

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

NUCURRENT, INC.,
Patent Owner.

PGR2019-00050
Patent 10,063,100 B2

Before ERICA A. FRANKLIN, JON B. TORNQUIST, and
WESLEY B. DERRICK, *Administrative Patent Judges*.

FRANKLIN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 328(a)

I. INTRODUCTION

This is a Final Written Decision in a post-grant review of claims 1–25 of U.S. Patent No. 10,063,100 B2 (Ex. 1001, “the ’100 patent”). We have jurisdiction under 35 U.S.C. § 6, and enter this Decision pursuant to 35 U.S.C. § 328(a) and 37 C.F.R. § 42.3. For the reasons set forth below, we determine that Samsung Electronics Co., Ltd. (“Petitioner”) has shown, by a preponderance of the evidence, that the challenged claims are unpatentable. *See* 35 U.S.C. § 326(e) (2018).

A. *Procedural History*

Petitioner filed a Petition requesting post-grant review of claims 1–25. Paper 2 (“Pet.”). NuCurrent, Inc., (“Patent Owner”) did not file a Preliminary Response to the Petition. On December 4, 2019, pursuant to 35 U.S.C. § 324(a), we instituted trial to determine whether the challenged claims are unpatentable on the grounds raised in the Petition. Paper 8 (“Dec.”). Patent Owner filed a Patent Owner’s Response on February 27, 2020. Paper 11 (“PO Resp.”). Petitioner filed a Reply to the Patent Owner’s Response on June 18, 2020. Paper 15. Patent Owner filed a Sur-Reply on July 30, 2020. Paper 20 (“PO Sur-Reply”).

On September 3, 2020, the parties presented arguments at an oral hearing. The transcript of the oral hearing has been entered in the record. Paper 25 (“Tr.”).

B. *Real Parties in Interest*

Petitioner identifies its real parties in interest as Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. Pet. 3. Patent Owner identifies itself, NuCurrent, Inc., as the real party in interest. Paper 5, 1.

C. Related Matters

Petitioner states that “[t]he specification of the ’100 patent is identical to the specification of U.S. Patent No. 9,941,729 (‘the ’729 patent’).”¹

Pet. 3. The parties provide notice that Patent Owner has asserted the ’729 patent in *NuCurrent, Inc. v. Samsung Electronics Co.*, No. 1:19-cv-00798-DLC (S.D.N.Y.). *Id.*; Paper 5, 1.

We instituted an additional post-grant review of claims of the ’100 patent based on a separate petition filed by Petitioner in PGR2019-00049 (challenging claims based upon obviousness). The Board also instituted a post-grant review of claims of the ’729 patent in IPR2019-01217.

D. The ’100 Patent

1. Eligibility for Post-Grant Review

Post-grant review is available only for patents “described in section 3(n)(1)” of the Leahy-Smith America Invents Act (“AIA”), Pub L. No. 112-29, 125 Stat. 284 (2011). AIA § 6(f)(2)(A) (2011). Those are patents that issue from applications “that contain[] or contained at any time . . . a claim to a claimed invention that has an effective filing date in section 100(i) of title 35, United States Code, that is on or after” “the expiration of the 18-month period beginning on the date of the enactment of” the AIA. *See* AIA § 3(n)(1). The AIA was enacted on September 16, 2011, therefore, post-grant review is available only for patents that, at one point, contained at least one claim with an effective filing date, as defined by 35 U.S.C. § 100(i), on or after March 16, 2013. That requirement is met

¹ The parties note that the ’100 patent and ’729 patent are not in the same family. Pet. 3; Paper 5, 1.

as the filing date for the '100 patent is August 7, 2015, and the patent does not claim benefit to an earlier filing date. *See* Ex. 1001.

The AIA also requires the petition for post-grant review to be filed within nine months of the issue date of the challenged patent. 35 U.S.C. § 321(c) (2018). The '100 patent issued on August 28, 2018. Ex. 1001, code (45). The Petition has been accorded a filing date of May 28, 2019, Paper 3, 1, which is within the nine-month window. Thus, Petitioner has timely filed the Petition.

Accordingly, we determine that the '100 patent is eligible for post-grant review.

