition. Pet. 27-29

(citing Chatterjee(EX1003), Fig. 6B; Phinney(EX1002), ¶¶113-115). Accordingly, Chatterjee’s disclosure of a “bi-directional coil assembly that includes a capacitor C2 between node 601 and 605 and a wire between node 603 and 605 that can each be connected with the inductive coil L3 in series for use under different modes, as shown in Figure 6B, teaches the claimed ‘*impedance network*.’” Pet. 27-29 (citing Chatterjee(EX1003), Fig. 6B; Phinney(EX1002), ¶¶113-115).

Second, assuming Patent Owner’s construction of the “*impedance network*” as requiring “two or more components” is determined to be appropriate, Patent Owner argues that Chatterjee’s disclosure of a “bi-directional coil assembly that includes a capacitor C2 between node 601 and 605 and a wire between node 603 and 605 that can each be connected with the inductive coil L3 in series for use under different modes” does not teach the “*impedance network*” because the “a ‘wire’ does not constitute a ‘component.’” POR, 53. However, as conceded by Patent Owner’s expert Dr. Direen, as wire has certain amount of resistance and inductance. Direen-Depo(EX1019), 44:1-10 (“Q. So a wire is a device that has inductance? A. A wire, if you push current through it, you would be able to measure an inductor across it . . . *any electrical component* that you find in a circuit can have -- *can have portions of its functionality modeled as an inductor* as you see on 106.”). Accordingly, the wire in Chatterjee’s bi-directional coil assembly can constitute a passive component. Pet. 27-29 (citing Chatterjee(EX1003), Fig. 6B; Phinney(EX1002), ¶¶113-115).

Third, Chatterjee teaches that it is the connection between the bi-directional coil assembly 632 and the H-Bridge Branch 611 and the Synch Bridge Branch 613 that can “selectively turn off current paths in the bi-directional coil assembly [] to change the impedance of the bi-directional coil assembly.” Pet. 28 (citing Chatterjee(EX1003), ¶66). “In the power transmit mode, the sync bridge branch 613 is turned off and the current path through the bi-directional coil assembly 632 is the series combination of the capacitor C2 and the inductive coil L3.” Pet. 28-29 (citing Chatterjee(EX1003), ¶69). “In the power receive mode, the H-bridge branch 611 is turned off and the current path through the bi-directional coil assembly 632 is the inductive coil L3.” Pet. 29 (citing Chatterjee(EX1003), ¶69). “Specifically, Chatterjee discloses that in the power transmit mode, the power bridge circuit’s left two branches 611 and 612 are connected while the rightmost branch 613 is disconnected, Chatterjee(EX1003), ¶69, with switches 621-624 (forming an H-bridge circuit) configured to operate as an inverter in the same way as the switch network in the ’339 patent.” Pet. 30 (citing Phinney(EX1002), ¶¶122-123; *see also id.* ¶¶74-75 (explaining that Fig. 6B describes a circuitry-level embodiment of the power bridge circuit)). “And in the power receive mode, the power bridge’s right two branches 612 and 613 are connected while the leftmost branch 611 is disconnected, Chatterjee(EX1003), ¶69, with switches 623-626 configured to operate as a **rectifier** in the same way as the switch network in the ’339 patent.” Pet.

30-31 (citing Phinney(EX1002), ¶¶124-125). The annotated Figures below showing the active part of the circuitry of Figure 6B in yellow highlighting (and the inactive part in gray) under different modes.

