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Paper 32
Date: July 27, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

SCRAMOGE TECHNOLOGY LTD.,
Patent Owner.

IPR2022-00351
Patent 10,622,842 B2

Before JAMESON LEE, KARL D. EASTHOM, and MICHELLE N. WORMMEESTER, *Administrative Patent Judges*.

WORMMEESTER, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Apple Inc. ("Petitioner") filed a Petition (Paper 2, "Pet.") requesting *inter partes* review of claims 1, 2, 5–7, 14–16, 19, and 20 of U.S. Patent No. 10,622,842 B2 (Ex. 1001, "the '842 patent"). Scramoge Technology Ltd. ("Patent Owner") filed a Preliminary Response (Paper 6). With our authorization (*see* Paper 7), Petitioner filed a preliminary Reply (Paper 8) to Patent Owner's Preliminary Response, and Patent Owner filed a preliminary Sur-reply (Paper 9) to Petitioner's preliminary Reply. Pursuant to 35 U.S.C. § 314, we instituted an *inter partes* review of all the challenged claims based on all the grounds presented in the Petition. Paper 10 ("Inst. Dec."). Thereafter, Patent Owner filed a Response (Paper 17, "PO Resp.") to the Petition, Petitioner filed a Reply (Paper 22, "Pet. Reply"), and Patent Owner filed a Sur-reply (Paper 23, "PO Sur-reply"). On May 3, 2023, we conducted an oral hearing. A copy of the transcript (Paper 31, "Tr.") is in the record.

We have jurisdiction under 35 U.S.C. § 6(b). For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 2, 5–7, 14–16, 19, and 20 of the '842 patent are unpatentable. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a).

II. BACKGROUND

A. Related Proceedings

The parties identify one federal district court case, *Scramoge Technology Limited v. Apple Inc.*, No. 5:22-cv-03041 (N.D. Cal.). Paper 8, 2; Paper 27, 2–3 (Patent Owner's Second Amended Mandatory Notices);

Ex. 1021, 10 (PACER docket report). Patent Owner also identifies several *inter partes* review proceedings. Paper 27, 2.

B. The '842 Patent

The '842 patent describes wireless power receivers. Ex. 1001, 1:21–22. In one embodiment, the wireless power receiver includes a shielding unit to prevent the electronic appliance in which the wireless power receiver is installed from malfunctioning. *Id.* at 2:1–3, 2:41–45, 3:4–6; *see also id.* at 1:55–57 ("[A] magnetic field generated from the receiving coil exerts an influence on an inside of an electronic appliance, so that the electronic appliance malfunctions."). The electronic appliance may be a portable device. *Id.* at 1:39–43.

To illustrate, Figure 10 of the '842 patent is reproduced below.

FIG. 10

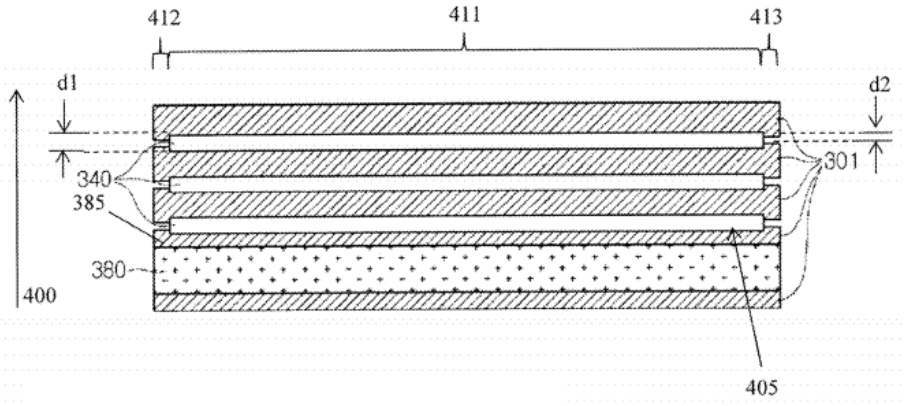


Figure 10 shows a wireless power receiver, which includes printed circuit board 301, short-range communication antenna 340, a receiving coil (not shown), and shielding unit 380. Ex. 1001, 3:4–6, 8:21–23, 8:44–50. Printed circuit board 301 includes multiple layers where each layer is spaced apart

from adjacent layers. *Id.* at 8:44–46. Short-range communication antenna 340 or the receiving coil is disposed in printed circuit board 301. *Id.* at 8:46–49. Shielding unit 380 also is disposed in printed circuit board 301. *Id.* at 8:49–50. In particular, shielding unit 380 is disposed under short-range communication antenna 340 or the receiving coil. *Id.* at 8:51–52. Short-range communication antenna 340, the receiving coil, and shielding unit 380 are disposed between the layers of printed circuit board 301. *Id.* at 8:52–56.

The wireless power receiver, as shown in Figure 10, can be divided into two regions. Ex. 1001, 9:6–12. First region 411, includes portions of layers in printed circuit board 301 that overlap the receiving coil in vertical direction 400, which is perpendicular to upper surface 385 of shielding unit 380. *Id.* at 9:6–10. Second region 412, 413 includes portions of the same layers that do not overlap the receiving coil in vertical direction 400. *Id.* at 9:10–12. First gap or distance d1, which is measured in vertical direction 400 between layers in first region 411, is greater than second gap or distance d2, which is measured in vertical direction 400 between layers in second region 412, 413. *Id.* at 9:12–16.

The '842 patent explains that, "when the shielding unit 380 is inserted into the printed circuit board 301, the entire thickness of the wireless power receiver . . . may be reduced," and "a separate procedure of attaching the shielding unit 380 is not necessary, so the manufacturing process may be simplified." Ex. 1001, 8:66–9:6.

C. Illustrative Claim

As noted above, Petitioner challenges claims 1, 2, 5–7, 14–16, 19, and 20 of the '842 patent, where claims 1 and 19 are independent. Claim 1, reproduced below, is illustrative of the claims under challenge.

1. A wireless power receiver, comprising:

a shielding unit;

a first layer on the shielding unit;

a wireless power receiving coil on the first layer;

a second layer on the wireless power receiving coil;

a first region in which at least one of the first layer and the second layer overlaps the wireless power receiving coil in a vertical direction perpendicular to an upper surface of the shielding unit; and

a second region in which at least one of the first layer and the second layer does not overlap the wireless power receiving coil in the vertical direction,

wherein a first distance, measured in the vertical direction, between the first layer and the second layer in the first region is greater than a second distance, measured in the vertical direction, between the first layer and the second layer in the second region.

D. Asserted Grounds of Unpatentability

Petitioner challenges claims 1, 2, 5–7, 14–16, 19, and 20 of the '842 patent on the following two grounds. Pet. 15–54. We instituted *inter partes* review. Inst. Dec. 27.

Claims Challenged	35 U.S.C. §[1]	References
1, 2, 5–7, 14–16, 19, 20	103	Suzuki[2]
7	103	Suzuki, Park[3]

In support of its arguments, Petitioner relies on a Declaration of Dr. Joshua Phinney, Ph.D. (Ex. 1003). Patent Owner relies on a Declaration of Dr. David S. Ricketts, Ph.D. (Ex. 2017). The transcripts of the depositions of Drs. Phinney and Ricketts are entered in the record as Exhibits 2020 and 1023, respectively.

III. DISCUSSION

A. Claim Construction

In an *inter partes* review proceeding, we construe a claim of a patent "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* 37 C.F.R. § 42.100(b) (2021). Applying that standard, we construe the claim in accordance with its ordinary and customary meaning as would have been understood by one of ordinary skill in the art, taking into account the specification and the prosecution history pertaining to the patent. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc).

[1] The Leahy-Smith America Invents Act ("AIA") amended 35 U.S.C. § 103, effective March 16, 2013. *See* Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011). Because the application from which the '842 patent issued claims the benefit of priority to an application that was filed before this date, the pre-AIA version of § 103 applies.
[2] Suzuki, U.S. Patent No. 8,421,574 B2, issued Apr. 16, 2013 (Ex. 1005).
[3] Park, U.S. Patent No. 8,922,162 B2, issued Dec. 30, 2014 (Ex. 1006).

Petitioner asserts that "no terms require specific construction." Pet. 10. Patent Owner does not respond. *See generally* PO Resp. For purposes of this Decision, we conclude that no claim term requires express interpretation to resolve any controversy in this proceeding. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

B. Obviousness over Suzuki

Petitioner asserts that claims 1, 2, 5–7, 14–16, 19, and 20 of the '842 patent would have been obvious over Suzuki. Pet. 16–39. Patent Owner disputes Petitioner's analysis regarding only claim 7. PO Resp. 12–18. For the reasons explained below, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1, 2, 5, 6, 14–16, 19, and 20 would have been obvious over Suzuki. Petitioner has not, however, demonstrated by a preponderance of the evidence that claim 7 would have been obvious over Suzuki.

We start with an overview of the asserted prior art, Suzuki.

1. Overview of Suzuki

Suzuki relates to a contactless power transmission apparatus, which includes a power transmitter in a primary side and a power receiver in a secondary side. Ex. 1005, 4:46–50. The transmitter and the receiver include primary and secondary coils, respectively, which can transmit electric power from the primary side to the secondary side via electromagnetic induction. *Id.* at 4:50–55. The transmitter may be a charger, and the receiver may be a cell phone. *Id.* at 4:56–59.

Suzuki describes various embodiments of the receiver. *See, e.g.*, Ex. 1005, 9:9–23. Figure 9 of Suzuki, which describes a second embodiment, is reproduced below. *Id.*

FIG. 9

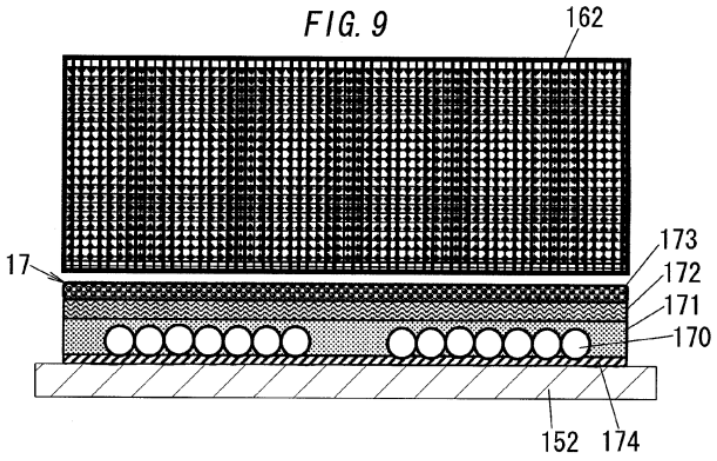


Figure 9 shows a power receiver in a contactless power transmission apparatus that includes secondary coil block 17, load 162, and radiation layer 174. *Id.* at 4:60–63, 6:29–33, 9:11–13, 9:16–19. Secondary coil block 17 includes secondary coil 170, magnetic layer 171, shield layer 172, and heat insulation layer 173. *Id.* at 6:29–33. Load 162 is a battery pack located in a battery compartment of the receiver and is covered with battery cover 152. *Id.* at 5:50–51, 6:8–12. Radiation layer 174 is formed between battery cover 152 and secondary coil 170 to improve radiation characteristics from battery cover 152. *Id.* at 9:16–19.

In summarizing the parts of its second embodiment, Suzuki states that the primary side includes a primary coil with a magnetic layer laminated on one side of the primary coil, whereas the secondary side includes secondary coil 170 with magnetic layer 171 laminated on one side of secondary coil 170 and shield layer 172 laminated on magnetic layer 171. *See* Ex. 1005, 10:43–48 (describing "first-fifth embodiments"). Suzuki explains that "if a shield layer is also laminated on the magnetic layer of a primary

side, noise can be converted into heat to be absorbed with two shield layers," and that "power transmission efficiency between primary and secondary sides can be enhanced with the two magnetic layers." *Id.* at 10:48–53. Suzuki further explains, however, "the housings of primary and secondary devices exist between primary and secondary coils, and accordingly coupling between the primary and secondary coils is reduced and magnetic flux leakage can be increased, thereby creating difficulty in fully eliminating noise with a shield layer made of copper foil, aluminum foil or the like." *Id.* at 10:57–62.

In order to "further reduce the influence of noise," Suzuki teaches using a plurality of magnetic layers in at least the secondary side. Ex. 1005, 10:63–65. To illustrate, Figure 17A of Suzuki, which describes a sixth embodiment, is reproduced below. *Id.* at 10:38–42.