2. Patent Disclosure

The '100 patent is directed to “an antenna that facilitates the wireless transmission of data and electrical energy at multiple operating frequency bands.” Ex. 1001, 1:11–13. According to the Specification:

[T]he antenna of the present disclosure is of a single structure design that enables coupled magnetic resonance. Coupled magnetic resonance is an alternative technology that when appropriately designed, can provide for increased wireless power transfer and communication efficiencies and is less dependent of physical orientation and positioning requirements of prior art antennas. As a result, the antenna of the present disclosure provides for improved wireless transfer efficiency and a better user experience.

Id. at 8:59–67.

Figure 3 of the '100 patent is reproduced below:

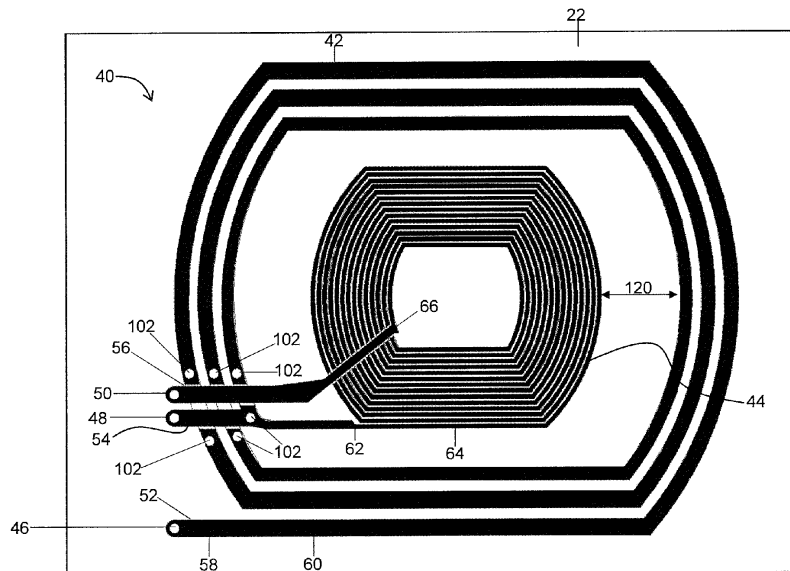


FIG. 3

Figure 3 “illustrates an embodiment of a three terminal single structure multiple mode antenna of the present disclosure.” Ex. 1001, 7:61–62. The three terminal antenna 40 comprises a first outer coil 42 that is electrically connected in a series to a second interior coil 44. *Id.* at 12:63–65. The Specification explains,

The antenna 40 as shown in FIG. 3 comprises three terminals, a first terminal 46, a second terminal 48, and a third terminal 50, each having three respective terminal connections 52, 54, and 56. Each of the three terminals is electrically connected at different terminal connection points of the antenna 40. As shown, the first terminal 46 extends from a first end 50 of a first trace 60 of the first outer coil 42. The second terminal 48 extends from a first end 62 of a second trace 64 of the second inductor 44. The third terminal 50 extends from a second end 66 of the second trace 64 of the second coil 44. Thus, the three terminals 46, 48, and 50 provide different connection points between the first and second inductor coils 42, 44 and portions thereof. Connecting the various terminals in different combinations thus provides the antenna 40 of the present disclosure with different adjustable inductances which, in turn, modifies the operating frequency or operating mode of the antenna 40.

Id. at 13:18–34. For example, electrically connecting the first terminal to the second terminal allows the antenna to operate at a first operating frequency, whereas electrically connecting the first terminal to the third terminal allows the antenna to operate at a second operating frequency. *Id.* at 13:35–41.