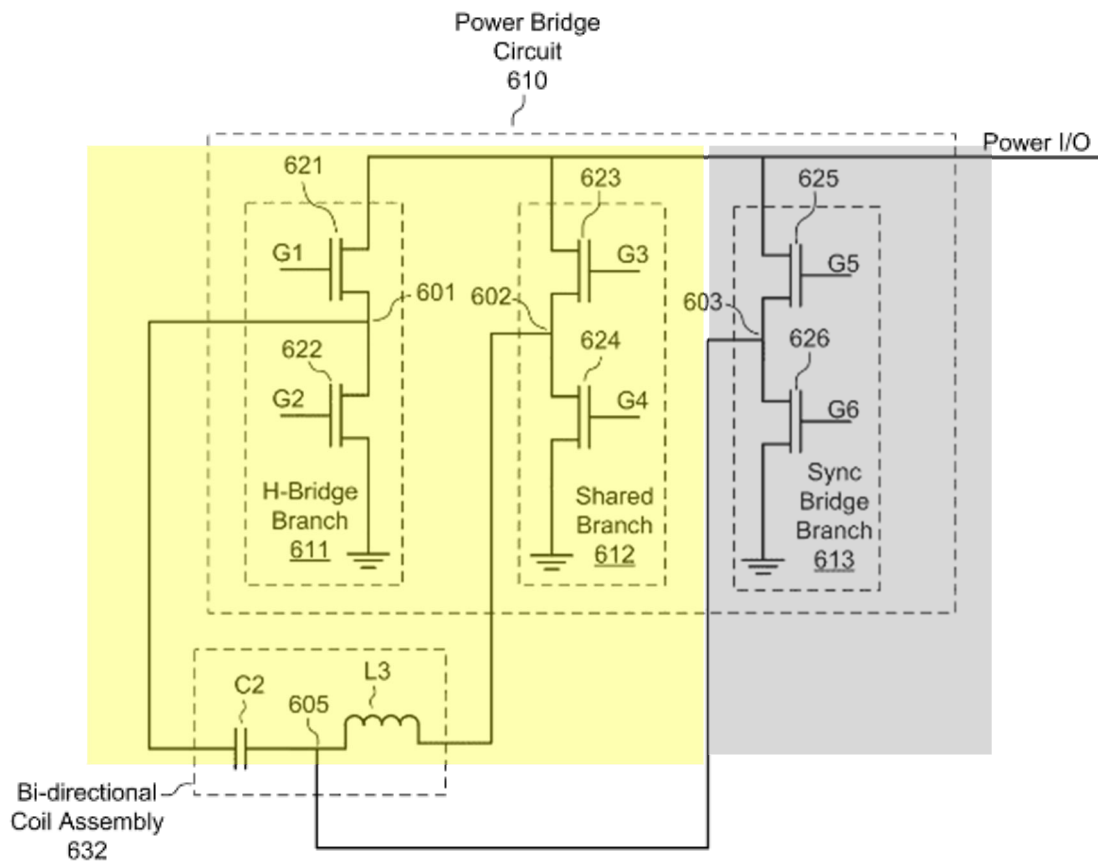