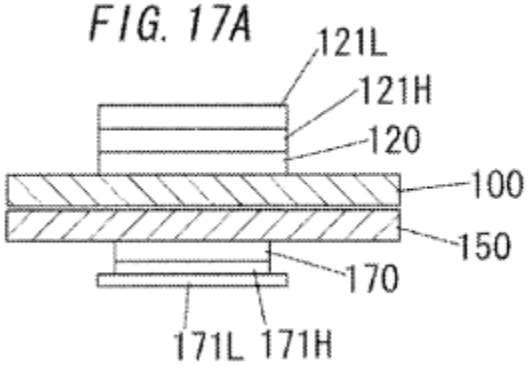


Figure 17A shows a contactless power transmission apparatus where each of the primary side (transmitter) and the secondary side (receiver) includes a plurality of magnetic layers. *Id.* at 10:65–67. For example, the power receiver in the secondary side includes housing 150 with secondary coil 170 "stuck" on the inner face of housing 150, and a plurality of magnetic layers 171H and 171L that are laminated on one side of secondary coil 170. *Id.* at 11:9–14.

Still referring to its sixth embodiment, Suzuki teaches further adding data transmission coils to the primary and secondary sides. Ex. 1005, 12:51–56. To illustrate, Figure 21 of Suzuki is reproduced below.

FIG. 21

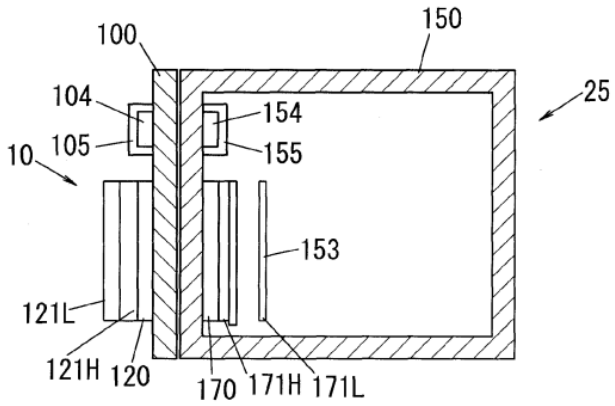


Figure 21 shows a contactless power transmission apparatus where the primary side is charger 10 and the secondary side is a receiver (referred to as cell phone 15). Ex. 1005, 12:51–52. Charger 10 includes data transmission coil 104 and the receiver includes data transmission coil 154, where the coils send and receive signals containing information, such as charging start and charging completion. *Id.* at 12:53–58. Charger 10 also includes magnetic layer 105 located on coil 104, and the receiver similarly includes magnetic layer 155 located on coil 154. *Id.* at 12:58–62. Suzuki explains that, "[i]n this embodiment, reliability of signal transmission between the coils 104 and 154 can be improved." *Id.* at 12:62–64.

2. Analysis

We turn now to our discussion of the challenged claims.

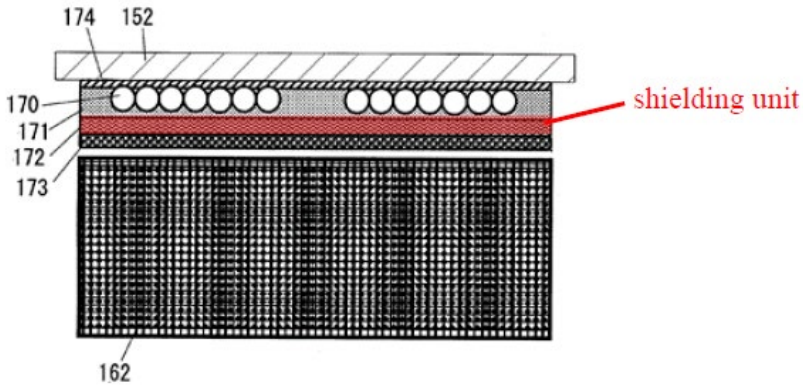
a. Independent Claim 1

Claim 1 is directed to a "wireless power receiver" comprising a "shielding unit," a "first layer," a "wireless power receiving coil," a "second layer," a "first region," and a "second region." Claim 1 recites various limitations designated by Petitioner as limitations 1.1 through 1.7. For its analysis of claim 1, Petitioner relies on Suzuki's second embodiment (Figure 9) of a power receiver. Pet. 21 (citing Ex. 1005, Fig. 9); Ex. 1005, 9:10–23.

We address Petitioner's analysis of the limitations of claim 1 in turn.

i. Limitation 1.1: "shielding unit"

Claim 1 recites "a shielding unit." For this limitation, which Petitioner designates as limitation 1.1, Petitioner identifies Suzuki's shield layer 172 as a "shielding unit." Pet. 21. To illustrate, Petitioner provides an inverted, cropped, and annotated version of Figure 9 of Suzuki, reproduced below. *Id.*

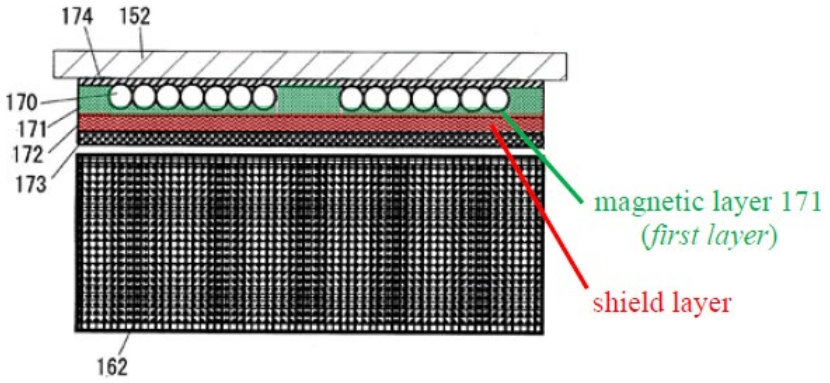


Petitioner's version of Figure 9 shows a portion of a power receiver that includes secondary coil block 17. *See* Ex. 1005, 6:29–33, 9:11–13. Secondary coil block 17 includes shield layer 172 (shown with red shading). Pet. 21; Ex. 1005, 6:29–33.

Based on Petitioner's argument and evidence, we are persuaded that Suzuki teaches the recited shielding unit of limitation 1.1. Patent Owner does not dispute Petitioner's analysis for this limitation. *See generally* PO Resp.

ii. Limitation 1.2: "first layer"

Claim 1 further recites "a first layer on the shielding unit." For this limitation, which Petitioner designates as limitation 1.2, Petitioner identifies Suzuki's magnetic layer 171 as a "first layer." Pet. 21. As support, Petitioner directs us to where Suzuki teaches that "[t]he shield layer 172 is also laminated on at least the upper surface of the magnetic layer 171." Ex. 1005, 6:35–38 (cited by Pet. 21–22). Petitioner further provides an inverted, cropped, and annotated version of Figure 9 of Suzuki, which is reproduced below. Pet. 22.

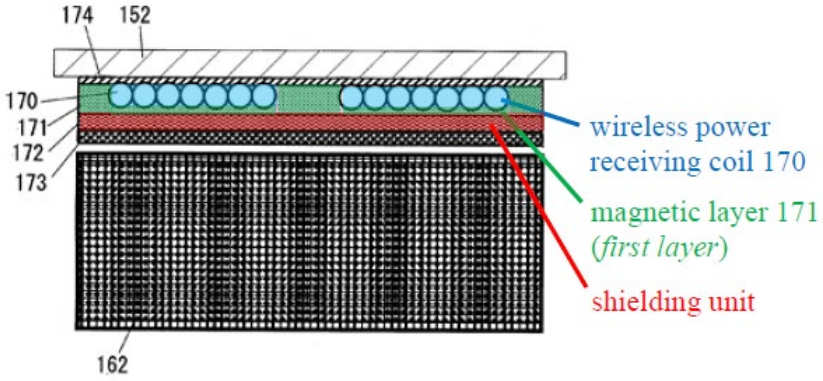


Petitioner's version of Figure 9 shows a portion of a power receiver that includes secondary coil block 17. *See* Ex. 1005, 6:29–33, 9:11–13. Secondary coil block 17 includes magnetic layer 171 (shown with green shading) and shield layer 172 (shown with red shading). Pet. 22; Ex. 1005, 6:29–33.

Based on Petitioner's argument and evidence, we are persuaded that Suzuki teaches the recited first layer of limitation 1.2. Patent Owner does not dispute Petitioner's analysis for this limitation. *See generally* PO Resp.

iii. Limitation 1.3: "wireless power receiving coil"

Claim 1 further recites "a wireless power receiving coil on the first layer." For this limitation, which Petitioner designates as limitation 1.3, Petitioner identifies Suzuki's secondary coil 170 as a "wireless power receiving coil." Pet. 22. As support, Petitioner directs us to where Suzuki teaches that its "secondary coil 170 is a planar coil and the magnetic layer 171 is laminated on at least one side (an upper surface) of the secondary coil 170." Ex. 1005, 6:33–35 (quoted by Pet. 22); *see also id.* at 6:41–46 (quoted by Pet. 22). Petitioner also provides an inverted, cropped, and annotated version of Figure 9 of Suzuki, which is reproduced below. Pet. 23.

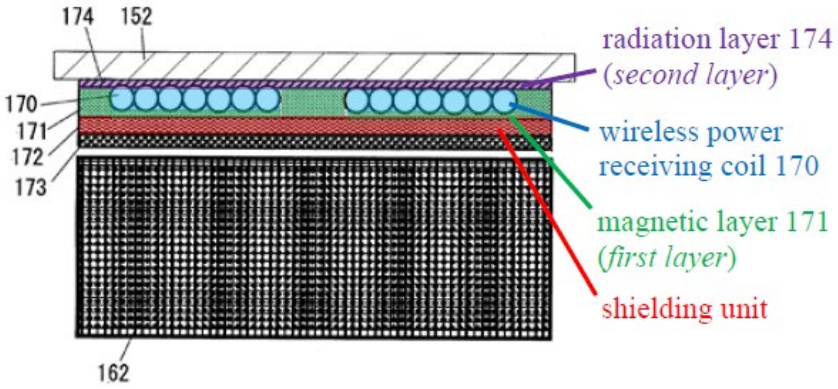


This version of Figure 9 shows a portion of a power receiver that includes secondary coil block 17. *See* Ex. 1005, 6:29–33, 9:11–13. Secondary coil block 17 includes secondary coil 170 (shown with blue shading) and magnetic layer 171 (shown with green shading), where magnetic layer 171 corresponds to the recited first layer. Pet. 23; Ex. 1005, 6:29–33.

Based on Petitioner's argument and evidence, we are persuaded that Suzuki teaches the recited wireless power receiving coil of limitation 1.3. Patent Owner does not dispute Petitioner's analysis for this limitation. *See generally* PO Resp.

iv. Limitation 1.4: "second layer"

Claim 1 further recites "a second layer on the wireless power receiving coil." For this limitation, which Petitioner designates as limitation 1.4, Petitioner identifies Suzuki's radiation layer 174 as a "second layer." Pet. 23. As support, Petitioner directs us to where Suzuki teaches "a radiation layer 174 intervened between the battery cover 152 and the secondary coil 170 in order to improve radiation characteristics from the battery cover 152." Ex. 1005, 9:16–19 (quoted by Pet. 23). To illustrate, Petitioner provides an inverted, cropped, and annotated version of Figure 9 of Suzuki, reproduced below. Pet. 24.



This version of Figure 9 shows a portion of a power receiver that includes secondary coil block 17 and radiation layer 174. *See* Ex. 1005, 6:29–33, 9:11–13, 9:16–19. Secondary coil block 17 includes secondary coil 170 (shown with blue shading), which corresponds to the recited wireless power

receiving coil. Pet. 24; Ex. 1005, 6:29–33. Radiation layer 174 is shown with purple shading. Pet. 24.

Based on Petitioner's argument and evidence, we are persuaded that Suzuki teaches the recited second layer of limitation 1.4. Patent Owner does not dispute Petitioner's analysis for this limitation. *See generally* PO Resp.

v. Limitations 1.5, 1.6, and 1.7: "first region" / "second region"

Claim 1 further recites "a first region in which at least one of the first layer and the second layer overlaps the wireless power receiving coil in a vertical direction perpendicular to an upper surface of the shielding unit." Petitioner designates this limitation as limitation 1.5. Pet. 24. Claim 1 also recites "a second region in which at least one of the first layer and the second layer does not overlap the wireless power receiving coil in the vertical direction." Petitioner designates this limitation as limitation 1.6. *Id.* at 26. Lastly, claim 1 recites "a first distance, measured in the vertical direction, between the first layer and the second layer in the first region is greater than a second distance, measured in the vertical direction, between the first layer and the second layer in the second region." Petitioner designates this limitation as limitation 1.7. *Id.* at 27. We discuss these limitations in turn.

With respect to limitation 1.5 (which recites "a first region in which at least one of the first layer and the second layer overlaps the wireless power receiving coil in a vertical direction perpendicular to an upper surface of the shielding unit"), Petitioner provides an inverted, cropped, and annotated version of Figure 9 of Suzuki, reproduced below. Pet. 25.