E. Illustrative Claim

Petitioner challenges claims 1–25. Claim 1, the only independent claim, is illustrative and reads as follows:

1. An electrical system comprising:
 - a) an antenna, comprising:
 - i) a first conductive wire forming a first coil having N_1 number of turns with spaced apart first and second, first coil ends that are disposed on a substrate surface, wherein the first coil configured to generate a first inductance and a first resonant frequency, wherein a first gap extends between adjacent turns within the first coil;
 - ii) a second conductive wire forming a second coil having N_2 number of turns with spaced apart first and second, second coil ends, configured to generate a second inductance and a second resonant frequency, wherein the first resonant frequency is different than the second resonant frequency, the second coil positioned on the substrate surface and one of within an inner perimeter formed by an innermost turn of the first coil and adjacent the first coil, wherein a second gap extends between adjacent turns within the second coil;
 - iii) a third gap separating an outermost turn of the second coil from the innermost turn of the first coil, wherein the third gap is greater than the first and second gaps, and wherein the first end of the second coil meets and joins the second end of the first coil forming a continuous junction therebetween; and
 - iv) a first terminal electrically connected to the first end of the first coil, a second terminal electrically connected to the second end of the second coil and a third terminal electrically connected to either of the first or second coils;

- b) a control circuit electrically connected to at least one of the first, second and third antenna terminals, wherein the control circuit is configured to control the operation of the antenna;
- c) wherein a tunable inductance is generatable by electrically connecting two of the first, second, and third terminals;
- d) wherein the first resonant frequency of the first coil differs from the second resonant frequency of the second coil by at least 100 kHz; and
- e) wherein at least one of the first coil and the second coil operates at about 100 kHz to about 500 kHz.

Ex. 1001, 32:41–33:15.

F. The Asserted Grounds

Petitioner challenges the patentability of claims 1–25 of the '100 patent on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–25	§ 112(a)	Written Description
1–25	§ 112(b)	Indefiniteness

Pet. 5. Petitioner also relies on the Declarations of R. Jacob Baker, Ph.D., P.E. (Ex. 1002, Ex. 1015). Patent Owner relies on the Declaration of David S. Ricketts (Ex. 2002).

II. ANALYSIS

A. Legal Standards

To satisfy the written description requirement under 35 U.S.C. § 112(a), the specification must “reasonably convey[] to those skilled in the art that the inventor had possession” of the claimed invention as of the filing date. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir.

2010) (en banc). Although the Specification need not recite the claimed invention *in haec verba*, it must do more than simply render the claimed invention obvious. *Id.* at 1352. “One shows that one is ‘in possession’ of *the invention* by describing *the invention*, with all its claimed limitations, . . . by such descriptive means . . . that fully set forth the claimed invention.” *Lockwood v. Am. Airlines Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997) (citation omitted). However, when evaluating the adequacy of the disclosure, we may consider “the existing knowledge in the particular field, the extent and content of the prior art, the maturity of the science or technology, [and] the predictability of the aspect at issue.” *Capon v. Eshhar*, 418 F.3d 1349, 1359 (Fed. Cir. 2005), *cited with approval in Ariad*, 598 F.3d at 1352.

B. Level of Ordinary Skill in the Art

The level of skill in the art is a factual determination that provides a primary guarantee of objectivity in a patentability analysis. *Al-Site Corp. v. VSI Int’l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)) (addressing the analysis of obviousness).

Petitioner describes a person having ordinary skill in the art as having “a bachelor’s degree in electrical engineering or a similar field, and at least two to three years of experience in integrated circuit design including power electronics,” and that “[m]ore education can supplement practical experience and vice versa.” Pet. 5 (citing Ex. 1002 ¶ 20).

In the Institution Decision, we preliminarily adopted Petitioner’s definition of an ordinarily skilled artisan based upon a determination that it was sufficiently supported by the record at that time. Dec. 7. In the Patent Owner Response, Patent Owner provides a slightly different definition,

asserting that a person of ordinary skill in the art “would have had a Bachelor’s degree in electrical engineering and at least two years of experience in power conversion utilizing discrete components and inductor design.” PO Resp. 4 (citing Ex. 2002 ¶ 31).

Our consideration of the issues presented in this case does not turn on which proposed definition is applied. In any event, having considered the evidence and arguments, we find Petitioner’s broader description of the level of ordinary skill in the art to be supported by record as a whole.