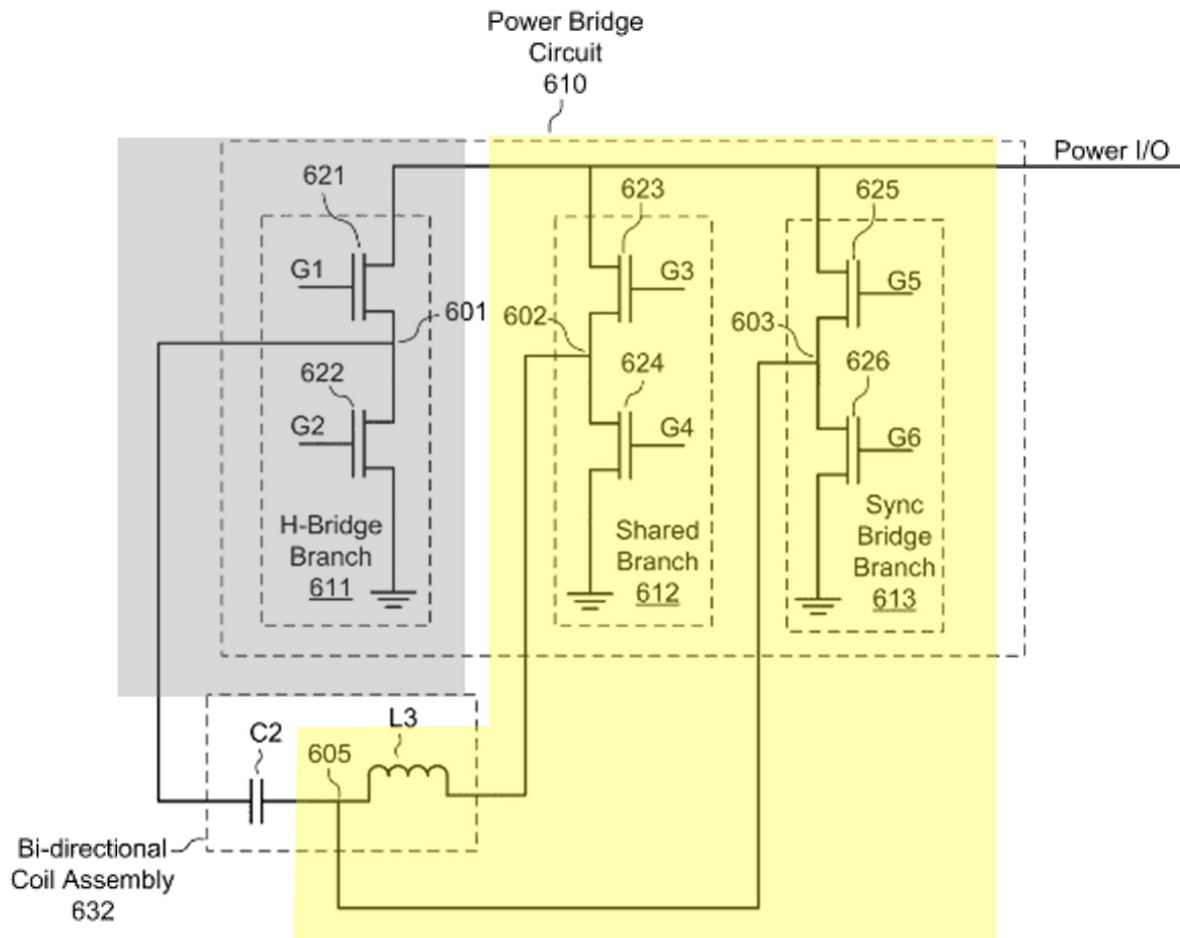