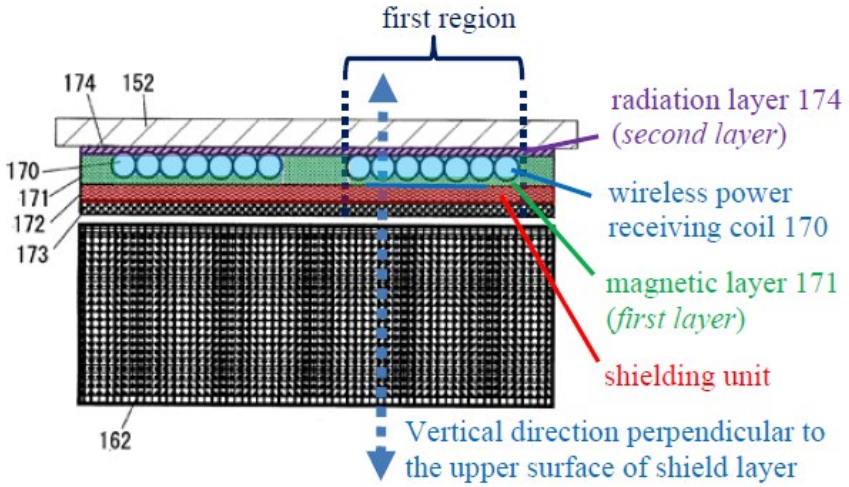
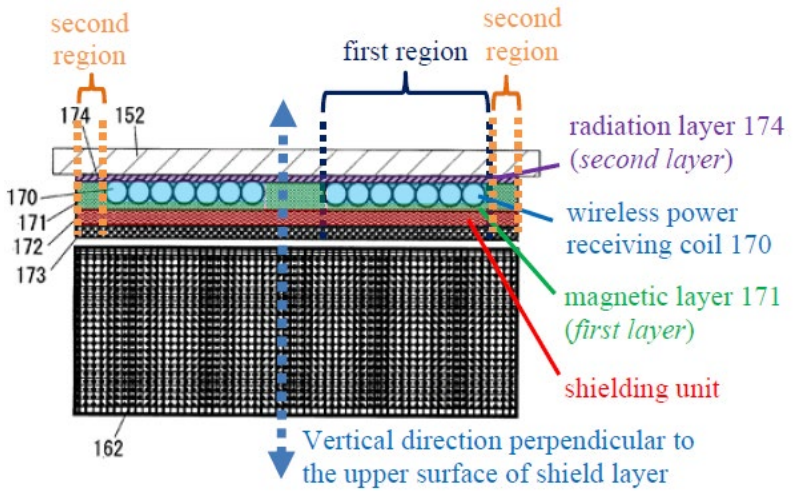


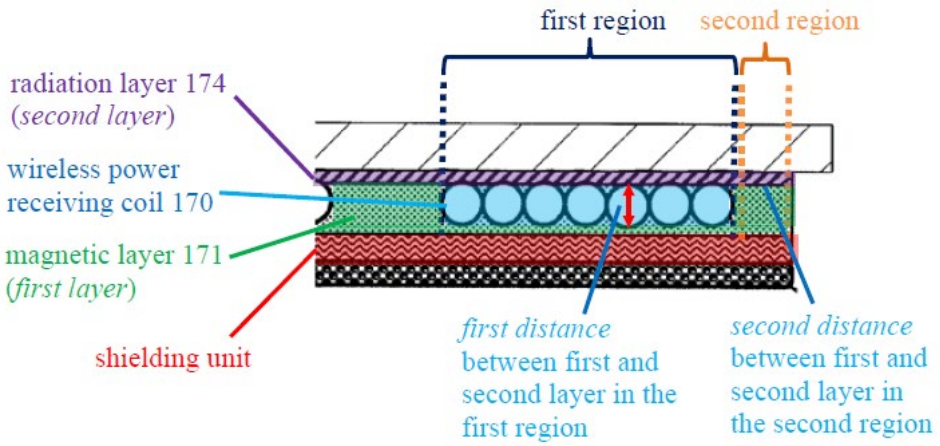
Figure 9, as inverted, cropped, and annotated by Petitioner, shows a portion of a power receiver. *See* Ex. 1005, 9:11–13. Relying on this version of Figure 9, Petitioner asserts that "Suzuki teaches a region in which the magnetic layer 171 ('*first layer*') is below the coil 170 and the radiation layer ('*second layer*') is above the coil 170." Pet. 24. Petitioner further asserts that "each of the magnetic layer 171 ('*first layer*') and the radiation layer ('*second layer*') overlaps the wireless power receiving coil 170 in a vertical direction perpendicular to an upper surface of the shielding layer." *Id.* at 25.

With respect to limitation 1.6 (which recites "a second region in which at least one of the first layer and the second layer does not overlap the wireless power receiving coil in the vertical direction"), Petitioner provides another inverted, cropped, and annotated version of Figure 9 of Suzuki, reproduced below. Pet. 26.



This version of Figure 9 shows a portion of a power receiver. *See* Ex. 1005, 9:11–13. Petitioner asserts that "Suzuki teaches a region in which neither the magnetic layer 171 ('*first layer*') nor the radiation layer ('*second layer*') overlap[s] the coil 170 in the vertical direction." Pet. 26.

Lastly, with respect to limitation 1.7 (which recites "a first distance, measured in the vertical direction, between the first layer and the second layer in the first region is greater than a second distance, measured in the vertical direction, between the first layer and the second layer in the second region"), Petitioner provides yet another version of Figure 9 of Suzuki, reproduced below. Pet. 27.



Petitioner's figure is an inverted, cropped, and annotated version of Figure 9, which shows a portion of a power receiver. *See* Ex. 1005, 9:11–13. According to Petitioner, "the double-sided red arrow illustrates a point at which the distance between the magnetic layer 171 ('*first layer*') and the radiation layer 174 ('*second layer*') . . . is greater in the *first region* than in the *second region*." Pet. 27. Petitioner asserts that, "in the *first region*, the coil 170 is interposed between the magnetic layer and radiation layer, as the coil is pressed into the magnetic layer," whereas, "in the *second region*, the magnetic layer is adjacent to the radiation layer." *Id.* Petitioner contends that a "[person of ordinary skill in the art] would have found it obvious that the distance between non-adjacent layers is greater than the near-zero distance between adjacent layers." *Id.* Petitioner relies on the declaration testimony of Dr. Phinney. *Id.* at 27–28 (citing Ex. 1003 ¶¶ 58–60).

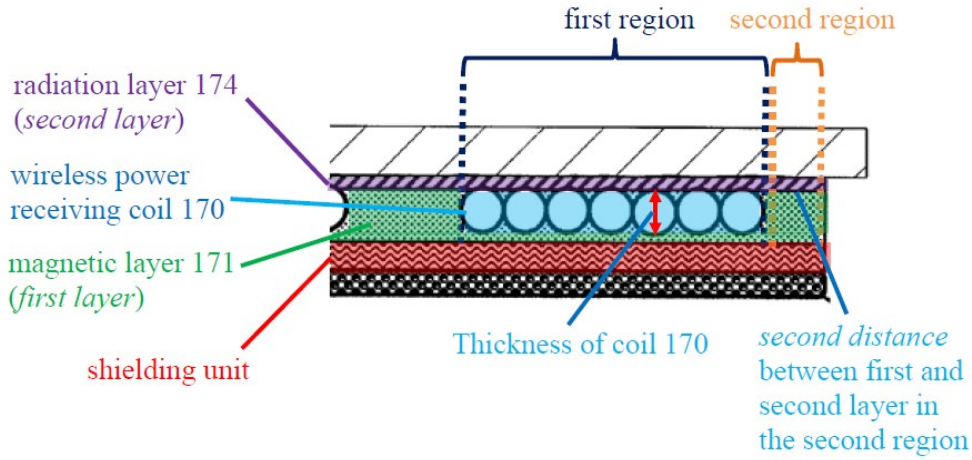
Based on Petitioner's argument and evidence, we are persuaded that Suzuki teaches the recited first and second regions of limitations 1.5, 1.6, and 17. Patent Owner does not dispute Petitioner's analysis for these limitations. *See generally* PO Resp.

In summary, based on Petitioner's argument and evidence, we are persuaded that Suzuki teaches the recited limitations of claim 1.

b. Dependent Claim 2

Claim 2 depends from claim 1 and recites "wherein the second distance is smaller than a thickness, measured in the vertical direction, of the wireless power receiving coil." For this limitation, Petitioner cross-references its discussion of limitation 1.7 and provides an inverted, cropped,

and annotated version of Figure 9 of Suzuki, which is reproduced below. Pet. 29.



Petitioner's version of Figure 9 shows a portion of a power receiver. *See* Ex. 1005, 9:11–13. Petitioner asserts that, "in the *first region*, coil 170 [shown with blue shading] is interposed between the magnetic layer [shown with green shading] and radiation layer [shown with purple shading], whereas, in the *second region*, the magnetic layer [shown with green shading] is adjacent to the radiation layer [shown with purple shading]." Pet. 28. Petitioner contends that "the *second distance* in the *second region* where the coil is not interposed between the layers, is smaller than the thickness of the coil." *Id.* According to Petitioner, such distance between adjacent layers is "near-zero." *Id.* at 27 (discussing limitation 1.7).

Based on Petitioner's argument and evidence, we are persuaded that Suzuki teaches the recited limitation of claim 2. Patent Owner does not dispute Petitioner's analysis for this limitation. *See generally* PO Resp.

c. Dependent Claim 5

Claim 5 depends from claim 1 and recites "wherein a portion of the first layer is disposed on a side surface of the wireless power receiving coil." For this limitation, Petitioner provides an inverted, cropped, and annotated version of Figure 9 of Suzuki, reproduced below. Pet. 30.

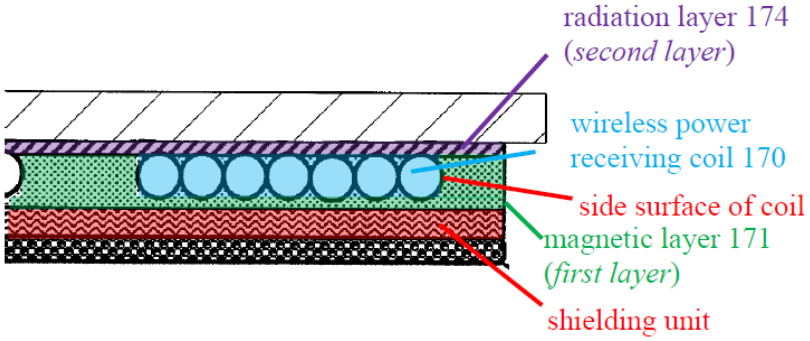
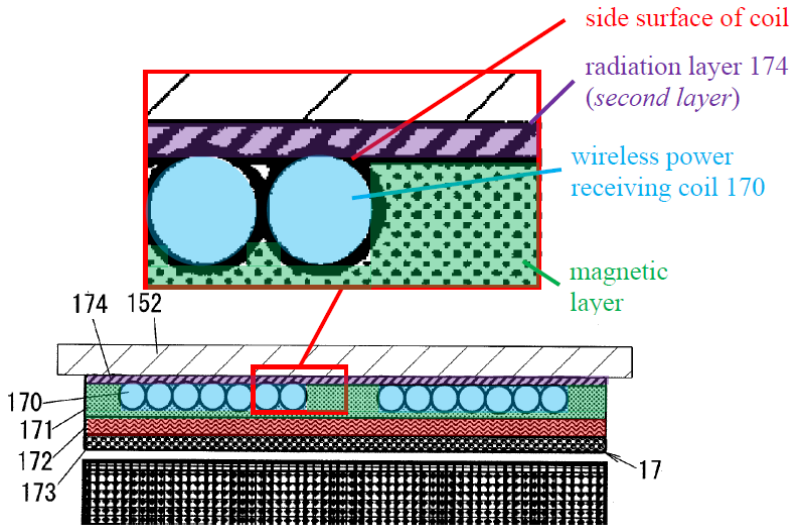


Figure 9, as inverted, cropped, and annotated by Petitioner, shows a portion of a power receiver. *See* Ex. 1005, 9:11–13. According to Petitioner, this version of the figure shows that "a portion of Suzuki's magnetic layer 171 (*'first layer'*) [shown with green shading] is disposed on a side surface of the wireless receiving coil [shown with blue shading]." Pet. 29.

Based on Petitioner's argument and evidence, we are persuaded that Suzuki teaches the recited limitation of claim 5. Patent Owner does not dispute Petitioner's analysis for this limitation. *See generally* PO Resp.

d. Dependent Claim 6

Claim 6 depends from claim 5 and recites "wherein a portion of the second layer is disposed on the side surface of the wireless power receiving coil." For this limitation, Petitioner provides an inverted, cropped, and annotated version of Figure 9 of Suzuki, reproduced below. Pet. 31.