Accordingly, we adopt Petitioner’s description of a person of ordinary skill in the art, while maintaining that the prior art reflects the appropriate level of skill at the time of the claimed invention. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

C. Claim Construction

In a post-grant review, we construe the claims “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b).” *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,340, 51,358 (Oct. 11, 2018) (amending 37 C.F.R. § 42.200(b) effective November 13, 2018) (now codified at 37 C.F.R. § 42.200(b) (2019)). Therefore, we construe the challenged claims under the framework set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–19 (Fed. Cir. 2005) (en banc). Under this framework, claim terms are given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history of record. *Id.* Only those terms that are in controversy need be construed, and only to the extent necessary to resolve the

controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Petitioner asserts that “for purposes of this proceeding, no term requires construction.” Pet. 31. Patent Owner asserts that “[t]he challenged claims should carry their plain and ordinary meaning to a person of ordinary skill in the art and that no further claim construction is required for purposes of this proceeding.” PO Resp. 4–5. Based upon our review of the record as a whole, we determine that no claim terms require express construction to resolve the controversy in this proceeding.

D. Written Description

Petitioner asserts that claims 1–25 are unpatentable under 35 U.S.C. § 112(a) for failing to satisfy the written description requirement. Pet. 31–58. Patent Owner disagrees. PO Resp. 5–22.

1. Petitioner’s Contentions

Petitioner asserts that a number of limitations in independent claim 1 are not adequately supported by the Specification, rendering that claim and dependent claims 2–25 unpatentable. Pet. 32. Further, Petitioner asserts that certain dependent claims include additional limitations that lack written description support. *Id.* at 33. Here, we focus on Petitioner’s contentions relating to the limitation in claim 1 reciting the relative position of the coils, as we determine that issue is dispositive.

The antenna of claim 1 comprises a first conductive wire forming a first coil and a second conductive wire forming a second coil. Ex. 1001, 32:43–51. Claim 1 recites, in part, “the second coil positioned on the substrate surface and one of within an inner perimeter formed by an innermost turn of the first coil and adjacent the first coil.” *Id.* at 32:55–58.

Petitioner notes that the terms “one of” and “and adjacent the first coil,” in the quoted language above, were added just prior to allowance. Pet. 33. Petitioner asserts that prior to that amendment, “the claim was limited to a coil configuration in which one coil was inside the inner perimeter of the other,” i.e., the second coil was inside the inner perimeter of the first coil. *Id.* According to Petitioner, the amendment “broadened the scope of the claim such that it encompasses a coil arrangement where the two coils can be side-by-side, i.e., one coil need not be within the inner perimeter of the other coil.” *Id.*² Petitioner contends, however, that the original application filed (the ’157 application),³ including the original claims, provides no written description support for the broadened claim including that alternative side-by-side coil arrangement. *Id.* at 36.