FIG. 6B

(Power Transmit Mode)

**FIG. 6B**

(Power Receive Mode)

Chatterjee(EX1003), Fig. 6B (annotated). The interaction of the bi-directional coil assembly 632 with unswitched H-Bridge Branch 611 or unswitched Synch Bridge Branch 613 results in the desired change of impedance in the bi-directional coil assembly 632 (claimed “*impedance network*”). Chatterjee(EX1003), ¶¶66-69; Phinney(EX1002), ¶¶113-115. Accordingly, even if Patent Owner’s construction of the “*impedance network*” as requiring “two or more components” is determined to

be appropriate by the Board, Chatterjee's bi-directional coil assembly 632 relies upon more components than just capacitor C2 to change its impedance. *See id.*

D. Patent Owner Fails to Rebut the Rationale for the Motivation to Combine Chatterjee and Corbridge and Inaccurately Argues the Wrong Standard Was Considered

The Petition establishes the motivation and rationale for a POSA to combine Chatterjee and Corbridge. Pet., 53-55. Specifically, the Petition identifies that Chatterjee expressly incorporates Corbridge by reference, Pet., 55 (citing Chatterjee(EX1003), ¶48) and that "Chatterjee expressly teaches a POSA to apply Corbridge's signaling technique in its bidirectional inductive power interface." Pet., 54-55. More particularly, "Chatterjee teaches that "[i]n power transmit mode, the electronic device 402 may signal data to enable a data loop in which the second device (as the power receiver) to signal back real-time information about its power needs," and that Corbridge discloses "[s]pecific examples of the type of data that can be communicated over using the inductive signal interface," including "data to implement parts of the communication protocol, such as detecting presence of the second device, authenticating itself and/or the second device, and enumerating itself." *Id.*; Phinney(EX1002), ¶169-170 (citing Chatterjee(EX1003), ¶48). Accordingly, it would have been obvious to combine Chatterjee and Corbridge. Pet., 53-55; Phinney(EX1002), ¶169-170.

Patent Owner argues that Petitioner’s rationale for the motivation to combine is insufficient (POR, 64-65), but Patent Owner fails to address the cited portions of Chatterjee expressly referencing Corbridge. An express teaching by a first reference to consult a second reference provides a strong motivation for combination, yet this is ignored by Patent Owner. Furthermore, Patent Owner fails to address Petitioner’s stated *KSR* rationale that the “combination would have involved ‘the mere application of a known technique’—Corbridge’s teachings regarding identifying a wireless power protocol—to a piece of prior art’—Chatterjee’s inductive signal interface 410—that is ‘ready for the improvement.’” Pet., 53-54 (citing *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 417 (2007)).

Patent Owner also argues that Petitioner relied upon a “legally wrong methodology in evaluating obviousness” and failed to evaluate claim 1 “**as a whole.**” POR, 1. Furthermore, Patent Owner argued that Petitioner’s expert failed to “consider all factors relevant to that ultimate question.” Pet., 65. Contrary to Patent Owner’s argument, however, Dr. Phinney testified that he understood that a “claim may be invalid under 35 U.S.C. § 103 if the subject matter described by the **claim as a whole** would have been obvious to a POSA in view of a prior art reference, or in view of a combination of references at the time the claimed invention was made” and that the “obviousness analysis involves comparing a claim to the prior art to determine **whether the claimed invention as a whole would have been obvious** to

a POSA in view of the prior art.” Phinney(EX1002), ¶¶12-13. Patent Owner chose not to depose Dr. Phinney and cannot contradict his testimony through attorney argument. Likewise, the Petition made note of the relevant precedent from *Koninklijke Philips N.V. v. Google LLC*, in which the Federal Circuit determined that “under 35 U.S.C. § 103, the obviousness inquiry turns not only on the prior art, but whether the differences between the claimed invention and the prior art are such that the **claimed invention as a whole would have been obvious** . . . to a person having ordinary skill in the art to which the claimed invention pertains.” Pet. 18 (citing 948 F.3d 1330, 1337 (Fed. Cir. 2020)). Accordingly, Patent Owner’s argument regarding a “legally wrong methodology in evaluating obviousness” is inaccurate.

IV. Conclusion

Patent Owner’s Response fails to rebut the persuasive showing of obviousness of the Challenged Claims established by the Petition. Accordingly, the Challenged Claims should be found unpatentable.

Date: August 28, 2024

Respectfully Submitted,

/s/Trenton A. Ward

Trenton A. Ward (Reg. No. 59,157)

Lead Counsel

CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

This Petition complies with the requirements of 37 C.F.R. § 42.24. As calculated by the word count feature of Microsoft Word, it contains 5,021 words, excluding the words contained in the following: Table of Contents, Table of Authorities, List of Exhibits, Mandatory Notices, Certification Under § 42.24(d), and Certificate of Service.

/s / Trenton A. Ward

Trenton A. Ward (Reg. No. 59,157)

Lead Counsel

GREENBERG TRAURIG, LLP

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing **PETITIONER'S REPLY BRIEF** was served on the following counsel via electronic mail:

Brian A. Carpenter, bcarpenter@coleschotz.com

Gary Sorden, gsorden@coleschotz.com

Date: August 28, 2024

/s/ Trenton A. Ward