This version of Figure 9 shows a portion of a power receiver. *See* Ex. 1005, 9:11–13. Petitioner asserts that "the upper portions of Suzuki's coil 170 [shown with blue shading] extend into the radiation layer 174 [shown with purple shading] above," such that "the radiation layer 174 contacts an upper side surface of the coils." Pet. 30–31. According to Petitioner, "this configuration is a result of the manufacturing process, which involves pressing layers together." *Id.* (citing Ex. 1005, 8:66–9:1). Petitioner contends that an ordinarily skilled artisan "would have thus understood that as the layers are pressed together, the coil 170 would press into the radiation layer 174," and that "[t]his pressing thus results in the radiation layer 174 contacting a side surface of the coil, rather than just a top surface." *Id.* at 31. Petitioner relies on the declaration testimony of Dr. Phinney. *Id.* at 30–32 (citing Ex. 1003 ¶¶ 65–67).

Based on Petitioner's argument and evidence, we are persuaded that Suzuki teaches the recited limitation of claim 6. Patent Owner does not dispute Petitioner's analysis for this limitation. *See generally* PO Resp.

e. Dependent Claim 7

Claim 7 depends from claim 1 and recites "a short-range communication antenna on the first layer." For this limitation, Petitioner directs us to Suzuki's sixth embodiment where the power receiving device includes a coil 154 for data transmission. Pet. 32 (citing Ex. 1005, 12:51–64). Petitioner identifies Suzuki's coil 154 as a "short-range communication antenna." *Id.* As support, Petitioner points to Suzuki's teaching that its data coil 154 is used to "send and receive a signal (information) representing charging start, charging completion" to charger 10. *Id.* at 33 (quoting Ex. 1005, 12:56–58). Petitioner further asserts that "a [person of ordinary skill in the art] would have found it obvious that the data coil 154 is a short-range antenna because the corresponding data coil 104 in the charger 10 is only a short distance away when the power receiving device is charging on the charger." *Id.* (citing Ex. 1005, 12:56–58, Fig. 10).

Petitioner also provides an annotated version of Figure 21 of Suzuki, which is reproduced below. Pet. 34.

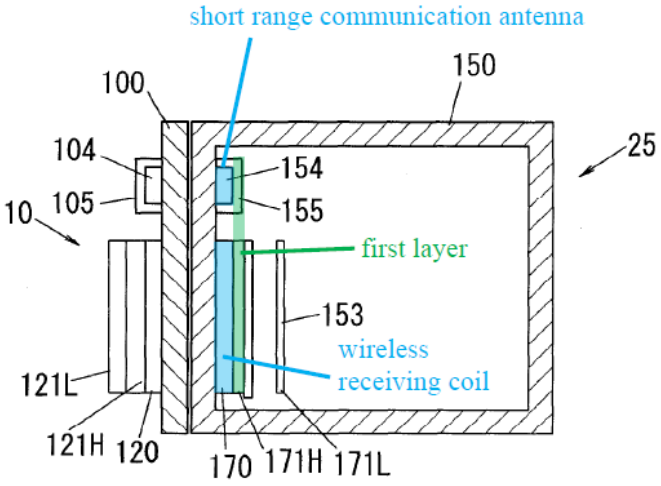


Figure 21 of Suzuki, as annotated by Petitioner, shows "essential parts of [a] contactless power transmission apparatus." *See* Ex. 1005, 4:36–37.

Petitioner asserts that "the data coil 154, like the power receiving coil 170, is on a magnetic layer ('*first layer*'): '[T]he coil 154 is located on the inner face of the housing 150, and **the magnetic layer 155 is located on the coil 154**.'" Pet. 34 (quoting Ex. 1005, 12:60–62 (emphasis added by Petitioner)). According to Petitioner, "the magnetic layer 171 and the magnetic layer 155 are on the same plane and together represent a '*first layer*' as claimed." *Id.* Petitioner adds that "the claim language does not require that the first layer be contiguous." *Id.* Petitioner relies on the declaration testimony of Dr. Phinney. *Id.* (citing Ex. 1003 ¶¶ 70–71).

Patent Owner makes several arguments. PO Resp. 12–18. For example, Patent Owner argues that Petitioner "offer[s] only a conclusory analysis as to how the data coil 154 of Suzuki would be on the magnetic layer 171H and therefore 'on the first layer' as required by claim 7." *Id.* at 14. Patent Owner asserts in particular that Petitioner's "analysis is limited to a cursory examination of Fig. 21 showing the data coil 154 and the secondary coil 170 to be approximately of the same thickness to conclude that 'the magnetic layer 171 and the magnetic layer 155 are on the same plane and together represent a "*first layer*" as claimed.'" *Id.* at 14–15.

Petitioner counters that "[t]he figures of the '842 patent never illustrate a wireless power receiving coil and a short range communication antenna on the same layer," and "[n]or does [the '842 patent] contemplate how they might both be arranged on the same layer." Pet. Reply 9. Petitioner contends that, "[w]ithout any guidance from the specification, claim 7 encompasses any reasonable interpretation." *Id.*; *see also id.* at 3 ("Moreover, the recitation in claim 7 . . . encompasses any reasonable interpretation given the lack of description of this arrangement in the

'842 Patent specification."). According to Petitioner, "a reasonable interpretation of the term 'layer' in light of the specification encompasses Suzuki's magnetic layers 171 and 154 illustrated in Fig. 21." *Id.* at 10. In that regard, Petitioner further asserts that "where [Suzuki's] magnetic layer 171 is illustrated as subcomponents 171H and 171L, Suzuki's magnetic layer 155 along with 171H, 171L, or both (171) teach a 'first layer' as claimed." *Id.* at 11. Petitioner adds that "nothing in the claim limits whether the claimed 'first layer' must be contiguous, in the same plane, or of the same thickness." *Id.*

Petitioner's contentions are unpersuasive. As discussed above, Petitioner provides an annotated version of Figure 21 of Suzuki, which is reproduced below. Pet. 34.

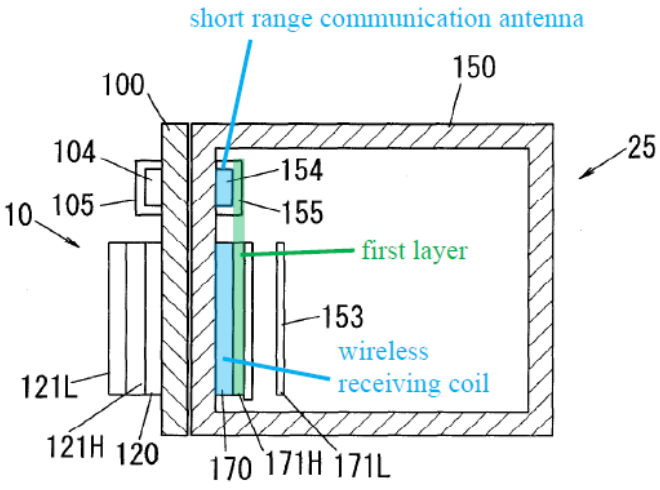


Figure 21 of Suzuki, as annotated by Petitioner, shows a contactless power transmission apparatus. *See* Ex. 1005, 4:36–37. Referring to its version of Figure 21, Petitioner contends that "the magnetic layer 171 and the magnetic layer 155 are on the same plane and together represent a '*first layer*' as claimed." Pet. 34. We note that Petitioner treats magnetic layer 171H in Figure 21 as a "subcomponent" of magnetic layer 171. *See* Pet. Reply 11.

Petitioner's contention does not, however, sufficiently establish that Suzuki's magnetic layer 155 and magnetic layer 171 (or magnetic layer 171H, as shown in Suzuki's Figure 21) together represent the recited first layer of claim 7.

As depicted in Petitioner's version of Figure 21 of Suzuki, reproduced above, magnetic layer 155 wraps around coil 154 and has substantial portions occupying three different planes including two planes that are perpendicular to the one plane highlighted in green by Petitioner. *See* Pet. 34 (annotated Figure 21 of Suzuki). This depiction is inconsistent with Petitioner's position that layers 155 and 171 "together represent a 'first layer' as claimed," because Petitioner's assertion does not account for the two portions of layer 155 that are perpendicular to layer 171 (or 171H). *See id.* Without further explanation, Petitioner does not persuade us that Suzuki's magnetic layers 155 and 171 (or magnetic layer 171H, as shown in Figure 21) together represent a first layer.

Moreover, Petitioner does not point to any evidence that Suzuki's magnetic layers 155 and 171H are made of the same material. Suzuki teaches that "[e]ach magnetic material of the magnetic layers 121H and 171H is for example ferrite," and that "the permeability of the magnetic layer 171H is 1000." Ex. 1005, 11:24–28, 11:31–33. Petitioner does not show that Suzuki's magnetic layer 155 is made of the same magnetic material as magnetic layer 171H, or that magnetic layer 155 has the same permeability as magnetic layer 171H. Petitioner assumes that the magnetic materials are the same.

Petitioner asserts that "the recitation in claim 7 of the '*short range communication antenna*' on the same '*first layer*' as the '*wireless power*

receiving coil' encompasses any reasonable interpretation given the lack of description of this arrangement in the '842 Patent specification." Pet. Reply 3. Specifically, Petitioner asserts in its Reply that "nothing in the claim limits whether the claimed 'first layer' must be contiguous, in the same plane, or of the same thickness." *Id.* at 11. Petitioner's argument is misplaced and unavailing, for reasons discussed below.

The key lies in a need for a reasonable explanation by Petitioner as to why layers 155 and 171H would be regarded by one of ordinary skill in the art as together forming a first layer. We agree with Petitioner that the claimed "first layer" does not have to be one continuous layer without gaps. That is not the issue. We also agree with Petitioner that all portions of one single layer do not have to reside on the same plane. For instance, layer 155 is one layer even though it occupies three planes, as explained above. That, however, does not mean that separated materials at different locations but partially disposed on the same plane can, automatically and without more, be regarded as collectively forming the same layer. Neither Petitioner nor its expert provides an adequate explanation. The fact that layer 155 is the first layer next to coil 154 and layer 171H is the first layer next to coil 170 does not make layers 155 and 171H the *same* first layer.

In summary, layers 155 and 171H are not connected to each other, have not been shown to be made of the same exact material, and are not all located on the same plane. In this circumstance, Petitioner's identifying them as collectively forming the same "first layer," without providing a reasoned explanation, is arbitrary and unreasonable.

On the record before us, we are not persuaded that Suzuki teaches the recited limitation of claim 7.

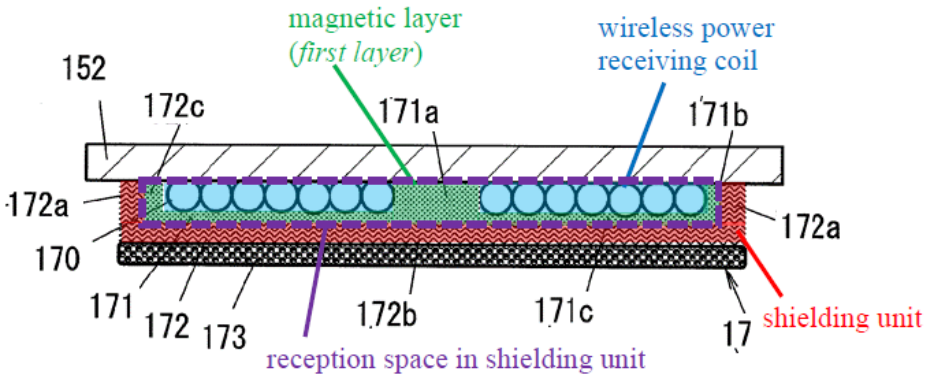
f. Dependent Claim 14

Claim 14 depends from claim 1 and recites "an adhesive between the shielding unit and the first layer." For this limitation, Petitioner directs us to where Suzuki teaches that "the other side (a lower surface) of **the shield layer 172 is stuck to one side (an upper surface) of the magnetic layer 171** (e.g., the nickel ferrite sheet) . . . **with adhesive or pressure sensitive adhesive**." Pet. 35 (quoting Ex. 1005, 8:4–8 (emphases added by Petitioner)). As discussed above with respect to claim 1, Suzuki's shield layer 172 corresponds to the recited shielding unit, and Suzuki's magnetic layer 171 corresponds to the recited first layer. *Id.* at 21–22.

Based on Petitioner's argument and evidence, we are persuaded that Suzuki teaches the recited limitation of claim 14. Patent Owner does not dispute Petitioner's analysis for this limitation. *See generally* PO Resp.

g. Dependent Claim 15

Claim 15 depends from claim 1 and recites "wherein the shielding unit has a reception space in a predetermined area." For this limitation, Petitioner provides an inverted and annotated version of Figure 7A of Suzuki, reproduced below. Pet. 36.