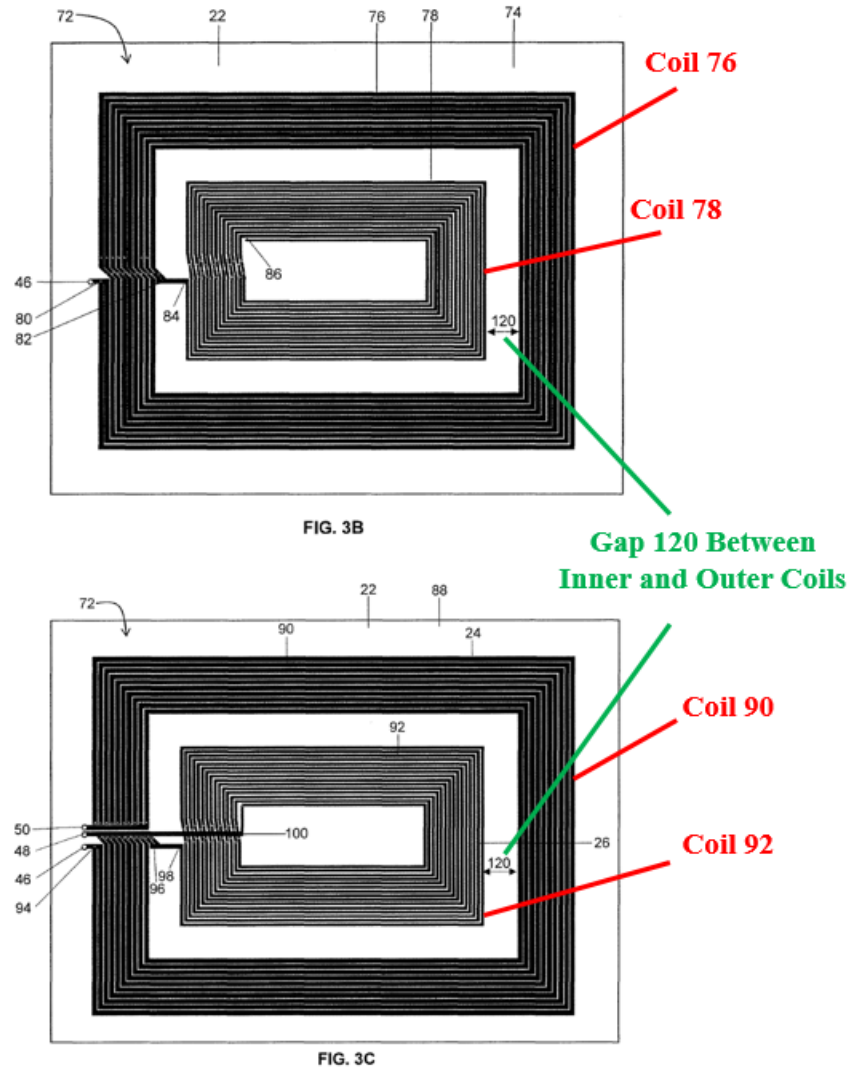
Specifically, Petitioner asserts that the ’157 application does not disclose two coils that are arranged side-by-side. Pet. 38. Rather, Petitioner asserts, every figure in the ’157 application that illustrates a two-coil antenna “shows an inner coil that lies within the innermost turn of an outer coil.” *Id.* at 37 (citing Ex. 1004, 1356, 1358, 1360–61, 1363 (Figs. 2, 3, 3B, 3C, and 3E)). Further, Petitioner asserts that a person having ordinary skill in the art would have understood that “in the original application in the context of the positioning of the two coils the word ‘adjacent’ is only used in describing the gap 120 between the outermost turn of the inner coil and the innermost turn of the ‘adjacent’ outer coil.” *Id.* at 39 (citing Ex. 1002 ¶ 35; Ex. 1004, 1322–1323). Petitioner states, “[i]n other words, each time ‘adjacent’ is

² Petitioner alleges that the amendment was made “to cover products (such as Samsung’s) in which two coils are placed side-by-side (not one inside the other).” Pet. 34.

³ Singh, US 2015/14821157, filed Aug. 7, 2015 (“the ’157 application”).

used to describe the coils, it is in the specific context of an inner coil that lies within the innermost turn of an outer coil.” *Id.* (citing Ex. 1002 ¶¶ 35–38).

In support of that position, Petitioner draws our attention to two instances where the original application describes the position of gap 120. *Id.* First, Petitioner notes that the original application describes “a gap 120 of space disposed between adjacent first and second inductor coils such as the first and second inductor coils 76, 78 and/or the third and fourth inductor coils 90, 92.” *Id.* at 39–40 (quoting Ex. 1004, 1322–1323; citing Ex. 1004, Fig. 3B (depicting coil 78 within coil 76) and Fig. 3C (depicting coil 92 within coil 90)). Second, Petitioner notes that the original application also describes “a gap of space 120 posit[ion]ed between adjacently positioned inductor coils such as the first and second inductor coils 24, 26. This gap 120 preferably reduces the proximity effect between adjacently positioned inner and outer coils, such as 76, 78 (FIG. 3B) and 90, 92 (FIG. 3C).” *Id.* at 41 (quoting Ex. 1004, 1324; citing Figs. 2, 3B, and 3C (each depicting one coil within another); Ex. 1001 ¶¶ 97, 101) (emphasis omitted). Petitioner asserts that, in each of those instances, the referenced figures illustrate a gap between two coils situated one within the other, as set forth below in Petitioner’s annotated versions of Figures 3B and 3C in the original application:



Figures 3B and 3C illustrate embodiments of a first (Fig. 3B) and second (Fig. 3C) layer of a multi-layer single structure multiple mode antenna of the present disclosure. Ex. 1001, 7:65–8:3. Petitioner’s annotations label Coil 76, Coil 78, Coil 90, Coil 92, and Gap 120 between the inner and outer coils. Pet. 40 (citing Ex. 1002 ¶ 36; Ex. 1004, 1360–61).