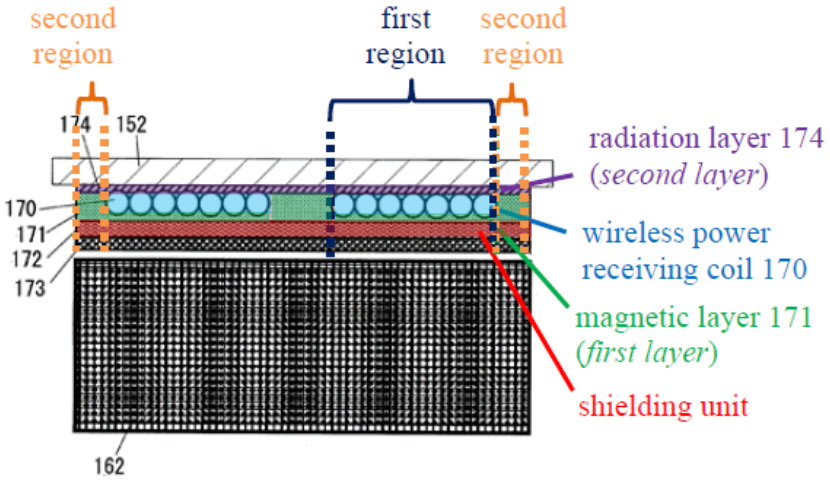


Petitioner's version of Figure 7A of Suzuki shows a shield layer for a secondary device. *See* Ex. 1005, 4:3–4. Petitioner asserts that Figure 7A specifically shows that "the shield layer 172 [shown with red shading] includes a portion extending around 'the circumference 172a of the magnetic layer 171 [shown with green shading].'" Pet. 35 (quoting Ex. 1005, 7:43–46). According to Petitioner, "[t]he space defined by this portion of the shield layer and occupied by the magnetic layer is a '*reception space in a predetermined area*' as claimed." *Id.* at 35–36.

Based on Petitioner's argument and evidence, we are persuaded that Suzuki teaches the recited limitation of claim 15. Patent Owner does not dispute Petitioner's analysis for this limitation. *See generally* PO Resp.

h. Dependent Claim 16

Claim 16 depends from claim 1 and recites "wherein the second region is positioned at an outer side of the wireless power receiving coil." For this limitation, Petitioner provides an inverted and annotated version of Figure 9 of Suzuki, reproduced below. Pet. 37.



Petitioner's version of Figure 9 of Suzuki shows a portion of a power receiver that includes secondary coil block 17. *See* Ex. 1005, 6:29–33, 9:11–13. Petitioner asserts that "the non-overlapping regions ('*second region*') are at the outer sides of the overlapping region ('first region')." Pet. 36. We note that the "first region" shown in Petitioner's version of Figure 9 includes secondary coil 170 (shown with blue shading), which corresponds to the recited wireless power receiving coil.

Based on Petitioner's argument and evidence, we are persuaded that Suzuki teaches the recited limitation of claim 16. Patent Owner does not dispute Petitioner's analysis for this limitation. *See generally* PO Resp.

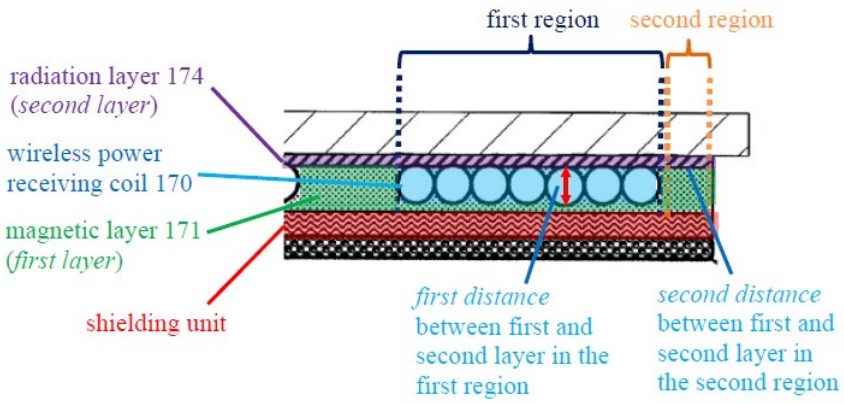
i. Independent Claim 19

Claim 19 is directed to a "wireless power receiver" and for the most part recites similar limitations as claim 1, including limitations 1.1 through 1.6. With respect to those limitations, Petitioner relies on its discussion of claim 1 for its analysis of claim 19. Pet. 37–38. Our analysis of claim 1 applies to claim 19.

As compared to limitation 1.7 of claim 1 (which recites "a first distance, measured in the vertical direction, between the first layer and the second layer in the first region is greater than a second distance, measured in the vertical direction, between the first layer and the second layer in the second region"), claim 19 recites a "gap" between layers rather than a "distance, measured in the vertical direction" between layers. More specifically, claim 19 recites "a first gap between the first layer and the second layer in the first region is larger than a second gap between the first

layer and the second layer in the second region." Petitioner addresses this limitation separately in its analysis of claim 19.

In particular, Petitioner relies in part on its discussion of limitation 1.7. Pet. 38. Petitioner asserts that, "in the *first region*, the coil 170 is interposed between the magnetic layer and radiation layer, whereas, in the *second region*, the magnetic layer is adjacent to the radiation layer." *Id.* Petitioner contends that a "[person of ordinary skill in the art] would have found it obvious that the gap between non-adjacent layers is greater than the gap between adjacent layers." *Id.* (citing Ex. 1003 ¶ 86). To illustrate, we reproduce below an inverted, cropped, and annotated version of Figure 9 of Suzuki, which Petitioner provided in its analysis of limitation 1.7. Pet. 27.



Petitioner's version of Figure 9 shows a power receiver. *See* Ex. 1005, 9:11–13. According to Petitioner's analysis, the "first distance" and the "second distance" of claim 1, shown in the figure, are analogous to the recited first gap and the recited second gap of claim 19, respectively. *See* Pet. 38.

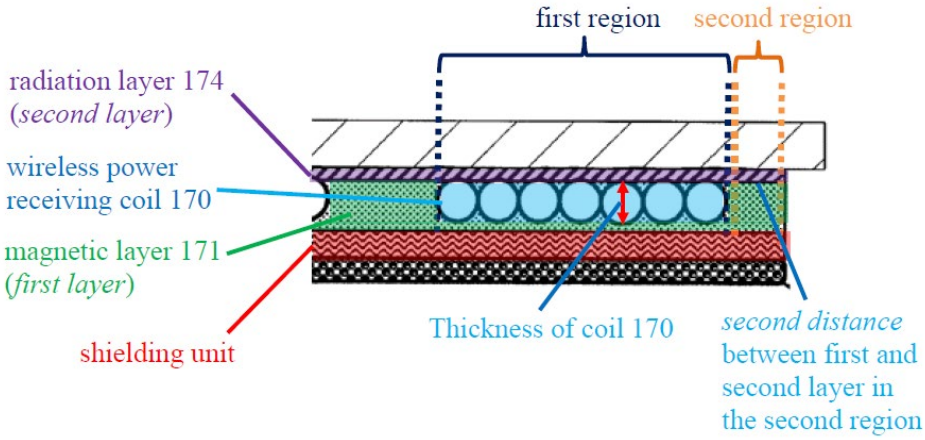
Petitioner adds, "[t]o the extent 'gap' is construed more narrowly (i.e., to require a gap above a certain size), it would have been obvious for the radiation layer to be secured to the magnetic layer and the coil using an

adhesive, whereby the adhesive would create a more substantial gap between the two layers." Pet. 38–39. As support, Petitioner asserts that "Suzuki regularly describes using adhesives to connect adjoining layers," and that "a [person of ordinary skill in the art] would have found it obvious to similarly secure the radiation layer 174 to the magnetic layer and coil using an adhesive." *Id.* at 39 (citing Ex. 1005, 6:38–42, 6:57–59, 8:4–18, 8:46–65, 9:32–37, 10:31–34). Petitioner contends that "the space filled by the adhesive between the radiation layer and the magnetic layer would be a gap (filled with adhesive)." *Id.* Petitioner relies on the declaration testimony of Dr. Phinney. *Id.* at 38–39 (citing Ex. 1003 ¶ 87).

Based on Petitioner's argument and evidence, we are persuaded that Suzuki teaches the recited first and second regions, where a "first gap between the first layer and the second layer in the first region is larger than a second gap between the first layer and the second layer in the second region." Patent Owner does not dispute Petitioner's analysis for this limitation. *See generally* PO Resp.

j. Dependent Claim 20

Claim 20 depends from claim 19 and recites "wherein the second gap is smaller than a thickness, measured in the vertical direction, of the wireless power receiving coil." For this limitation, Petitioner relies on its discussion of claim 2. Pet. 39. In that discussion, Petitioner cross-references its discussion of limitation 1.7 and provides an inverted, cropped, and annotated version of Figure 9 of Suzuki, reproduced below. *Id.* at 29.



This version of Figure 9 shows a portion of a power receiver. *See* Ex. 1005, 9:11–13. Petitioner asserts that, "in the *first region*, the coil 170 [shown with blue shading] is interposed between the magnetic layer [shown with green shading] and radiation layer [shown with purple shading], whereas, in the *second region*, the magnetic layer [shown with green shading] is adjacent to the radiation layer [shown with purple shading]." Pet. 28. Petitioner contends that "the *second distance* in the *second region* where the coil is not interposed between the layers, is smaller than the thickness of the coil." *Id.* According to Petitioner, such distance between adjacent layers is "near-zero." *Id.* at 27 (discussing limitation 1.7). As discussed above with respect to claim 19, Petitioner asserts that the "first distance" and the "second distance" of claim 1, shown in the figure, are analogous to the recited first gap and the recited second gap of claim 19, respectively. *See id.* at 38.

Based on Petitioner's argument and evidence, we are persuaded that Suzuki teaches the recited limitation of claim 20. Patent Owner does not dispute Petitioner's analysis for this limitation. *See generally* PO Resp.

3. Summary

In view of the foregoing, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1, 2, 5, 6, 14–16, 19, and 20 would have been obvious over Suzuki. Petitioner has not, however, demonstrated by a preponderance of the evidence that claim 7 would have been obvious over Suzuki.

C. Obviousness over Suzuki and Park

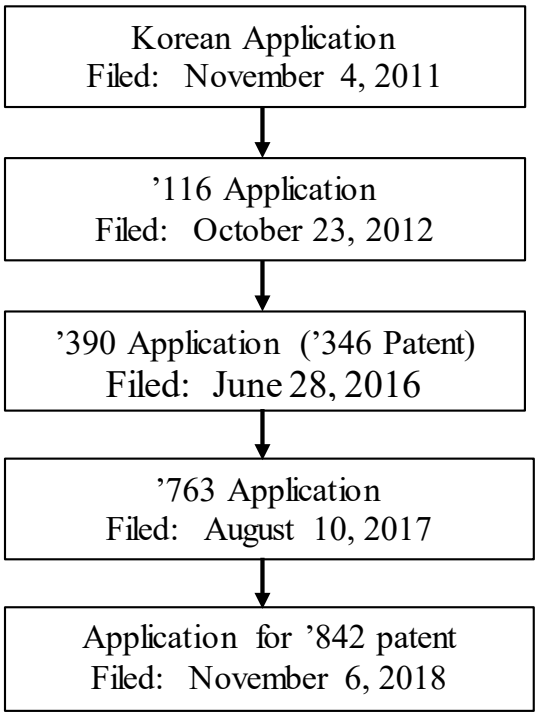
Petitioner asserts that claim 7 of the '842 patent would have been obvious over Suzuki and Park. Pet. 39–54. Claim 7 depends from claim 1. As discussed above with respect to obviousness over Suzuki, we are persuaded that Suzuki teaches all the recited limitations of claim 1. *See supra* Part III.B.2.a. Patent Owner disputes Petitioner's analysis of claim 7. PO Resp. 39–53. For the reasons explained below, we determine that Petitioner has demonstrated by a preponderance of the evidence that claim 7 would have been obvious over Suzuki and Park.

1. Qualification of Park as Prior Art

The parties dispute whether Park qualifies as prior art. Thus, as a preliminary matter, we consider the issue.

Park's effective date is December 6, 2011. Ex. 1006, code (22). Through a chain of continuation applications, the '842 patent claims priority to Korean Application No. 10-2011-0114721 ("the Korean application"), which was filed on November 4, 2011, before Park's effective date. Ex. 1001, code (63), 1:7–16. Specifically, the application for the '842 patent claims priority to U.S. Application No. 15/673,763 ("the '763 application"),

which was filed on August 10, 2017, and issued as U.S. Patent No. 10,153,666. *Id.* The '763 application claims priority to U.S. Application No. 15/195,390 ("the '390 application"), which was filed on June 28, 2016, and issued as U.S. Patent No. 10,069,346 ("the '346 patent"). *Id.* The '390 application claims priority to U.S. Application No. 13/658,116 ("the '116 application"), which was filed on October 23, 2012, and issued as U.S. Patent No. 9,461,364. *Id.* The '116 application claims priority to the Korean application under 35 U.S.C. § 119. *Id.* To illustrate, we provide a chart showing the '842 patent's claimed priority chain.



Petitioner argues that the challenged claims of the '842 patent are not entitled to the benefit of the filing date of the Korean application. Pet. 40 ("Park[] is prior art to the '842 patent when the '842 patent is given its actual priority date (August 10, 2017), rather than its earliest alleged priority date (November 4, 2011)."); *see also id.* at 40–45. According to Petitioner, the challenged claims "are directed to subject matter first presented to the Office

when the ['763 application] was filed on August 10, 2017." *Id.* at 40. As support, Petitioner directs us to the description of Figure 10 appearing in the '346 patent (to which the '763 application directly claims priority), where "only a 'short-range communication antenna 340' is described as being disposed on the printed circuit board 301." *Id.* at 40–41 (citing Ex. 1008, 8:23–26 (the '346 patent)). Petitioner also provides an image of the relevant portion of the description, reproduced below. *Id.* at 41.

> Referring to FIG. **10**, while the procedure of disposing the short-range communication antenna **340** on the printed circuit board **301** is being performed, the shielding unit **380** may be inserted into the printed circuit board **301**. That is,

Petitioner further directs us to the description of Figure 10 appearing in the specification filed as part of the '763 application, which "also describes the 'receiving coil (310)' being disposed in the printed circuit board 301." *Id.* (citing Ex. 1007, 309[4] (prosecution history file for the '763 application)). Petitioner provides an annotated image of the relevant portion of the description, reproduced below. *Id.*

> **[0084]** Referring to FIG. 10, while the procedure of disposing the short-range communication antenna 340 or receiving coil(310)(not shown in the Fig. 10) in the printed circuit board 301 is being performed, the shielding unit 380 may be inserted into the printed circuit board 301. That is, unlike FIG. 9, since the shielding unit 380 is disposed in the printed

Petitioner asserts that the added text (shown with yellow highlighting) in the '763 application "introduced, for the first time, the concept of the *power receiving coil 310* being embedded in the plurality of layers of the printed circuit board 301 illustrated in Fig. 10," whereas "[i]n all previous

[4] Petitioner cites page 209 of Ex. 1007, but the quoted language appears on page 309 of Ex. 1007.

specifications in the family, the description of Fig. 10 (and Fig. 10 itself) referred only to the *short-range communication antenna 340* being embedded in the layers of the printed circuit board 301." *Id.* at 41–42. Petitioner further asserts that "[t]his is important because the claims of the '842 patent recite the specific subject matter added to the ['763 application]." *Id.* at 44.

In response, Patent Owner argues that "Petitioner fails to provide any reason why Figure 10's teaching of incorporating the 'short-range communication antenna 340' into the circuit board 310 cannot be used interchangeably with the 'receiving coil 310' based on the inherent disclosure of the originally filed specification." PO Resp. 20 (citing Ex. 1001, 1:61–64 ("The embodiment provides a wireless power receiver with a minimized thickness by suitably arranging a receiving coil, a short-range communication antenna and a printed circuit board.")). Patent Owner also argues that "Petitioner ignores the fact that the Examiner of the '763 application recognized the supposedly-offending addition to the specification and that the embedding of a power receiving coil 310 was inherently disclosed in the originally-filed parent specification." *Id.* at 20–23 (citing Ex. 1007, 24, 34, 36, 63, 181). Patent Owner concludes that "Petitioner cannot carry its burden to show that the '842 patent should not be given its earliest alleged priority date to show that Park is prior art." PO Resp. 23.

Under 35 U.S.C. § 119, "the claims set forth in a United States application are entitled to the benefit of a foreign priority date if the corresponding foreign application supports the claims in the manner required by section 112, ¶ 1." *In re Gosteli*, 872 F.2d 1008, 1010 (Fed. Cir. 1989).

Section 112, ¶ 1 contains a written description requirement, which is satisfied here if "the disclosure of the [foreign] application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *See Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010). "[T]he test requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art," and, "[b]ased on that inquiry, the specification must describe an invention understandable to that skilled artisan and show that the inventor actually invented the invention claimed." *Id.*

At oral argument, counsel for Patent Owner asserted that "it is the Petitioner's burden to show that [Patent Owner is] not entitled to the Korean date." Tr. 44:3–4; *see also* PO Resp. 23 ("Petitioner cannot carry its burden to show that the '842 patent should not be given its earliest alleged priority date to show that Park is prior art."). That is not so. There are two distinct burdens of proof, namely, a burden of persuasion and a burden of production. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). Petitioner carries "the burden of persuasion to prove unpatentability by a preponderance of the evidence," and that burden never shifts to Patent Owner. *Id.* at 1379. The burden of production, however, is a shifting burden, the allocation of which depends on where in the process of trial the issue arises. *See id.* Here, Petitioner starts with the initial burden of production, which it satisfies by arguing obviousness based on its assertion that Park is prior art, as discussed above. *See id.* The burden of production then shifts to Patent Owner to argue or produce evidence that Park is not prior art because the challenged claims are entitled to the benefit

of a filing date earlier than Park's effective date of December 6, 2011. *See id.* at 1380. To shift the burden back to Petitioner, Patent Owner needs to present evidence to support an argument that the specification of the Korean application describes an invention understandable to an ordinarily skilled artisan and that the inventor actually invented the invention claimed in the '842 patent. *See Ariad Pharms.*, 598 F.3d at 1351; *see also Dynamic Drinkware*, 800 F.3d at 1378. Patent Owner does not do that here.

Notably, Patent Owner does not address at all whether the disclosure of the *Korean application* provides support for claim 7 of the '842 patent. *See generally* PO Resp. Indeed, counsel for Patent Owner admitted at oral argument that he did not know whether the record even contains an English language translation of the Korean application. Tr. 42:25–43:1 (counsel for Patent Owner referring to "the Korean patent application, which I'm not aware of whether or not we have a translation of that"). Without such translation, there can be no "objective inquiry into the four corners of the specification." *See Ariad Pharms.*, 598 F.3d at 1351. Counsel for Patent Owner further acknowledged that Patent Owner did not meet this burden of production. Tr. 44:7–13. We asked counsel at oral argument, "Well, if we disagree with you and say you have the burden to show support in the Korean application, then you lose on that issue?" *Id.* at 44:7–9. Counsel responded, "Well, yes, Your Honor. . . . If you disagree with me on that position, yes, that is correct." *Id.* at 44:10–13.

Because Patent Owner neither argues nor presents evidence that claim 7 is entitled to the benefit of the filing date of the Korean application, we determine that Petitioner shows that Park qualifies as prior art.

2. Overview of Park

We provided an overview of Suzuki above. *See supra* Part III.B.1. Before addressing the parties' arguments, we additionally provide an overview of Park.

Park relates to "a portable terminal having a secondary coil for wireless charging, as well as a plurality of antenna elements." Ex. 1006, 1:16–19. To illustrate, Figure 4 of Park is reproduced below.

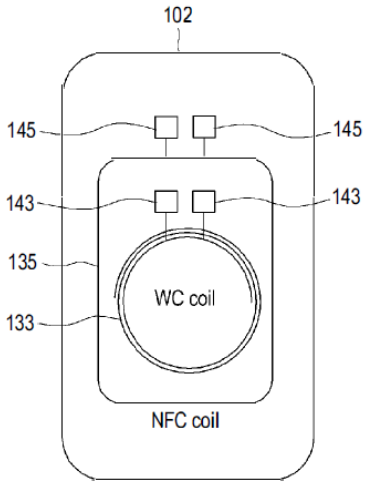


FIG.4

Figure 4 of Park shows an example configuration of a portable terminal that implements a wireless charging function and a Near Field Communication (NFC) function using a coil module comprising shielding member 131 (not shown) and coils 133 and 135, where coil 133 serves as a secondary coil used for wireless charging and coil 135 serves as an antenna element for NFC. *Id.* at 3:9–11, 4:60–65. Coil 135 surrounds coil 133. *Id.* at 3:61–64.

Coils 133 and 135 are attached to shielding member 131. Ex. 1006, 3:4–8. To illustrate, Figure 3 of Park is reproduced below.

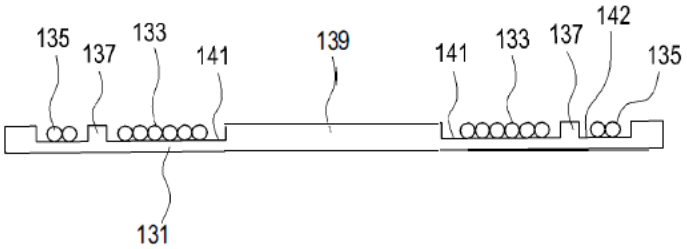


FIG.3

Figure 3 is a sectional view of the coil module. *Id.* at 2:43. Shielding member 131 includes accommodation grooves 141 and 142. *Id.* at 3:35–37. Accommodation groove 142 surrounds accommodation groove 141. *Id.* at 3:37–42. Coil 133 is accommodated in accommodation groove 141, whereas coil 135 is accommodated in accommodation groove 142. *Id.* at 3:56–59. Shielding wall 137, which shields interference of electronic waves between coils 133 and 135, is interposed between accommodation grooves 141 and 142. *Id.* at 3:42–44, 3:66–4:1.

3. Analysis

We first address Petitioner's analysis of claim 7, then we turn to the parties' disputes regarding Petitioner's analysis.

a. Dependent Claim 7

Claim 7 recites "a short range communication antenna on the first layer." For this limitation, Petitioner refers to its discussion of obviousness over Suzuki with respect to limitation 1.2 (which recites "a first layer") and limitation 1.3 (which recites "a wireless power receiving coil on the first layer"). Pet. 51. Petitioner reiterates its position that Suzuki's coil 170 corresponds to the recited power receiving coil and that Suzuki's magnetic

layer 171 corresponds to the recited first layer. *Id.* ("Suzuki teaches disposing a power receiving coil 170 on a magnetic layer 171 (*first layer*)."). Petitioner further identifies Suzuki's data transmission coil 154 as a "short range communication antenna." *Id.* As support, Petitioner directs us to where Suzuki teaches that its power receiving device or "cell phone 15 further includes a coil for data transmission 154 and a magnetic layer 155," where coil 154 is "used to send and receive a signal (information) representing charging start, charging completion or the like." Ex. 1005, 12:51–64 (cited by Pet. 51). Petitioner contends that an ordinarily skilled artisan "would have found it obvious that the data coil 154 is a short-range antenna because the corresponding data coil 104 in the charger 10 is only a short distance away when the power receiving device is charging on the charger." Pet. 51. Petitioner relies on the declaration testimony of Dr. Phinney. *Id.* at 51–52 (citing Ex. 1003 ¶ 110).

Referring again to its discussion regarding obviousness over Suzuki (*see supra* Part III.B.2.e), Petitioner maintains that "Suzuki teaches a short range communications antenna on the same magnetic (but non-contiguous) layer (*first layer*) as the power receiving coil 170." Pet. 39. Petitioner contends, however, "[t]o the extent Patent Owner argues that Suzuki does not teach a *first layer* because Suzuki's magnetic layer is non-contiguous, Petitioner presents this second ground to illustrate that it would have been obvious for Suzuki's device to include an NFC antenna as well as the wireless power coil on the same contiguous magnetic layer." *Id.* at 39–40. To that end, Petitioner relies additionally on Park. Specifically, Petitioner contends that Park describes "a portable terminal to include on the same contiguous layer a 'coil used for wireless charging and [a] second coil 135 as

an antenna element for NFC.'" *Id.* at 52 (quoting Ex. 1006, 4:60–65). Park teaches that "the first and second coils 133 and 135 are accommodated in the first and second accommodation grooves 141 and 142 [of shielding member 131], respectively, and the second coil 135 surrounds the first coil 133." Ex. 1006, 3:61–64, Figs. 3, 4 (cited by Pet. 52–53).

According to Petitioner, "a [person of ordinary skill in the art] would have been motivated to combine the teachings of Park with Suzuki[,] . . . for example, to reduce device thickness." Pet. 47–48; *see also id.* at 47–51. Petitioner contends that "a [person of ordinary skill in the art] would have found it obvious to dispose Suzuki's power receiving coil and data coil on the same layer within recessed accommodation grooves because this implementation does not 'increase[] the thickness of the portable terminal.'" *Id.* at 48 (quoting Ex. 1006, 2:12–16). Petitioner adds that "[m]inimizing device thickness furthers an explicit design requirement of Suzuki," which teaches "a secondary device has been especially required to be miniaturized, thinned and provided with high performance." *Id.* at 48–49 (quoting Ex. 1005, 1:38–40). Petitioner relies on the declaration testimony of Dr. Phinney. *Id.* at 47–49 (citing Ex. 1003 ¶¶ 103–105).