Petitioner asserts its position is also supported by Patent Owner’s description of its antenna during prosecution of the ’157 application as having a second coil being positioned inside of a first coil. *Id.* at 41–42 (citing Ex. 1004, 225, 227-228, 373, 399, 478, 482, 483). As one of its

examples, Petitioner refers to Patent Owner’s statement during prosecution that its antenna “is constructed having a second coil with a first gap between adjacent turns of the second coil positioned within an inner perimeter formed by an inner most turn of the first coil having a second gap between adjacent turns of the first coil” *Id.* at 42 (citing Ex. 1004, 373–374).

Additionally, Petitioner asserts that the recitation of a “third gap” in claim 1 further demonstrates that the inventor was not in possession of a side-by-side coil arrangement. *Id.* at 44. Specifically, Petitioner refers to the limitation in claim 1 reciting “a third gap separating an outermost turn of the second coil from the innermost turn of the first coil, wherein the third gap is greater than the first and second gaps.” *Id.* (quoting Ex. 1001, 32:60–62). According to Petitioner, “[s]uch a gap only makes sense if two coils are arranged such that one coil is within the inner perimeter of the other.” *Id.* (citing Ex. 1002 ¶ 39). Petitioner asserts that the original application describes the third gap only in the context of an inner and outer coil arrangement and not in any side-by-side coil arrangement. *Id.* at 45 (citing Ex. 1004, 1324–1326).

2. Patent Owner’s Contentions

Patent Owner agrees with Petitioner that “claim 1 recites two options for the spatial relationship between the first coil and the second coil,” wherein the first option positions the second coil within an inner perimeter formed by an innermost turn of the first coil, and the second option positions the second coil “adjacent” to the first coil. PO Resp. 7 (citing Ex. 2002 ¶ 35). Patent Owner contends, however, that “[t]he ’100 patent provides support for both.” *Id.* To support that contention, Patent Owner directs us to the use of the term “adjacent” in the “Summary” section of the ’100 patent, set forth below:

[B]y dynamically adjusting the electrical connections within the antenna of the present disclosure, *the separation distance between adjacent antennas* that facilitates data or electrical power transfer can also be adjusted to meet specific application requirements.

Id. at 8 (quoting Ex. 1004, 1293, ¶ 20) (emphasis added by Patent Owner). Patent Owner notes that “[t]his disclosure broadly refers to ‘adjacent antennas’ and these antennas are not limited to one coil being within the inner perimeter of the other.” *Id.* (citing Ex. 2002 ¶ 37). According to Patent Owner, that disclosure in “[t]he summary of the ’100 patent explicitly discloses a non-limiting description of adjacent coils that pertains to the invention as a whole.” *Id.* at 11 (citing Ex. 2002 ¶ 38).

Regarding Petitioner’s assertion that the “third gap” limitation in claim 1 only makes sense if the two coils of the antenna are arranged such that one is within the inner perimeter of the other, Pet. 44, Patent Owner disagrees, PO Resp. 12. Patent Owner refers to the Specification description of “a gap 120 of space disposed between adjacent first and second inductor coils such as the first and second inductor coils 76, 78 and/or the third and fourth inductor coils 90, 92,” Ex. 1001, 19:61–64, and asserts that the first portion of the quote refers to a gap between adjacent coils, whereas the second portion of the quote “uses the phrase ‘such as’ to identify the concentric coils shown in the figures as merely an example,” PO Resp. 12 (citing Ex. 2002 ¶ 43). Based on that rationale, Patent Owner asserts that “a [person of ordinary skill in the art (POSITA)] would have understood that the disclosure of the third gap is not limited to concentric coil embodiment[s].” *Id.* at 13 (citing Ex. 2002 ¶ 43).