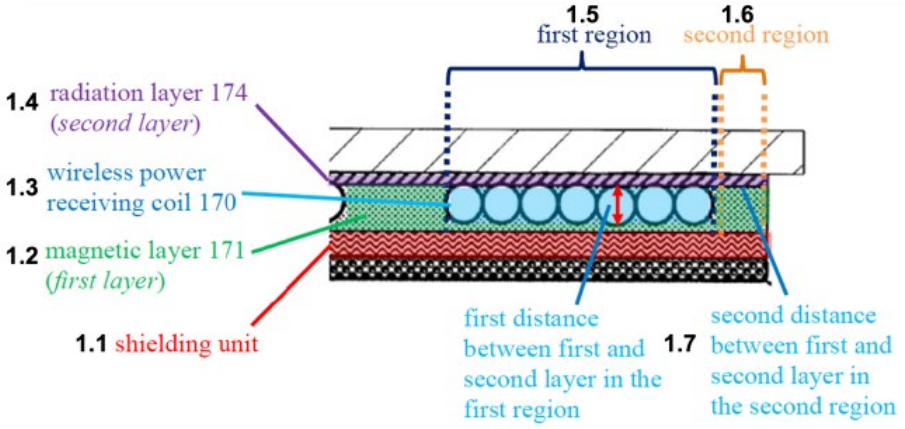
Petitioner also contends that "a [person of ordinary skill in the art] would have . . . been motivated to utilize Park's groove and shielding wall technique to improve Suzuki's device." Pet. 49. As support, Petitioner asserts that "Park teaches that as part of its groove technique, a 'shielding wall 137 is interposed between the first and second accommodation grooves 141 and 142,'" thereby "'provid[ing] a shielding effect between the coils' which 'shields interference of electronic waves between the first and second coils 133 and 135.'" *Id.* (quoting Ex. 1006, 3:42–44, 3:61–4:1).

b. The Parties' Disputes

Patent Owner disputes certain aspects of Petitioner's analysis. In particular, Patent Owner argues that an ordinarily skilled artisan would not be motivated to combine Suzuki's second and sixth embodiments. PO Resp. 12–14. Patent Owner also argues that an ordinarily skilled artisan would not be motivated to combine Suzuki and Park. *Id.* at 18, 23–34. We address these arguments in turn.

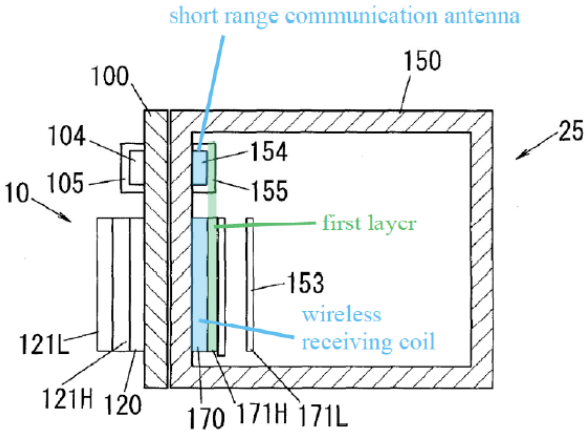
i. Suzuki's Second and Sixth Embodiments

Patent Owner argues that "Petitioner's challenge to claim 7 fails for numerous reasons" (PO Resp. 18), including "Petitioner's failure to establish the combination of Suzuki's second and sixth embodiments," (PO Sur-reply 8). Patent Owner asserts that Petitioner relies on Suzuki's second embodiment for claim 1, identifying shield layer 172 as the recited shielding unit (limitation 1.1) and radiation layer 174 as the recited second layer on the wireless power receiving coil (limitation 1.4). PO Resp. 13. Patent Owner further asserts that Petitioner relies on Suzuki's sixth embodiment for claim 7, identifying coil 154 as the recited short-range communication antenna. *Id.* at 12–13. To illustrate its point relative to Suzuki's second embodiment, Patent Owner provides an inverted, cropped, and annotated version of Figure 9 of Suzuki, reproduced below. *Id.* at 11.



Ex.1005, Fig. 9 (cropped, annotated).

This version of Figure 9 of Suzuki shows a portion of a power receiver according to a second embodiment, which includes shield layer 172 and radiation layer 174. *See* Ex. 1005, 6:29–33, 9:11–19. Patent Owner also provides Petitioner's annotated version of Figure 21 of Suzuki, representing Suzuki's sixth embodiment, reproduced below. PO Resp. 12 (citing Pet. 34).



Ex.1005, Fig. 21 (annotated).

This version of Figure 21 of Suzuki shows a contactless power transmission apparatus according to a sixth embodiment, where the primary side is charger 10 and the secondary side is a receiver (referred to as cell phone 15). Ex. 1005, 10:38–40, 12:51–52. Patent Owner criticizes Petitioner's reliance on both embodiments because "[t]he shield layer 172 and the radiation

layer 174 [in the second embodiment] do not exist in the sixth embodiment." PO Resp. 14.[5] According to Patent Owner, "by switching to the sixth embodiment, Petitioner . . . can no longer show that the . . . 'shielding unit' and . . . 'second layer' are satisfied." *Id.*

Petitioner responds that Suzuki's "sixth embodiment includes and builds upon the features described in previous embodiments," including the second embodiment, and that the Petition "simply cites to additional features [in the sixth embodiment] that Suzuki contemplates as part of its 'present invention.'" Pet. Reply 4–5; *see also id.* at 5–9.

We agree with Petitioner. As Petitioner points out, Suzuki explains,

> [i]n the above-mentioned first-fifth embodiments, . . . each secondary side includes a secondary coil, a magnetic layer laminated on at least one side of the secondary coil, and a shield layer laminated on the magnetic layer. . . .
>
> However, the housings of primary and secondary devices exist between primary and secondary coils, and accordingly coupling between the primary and secondary coils is reduced and magnetic flux leakage can be increased, thereby creating difficulty in fully eliminating noise with a shield layer made of copper foil, aluminum foil or the like.
>
> Therefore, *in order to further reduce the influence of noise*, at least secondary side of the present invention includes a plurality of magnetic layers. *In the sixth embodiment, each of*

[5] Patent Owner does not explicitly raise this issue of the propriety of combining Suzuki's second and sixth embodiments in its Response in addressing Ground 2. However, Patent Owner generally refers to its arguments that address Ground 1 in addressing Ground 2. *See* PO Resp. 18 ("As an initial matter, and as set forth above in Section IV [which address Ground 1], Petitioner's challenge to claim 7 fails for numerous reasons other than that the magnetic layer of Suzuki is non-contiguous."). Without deciding whether this generic argument is sufficient to raise the issue of the propriety of combining Suzuki's second and sixth embodiments in Ground 2, we address it.

> *the primary and secondary sides includes a plurality of magnetic layers*.

Ex. 1005, 10:38–67 (emphases added) (cited by Pet. Reply 6). Contrary to Patent Owner's position, we read this passage from Suzuki as saying the sixth embodiment includes both a shield layer that may have "difficulty in fully eliminating noise" (as in the first through fifth embodiments) and a plurality of magnetic layers that help "further reduce" noise. *See* PO Resp. 18 ("Suzuki teaches the use of the shield layer 172 in the laminated structure when only a single magnetic layer is used."). That is, Suzuki's sixth embodiment builds on the second embodiment (and other embodiments) by adding a plurality of magnetic layers.

That Suzuki's shield layer is absent from Figure 21, which describes the sixth embodiment, does not mean the sixth embodiment excludes the shield layer. Indeed, the shield layer also is absent from Figures 14A and 14B, which describe the fifth embodiment. Ex. 1005, 9:66–10:1, Figs. 14A, 14B. As discussed above, however, Suzuki explains that the fifth embodiment includes a shield layer. *Id.* at 10:43–48; *see also* Pet. Reply 8 ("For example, the second embodiment (Fig. 9) illustrates and describes only the 'power receiver' (secondary) side of Suzuki's power transmission apparatus, but that does not mean the embodiment does not include all of the elements of the primary side that are not explicitly shown.").

We note Patent Owner's contention that Petitioner "offers no analysis as to how the shield layer 172 or the radiation layer 174 of the second embodiment would be integrated into the sixth embodiment." PO Resp. 17. Since the sixth embodiment builds on the second embodiment, Petitioner need not provide such an explicit analysis because an artisan of ordinary

skill readily would have recognized that Suzuki describes this integration by building on the previous embodiments as found above. Moreover, Figure 9 of Suzuki, which describes the second embodiment, shows how shield layer 172 and radiation layer 174 are arranged relative to secondary coil 170, a component also shown in Figure 21 describing the sixth embodiment. *See* Ex. 1005, Figs. 9, 21.

Additionally, as Petitioner argues, "Suzuki contemplates that its invention generally includes both a shield layer and a plurality of magnetic layers on the secondary side for better noise reduction." Pet. Reply 7; *see id.* at 4–9 (providing evidence to support the argument (citing Ex. 1005, 9:9–23; reproducing Ex. 1005, 19:38–67)). In other words, the Petition relies on features from Suzuki's "present invention" as contemplated in all of the embodiments, which further supports its obviousness showing for including a data coil in the second embodiment by showing that Suzuki contemplates mixing features from different embodiments. *See* Pet. 32–35 (asserting the *obviousness* of adding a data coil for claim 7 and building on its showing with respect to independent claim 1 that relies on Suzuki's second embodiment that includes magnetic layer 171, where the sixth embodiment includes a data coil so that there is no reason to argue obviousness if relying on the sixth embodiment); Pet. Reply 4–5 (describing its showing in the Petition and relying on Suzuki for support). Also, as Petitioner argues, "[e]ven if the Petition did 'switch' to the "Sixth" embodiment for claim 7 (which it does not)," the sixth embodiment includes a shield layer. *See* Reply 4–5. As the Petition persuasively shows, reasons for providing a data coil in Suzuki's second embodiment (which Patent Owner does not dispute)

include providing control data signals for controlling charging. *See* Pet. 32–35; Ex. 1003 ¶¶ 68–72.

We also note Patent Owner's further contention that "the unnecessary addition of the shield layer to the plurality of magnetic layers [in the sixth embodiment] will only increase the thickness of the receiving block structure, without any benefit." PO Resp. 17. This is unpersuasive. First, as noted above, Petitioner relies on modifying Suzuki's second embodiment to include a data coil (on a magnetic layer), and the second embodiment contemplates a plurality of magnetic layers, but does not require them. Second, as explained in Suzuki, "the housings of primary and secondary devices . . . creat[e] difficulty in fully eliminating noise with a shield layer," and, "in order to further reduce the influence of noise, at least secondary side of the present invention includes a plurality of magnetic layers." Ex. 1005, 10:63–65. Thus, the benefit of including both a shield layer and a plurality of magnetic layers in the second or sixth embodiment is further noise reduction.

On the record before us, Patent Owner's argument does not undermine Petitioner's obviousness showing for claim 7.

ii. Suzuki and Park

With respect to Petitioner's proposed combination of Suzuki and Park, Patent Owner argues that an ordinarily skilled artisan "would . . . not be motivated to combine Park's shielding member and Suzuki nor would they have a reasonable likelihood of success." PO Resp. 24. As support, Patent Owner asserts that Suzuki teaches that its data coil 154 and secondary coil 170 are located on the inner face of housing 150, and that "[b]ecause of

the potential difference in thickness in these coils, there is no explanation in Park as to how the coils of Suzuki could be 'positioned on the same plane' of the grooves of the shielding member 131 of Park." *Id.* at 24 (citing Ex. 1005, 11:10–11, 12:60–61, Fig. 21; Ex. 1006, 5:57–67 (explaining that "the first and second coils are positioned on a same plane")). Similarly, Patent Owner argues that an ordinarily skilled artisan "would not have any expectation of success, let alone a reasonable one," "in using the shielding member 131 of Park to replace the magnetic layer of Suzuki." *Id.* at 25. Patent Owner asserts that Suzuki describes a magnetic layer with a magnetic permeability of 1000 or more, whereas Park describes its shielding member 131 as paramagnetic; according to Patent Owner, "paramagnetism is a weak form of magnetism and has a permeability only slightly greater than 1." *Id.* (citing Ex. 1006, 4:38–40, 4:52–53); *see also* PO Sur-reply 13. Patent Owner relies on the declaration testimony of Dr. Ricketts. *Id.* at 24–25 (citing Ex. 2017 ¶¶ 86–89).

Petitioner counters that Patent Owner's arguments "mischaracterize [its] position as bodily incorporating components of Park's device into Suzuki." Pet. Reply 24. Petitioner asserts that "the Petition explains that 'the combination of Suzuki and Park simply represents using a **known technique** (disposing data and power receiving coils in recessed grooves on the same layer) to improve similar devices (Suzuki's and Park's wireless charging devices) in the same way.'" *Id.* at 25 (quoting Pet. 51). Petitioner further clarifies that it proposes "to implement a data coil onto Suzuki's magnetic layer 171," and that "[n]owhere does the Petition suggest, as Patent Owner implies, that one would *replace* Suzuki's magnetic layer 171 with Park's shielding member 131." *Id.*

We agree with Petitioner. Claim 7 requires that both the wireless power receiving coil and the short range communication antenna are on the first layer. Ex. 1001, claims 1, 7. Petitioner relies on Suzuki for its disclosure of a wireless power receiving coil (Suzuki's secondary coil 170) on a first layer (Suzuki's magnetic layer 171) as well as its disclosure of a short range communication antenna (Suzuki's coil 154) on a magnetic layer (Suzuki's magnetic layer 155). Pet. 34, 51. Petitioner additionally relies on Park for its disclosure of disposing a secondary coil and an NFC antenna within recessed grooves in the same layer. *Id.* at 52. Patent Owner's focus on the potentially different coil thicknesses in Suzuki and the different magnetic permeabilities of the respective layers in Suzuki and Park disregards Park's broader teaching of providing two coils within recessed grooves in the same layer.

Our reviewing court has explained that "[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference." *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981). "Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art." *Id.* As discussed above, Suzuki teaches two coils, where one coil is on a magnetic layer. *See* Ex. 1005, Fig. 21. Park teaches two coils within recessed grooves in the same layer. *See* Ex. 1006, Fig. 3. Petitioner explains that providing Suzuki's coils within recessed grooves in the same magnetic layer as taught by Park would "reduce device thickness." Pet. 47–49 (citing Ex. 1005, 1:38–40 ("In recent years, such a secondary device has been especially required to be miniaturized, thinned and provided with high

performance.")). That explanation provides sufficient rationale for why an ordinarily skilled artisan would have considered combining Suzuki and Park.

To illustrate, Figure 3 of Park (cited by Pet. 47) is reproduced below.

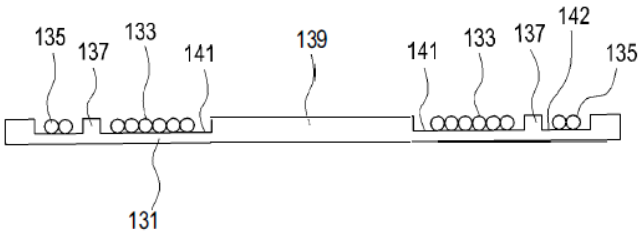


FIG.3

Figure 3 of Park is a sectional view of a coil module, where first coil 133 is accommodated in first accommodation groove 141 of shielding member 131 and second coil 135 is accommodated in second accommodation groove 142 of shielding member 131. Ex. 1006, 2:43, 3:56–59 (cited by Pet. 46). As shown in the figure, the overall thickness of Park's coil module appears to be about the same as the overall thickness of shielding member 131. If shielding member 131 did not have grooves 141 and 142, and coils 133 and 135 were disposed on top of shielding member 131, then the overall thickness of the coil module would be increased by the thickness of coils 133 and 135. On this record, we are persuaded that an ordinarily skilled artisan would have considered combining Suzuki and Park to reduce device thickness by applying Park's teachings to Suzuki's magnetic layer, a perceived benefit in Suzuki. *See* Ex. 1005, 1:38–40. Accordingly, Patent Owner's arguments do not undermine Petitioner's obviousness showing on the issue of motivation to combine. *See also* PO Resp. 30 ("The Petition's failure to show that a [person of ordinary skill in the art] ***would have been motivated*** to make its proposed combination is shown by the Petition's failure to articulate any benefit of that combination."); *id.* at 27–31.

On the issue of reasonable expectation of success, Patent Owner's arguments also do not adequately address, let alone undermine, Petitioner's obviousness showing. That Suzuki's magnetic layer 171 and Park's shielding member 131 may have different magnetic permeabilities, as Patent Owner contends, is of no consequence in the context of Petitioner's proposed combination. *See* PO Resp. 25. As Petitioner points out, it proposes disposing both Suzuki's coils 154 and 170 within recessed grooves in Suzuki's magnetic layer 171, not replacing Suzuki's magnetic layer 171 with Park's shielding member 131. Pet. Reply 25. Further, regarding Patent Owner's concern that the coils in Suzuki may have different thicknesses (*see* PO Resp. 24), we note that "[a] person of ordinary skill is also a person of ordinary creativity, not an automaton." *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007). In modifying Suzuki's secondary device to dispose coils 154 and 170 within recessed grooves in magnetic layer 171, a person of ordinary skill would have made any necessary modifications to the combination (for example, adjusting the depths of the grooves to accommodate the thicknesses of the coils) in order to realize as much as possible the advantages of adding Park's groove technique in the first place.

Patent Owner further argues that an ordinarily skilled artisan "would **not** have been motivated to utilize Park's contiguous groove and shielding wall technique to improve Suzuki's device" because "Suzuki proposes the uses of the multiple magnetic layers to address the well-known problem of interference in multi-antenna devices" and "describes, with respect to Fig. 21, how the magnetic layer 155 surrounds the data coil 154 and provides a shielding effect between the data coil 154 and the power receiving coil 170." PO Resp. 26 (citing Ex. 1005, 12:46–50). Patent

Owner relies on the declaration testimony of Dr. Ricketts. *Id.* (citing Ex. 2017 ¶¶ 90–93).

We disagree with Patent Owner. As discussed above, Petitioner supports its obviousness showing with sufficient rationale for why an ordinarily skilled artisan would have considered combining Suzuki and Park, namely, to reduce device thickness. *See* Pet. 47–48. The portion of Suzuki cited by Patent Owner teaches that "the magnetic layer 171L is located in the vicinity of an antenna 153 between the secondary coil 170 and the antenna 153" so that "it is possible to prevent noise from entering the antenna 153 from the secondary coil side." Ex. 1005, 12:46–50. Petitioner's proposed combination does not preclude using multiple magnetic layers, including the additional use of Suzuki's magnetic layer 171L or some other magnetic layer, to prevent noise from entering antenna 153 from the secondary coil side. With respect to any shielding effect between Suzuki's coils 154 and 170 provided by magnetic layer 155, Petitioner explains that, "as part of [Park's] groove technique, a 'shielding wall 137 is interposed between the first and second accommodation grooves 141 and 142,'" where the "shielding wall 'provides a shielding effect between the coils' which 'shields interference of electronic waves between the first and second coils 133 and 135.'" Pet. 49 (quoting Ex. 1006, 3:35–44, 3:61–4:1). That is, the shielding wall included as part of Park's groove technique would provide a shielding effect between Suzuki's coils 154 and 170 in Petitioner's proposed combination. Accordingly, Patent Owner's argument does not undermine Petitioner's obviousness showing.

We note Patent Owner's contention that "Suzuki already teaches that a portion of the shield layer may be interposed between the secondary coil 170 and the data coil 154," where Suzuki's "shield layer surrounds coil 170 at its circumference, just as the shielding wall 137 of Park surrounds the coil 133 at its circumference." PO Resp. 26–27 (citing Ex. 1005, 7:43–46, Fig. 7A); *see also id.* at 25 ("It is also unclear as to why a [person of ordinary skill in the art] would look to Park for its shielding member when Suzuki already teaches the use of a shield layer 172 . . . . Neither the Petition nor Dr. Phinney explain[s] why the shielding member 131 of Park would have any different result, including reduced thickness, than the shield layer 172 of Suzuki."). According to Patent Owner, "Park adds nothing new to Suzuki." *Id.* at 27. We disagree. As discussed above, adding Park's groove feature (which includes a shielding wall) to Suzuki's device would allow for reduced device thickness.

Patent Owner additionally argues that "implementing Park's contiguous shielding member would be detrimental because the shielding member would couple the magnetic fields of the data coil 154 and the power receiving coil 170, which Suzuki separates using the magnetic layers." PO Resp. 27. As discussed above, however, Petitioner points out that, "as part of [Park's] groove technique, a 'shielding wall 137 is interposed between the first and second accommodation grooves 141 and 142,'" where the "shielding wall 'provides a shielding effect between the coils' which 'shields interference of electronic waves between the first and second coils 133 and 135.'" Pet. 49 (quoting Ex. 1006, 3:35–44, 3:61–4:1). In Petitioner's proposed combination, the shielding wall included as part of Park's groove technique would provide a shielding effect between Suzuki's coils 154 and

170. Patent Owner's argument therefore does not adequately address, let alone undermine, Petitioner's obviousness showing.

We note Patent Owner's further contention that an ordinarily skilled artisan "would have recognized significant drawbacks to using Park's shielding member in Suzuki's device," and that these drawbacks "are further reasons why the Petition's combination is not properly motivated." PO Resp. 32. Patent Owner does not identify any drawbacks in particular, but instead cites portions of the declaration testimony of Dr. Ricketts. *Id.* (citing Ex. 2017 ¶¶ 85–95). Those cited portions of Dr. Ricketts's testimony repeat Patent Owner's arguments discussed above. *Compare* PO Resp. 23–27, *with* Ex. 2017 ¶¶ 85–95.

Lastly, Patent Owner argues, "[h]ere, where the Petition's proposed combination to Suzuki's design would have no identified benefit but would have multiple drawbacks, the Petition necessarily arrives at its proposed combination through the impermissible use of hindsight." PO Resp. 32; *see also id.* at 34 ("Absent any articulated, rational explanation as to why a [person of ordinary skill in the art] would have been motivated to arrive at the challenged claims, the Petition can only arrive at its conclusion of obviousness with the benefit of improper hindsight."). According to Patent Owner, "the Petition carves out a particular feature of Park—the shielding member—while ignoring the teachings of Suzuki that a [person of ordinary skill in the art] would recognize are already present in the embodiments of Suzuki." *Id.* at 33. Patent Owner asserts that Petitioner's "narrow focus on Park's shielding member is strong evidence of piecemeal analysis motivated by hindsight bias." *Id.*

We disagree with Patent Owner. As Petitioner contends, "the '842 patent's claimed antenna and receiving coil on a layer would have been obvious because [persons of ordinary skill in the art] were already implementing antennas and receiving coils in the same way," so "[t]here was no need for the Petition to rely on the '842 patent for hindsight." Pet. Reply 28; *see also* Ex. 1005, 1:38–40 (cited by Pet. 48–49); Ex. 1006, 2:12–16 (cited by Pet. 48), 3:56–64, 4:60–65, Figs. 3, 4 (cited by Pet. 52–53). Moreover, as discussed above, Petitioner explains that Park's groove technique includes a shielding wall feature that provides a shielding effect between coils 133 and 135. Pet. 49 (Ex. 1006, 3:35–44, 3:61–4:1). Park's shielding wall feature would provide a shielding effect between Suzuki's coils 154 and 170 in Petitioner's proposed combination of Suzuki and Park. Should Petitioner's proposed combination result in "the removal of Suzuki's high permeability magnetic layer," as Patent Owner contends, the loss of any shielding effect provided by Suzuki's magnetic layer would be provided by Park's shielding wall feature. *See* PO Resp. 34 (stating that "a [person of ordinary skill in the art] would have been discouraged from making the proposed combination in view of the combination's drawbacks of decreased device performance through the removal of Suzuki's high permeability magnetic layer"). We thus remain persuaded by Petitioner's argument and evidence that an ordinarily skilled artisan would have considered combining Suzuki and Park to reduce device thickness. *See* Pet. 45–51. Patent Owner's hindsight argument does not adequately undermine Petitioner's obviousness showing.

Based on Petitioner's argument and evidence as summarized above, after considering Patent Owner's arguments and evidence as also

summarized above, we are persuaded that the proposed combination of Suzuki and Park teaches the recited limitation of claim 7. We also are persuaded that Petitioner's proffered reasoning for modifying Suzuki's device to dispose the power receiving coil and data coil on the same layer within recessed accommodation grooves as taught by Park is sufficient to support the legal conclusion of obviousness. *See In re Kahn*, 441 F.3d 977, 988 ("[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.").

4. Summary

In view of the foregoing, we determine that Petitioner has demonstrated by a preponderance of the evidence that claim 7 would have been obvious over Suzuki and Park.

IV. CONCLUSION

We determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1, 2, 5–7, 14–16, 19, and 20 of the '842 patent are unpatentable as follows.[6]

[6] 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 to file a reissue application or a request for reexamination of the challenged patent, 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).

References	Basis	Claims	Claims Shown Unpatentable	Claims Not shown Unpatentable
Suzuki	§ 103	1, 2, 5–7, 14–16, 19, 20	1, 2, 5, 6, 14–16, 19, 20	7
Suzuki, Park	§ 103	7	7	
Overall Outcome			1, 2, 5–7, 14–16, 19, 20	

V. ORDER

In consideration of the foregoing, it is hereby

ORDERED that claims 1, 2, 5–7, 14–16, 19, and 20 of the '842 patent are held *unpatentable*; and

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

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