3. *Discussion*

Having reviewed the arguments and the evidence, we determine that, based on the record as a whole, Petitioner has demonstrated by a preponderance of the evidence that independent claim 1, and dependent claims 2–25, are unpatentable for lack of written description. Specifically, Petitioner has shown persuasively that the ’157 application supports only one of the two alternatives covered by the recitation in claim 1 regarding the positioning of the second coil of the antenna. There is no dispute that the limitation in claim 1 reciting “the second coil positioned on the substrate surface and one of within an inner perimeter formed by an innermost turn of the first coil and adjacent the first coil,” Ex. 1001, 32:55–58, provides two distinct options for the position of the second coil on the substrate surface: (1) where the second coil is positioned “within an inner perimeter formed by an innermost turn of the first coil,” and (2) where the second coil is instead positioned in a side-by-side manner with the first coil.

As Petitioner correctly asserts, and Patent Owner does not dispute, the original application depicts only the first option in each of the figures illustrating an antenna comprising two coils. *See, e.g.*, Ex. 1004, Figs. 2, 3, 3B, 3C at 1356, 1358, 1360, 1361 (each depicting the two coils of an antenna wherein one coil is positioned within the inner perimeter of the other). Our analysis, however, does not end there. We next consider the disclosures in the Specification that Patent Owner asserts show that the inventors were in possession of a single structure antenna with two coils arranged in a side-by-side manner. The first description Patent Owner refers us to is in the “Summary” section of the original application. PO Resp. 8 (citing Ex. 1004, 1293, ¶ 20; Ex. 1001, 5:32–37). That disclosure, however, unambiguously describes the position between antennas and not the position

of the coils of an antenna, as it states “the separation distance between *adjacent antennas*.” Ex. 1004, 1293, ¶ 20 (emphasis added). Indeed, Patent Owner and its declarant, Dr. Ricketts acknowledge the same. *See* PO Resp. 8; Ex 2002 ¶ 37 (each stating, “[t]his disclosure broadly refers to ‘adjacent antennas’”). Despite that acknowledgment, Patent Owner argues and Dr. Ricketts testifies that the disclosure relating to adjacent antennas “explicitly discloses a non-limiting description of adjacent coils that pertains to the invention as a whole.” PO Resp. 9; Ex. 2002 ¶ 38. We disagree, as the only support for that contention is the use of the term “adjacent” in the “Summary” section of the original application. However, as just discussed, the term “adjacent” is not used in that “Summary” section to describe the positioning of coils for the antenna.

Next, Patent Owner relies upon a statement in the Specification of the ’100 patent that describes “a gap 120 of space disposed between adjacent first and second inductor coils such as the first and second inductor coils 76, 78 and/or the third and fourth inductor coils 90, 92.” PO Resp. 12 (quoting Ex. 1001, 19:61–64) (emphasis removed).⁴ This is the same statement Petitioner referred to in the original application. *See* Pet. 39 (citing Ex. 1004, 1322–1323). The parties read this statement differently. Petitioner asserts that this disclosure supports finding that the term “adjacent” is used only to describe the coils “in the specific context of an

⁴ In its Sur-Reply, Patent Owner also refers to a similar description in the Specification of “a gap of space 120 positioned between adjacently positioned inductor coils such as the first and second inductor coils 24, 26.” Ex. 1001, 20:54–57, *see* PO Sur-Reply 1. Coils 24 and 26 are also depicted wherein one coil is positioned within the inner perimeter of the other. *See* Ex. 1001, Fig. 2.

inner coil that lies within the innermost turn of an outer coil.” *Id.* (citing Ex. 1002 ¶¶ 35–38). In support of that reading, Petitioner directs us to the depicted arrangement of coils 76 and 78 in Figure 3B and the depicted arrangement of coils 90 and 92 in Figure 3C, expressly referred to in the Specification statement describing the “adjacent” coils. *Id.* at 39–41 (referring to Ex. 1001, Figs. 3B and 3C, each depicting a coil arrangement wherein one coil is positioned within the inner perimeter of another coil). On the other hand, Patent Owner asserts the Specification statement should be dissected such that only the first portion of the quote describing a gap between adjacent coils refers to coils that are side-by-side, while the second portion of the quote “uses the phrase ‘such as’ to identify the concentric coils shown in the figures as merely an example,” PO Resp. 12–13 (citing Ex. 2002 ¶ 43). Neither Patent Owner nor Dr. Ricketts provide any rationale for doing so. *See id.*

Based on our reading of the Specification description of “a gap 120 of space disposed between adjacent first and second inductor coils such as the first and second inductor coils 76, 78 and/or the third and fourth inductor coils 90, 92,” Ex. 1001, 19:61–64, it is apparent that the phrase “such as the first and second inductor coils 76, 78 and/or the third and fourth inductor coils 90, 92,” cannot be divorced from the preceding mention of “adjacent first and second inductor coils.” Rather, coils 76, 78 and coils 90, 92 exemplify the “adjacent” coil configuration referenced. Patent Owner’s contention that the Specification statement separately references adjacent coils and concentric coils lacks reason in view of the use of the term “such as” in the statement. The use of “such as” in the statement serves to connect the first portion of the sentence with the second portion of the sentence, rather than to distinguish those two portions. Insofar as Patent Owner

asserts that Specification statement identifies the concentric coils shown in the figures as “merely an example,” we note that Patent Owner does not explain what it asserts they are “merely an example” of. *See* PO Resp. 12. The Specification statement itself plainly provides that answer—the cited coils in the statement exemplify “adjacent” coils in an exemplary structure. The Specification, however, contemplates structures comprising more coils than depicted in Figures 3B and 3C. *See, e.g.,* Ex. 1001, 29:19–31, Fig. 11. Therefore, even though the structure and concentric coils depicted in Figures 3B and 3C are merely examples, it does not follow that the Specification supports anything other than “adjacent” coils in concentric orientation with one another.

Accordingly, we determine that a proper reading of the Specification reveals that the use of the term “adjacent” to describe the position of coils refers to an arrangement such as that depicted in the figures showing coils 76 and 78, and coils 90 and 92, wherein the second coil is positioned within an inner perimeter formed by an innermost turn of the first coil. *See* Exhibit 1001, Figs. 3B, 3C; Ex. 1004, Figs. 3B, 3C. In other words, the Specification use of the term “adjacent” within the context of describing the position of the coils does not refer to a side-by-side arrangement.

Thus, we do not find that Patent Owner has identified any disclosure in the original application describing the second coil of an antenna being positioned in a side-by-side manner with the first coil. Accordingly, based on the current record as a whole, we determine that Petitioner has shown by a preponderance of the evidence that independent claim 1 lacks written description support because a person of ordinary skill in the art would not have recognized from the original application that the inventor had possession of the full claim scope of claim 1. As each of claims 2–25

depend from claim 1, we determine that those claims lack written description support for at least the same reasons as claim 1.

E. Indefiniteness

Petitioner asserts that claims 1–25 are indefinite under 35 U.S.C. § 112(b). Pet. 58–66. Petitioner contends that independent claim 1 is indefinite because it does not sufficiently “inform those skilled in the art about the scope of the invention with reasonable certainty.” *Id.* at 58–59. In particular, Petitioner asserts that the full scope of the claim is not limited to one coil positioned within an inner perimeter of another coil. *Id.* at 60. Rather, Petitioner asserts that the plain language of the claim “encompasses an antenna in which the two coils are arranged side-by-side,” i.e., “adjacent” to each other, as discussed above with regard to the written description requirement. *Id.* According to Petitioner, a person having ordinary skill in the art would not have known where the recited “third gap” would be measured in such a side-by-side arrangement. *Id.*

Because we have determined that all of the challenged claims are unpatentable under 35 U.S.C. § 112(a) for lack of written description, in particular for lacking a description of coils arranged in a side-by-side manner, which arrangement serves as the basis for Petitioner’s indefiniteness challenge, we need not reach Petitioner’s indefiniteness ground. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding that a petitioner “is entitled to a final written decision addressing all of the *claims* it has challenged”) (emphasis added).

III. CONCLUSION⁵

For the foregoing reasons, we conclude that Petitioner has shown by a preponderance of the evidence that claims 1–25 are unpatentable under 35 U.S.C. § 112(a) for lack of written description. The results are summarized in the table following the Order.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–25 of U.S. Patent No. 10,063,100 B2 have been shown to be unpatentable; and

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

In summary:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1–25	112(a)	Written Description	1–25	
1–25	112(b) ⁶	Indefiniteness		
Overall Outcome			1–25	

⁵ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses one of those options, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

⁶ As discussed above, in Section II.E., we do not reach this ground.

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