

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

NXP USA, INC.,

Petitioner,

v.

BELL SEMICONDUCTOR, LLC,

Patent Owner

Case: IPR2024-00142

U.S. Patent No. 7,535,330

PATENT OWNER'S PRELIMINARY RESPONSE

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2001	Expert Declaration of Dr. Joseph Bernstein in Support of Patent Owner's Preliminary Response
2002	Disclaimer in a Patent Under 37. CFR 1.321(a) for US Patent 7,535,330

Through the undersigned Counsel, Patent Owner Bell Semiconductor, LLC (“PO” or “Bell”) submits the following Patent Owner Preliminary Response pursuant to 37 C.F.R. § 42.107(a).

I. INTRODUCTION

The Petition for *Inter Partes* Review (the “Petition”) filed by NXP USA, INC. (“NXP”) against U.S. Patent No. 7,535,330 (“’330 patent”) should be denied because it fails to establish a reasonable likelihood that any of the challenged claims are unpatentable.

Challenged claims 1-10 recite a multiple inductor array with three nodes, including a first node that receives a first current and a second current. Petitioner fails to show a reasonable likelihood that these claims are anticipated or obvious over two separate primary references because the references both disclose only two nodes, and Petitioner’s efforts to conjure an additional fictitious node fail to meet other limitations in the claims. Thus, no *inter partes* review of claims 1-10 should be instituted.

Challenged claims 11-16 recite a differential low noise amplifier. Petitioner fails to show a reasonable likelihood that these claims are obvious over the cited primary and secondary references because its secondary reference was published 3 years after the priority date of the ’330 patent and is therefore not prior art; and, in

any event, the secondary reference provides a clear teaching against the proposed combination. Petitioner also fails to explain with any particularity how the teachings of the primary and secondary references may be combined. Without a particular explanation of how the Petitioner proposes combining the references, it is not possible to assess whether the combination meets the claimed invention and whether there would have been a reasonable expectation of success. This is a clear violation of the particularity requirement of 35 U.S.C. § 312(a)(3) and the Board's precedent. Thus, no *inter partes* review of claims 11-16 should be instituted.

Finally, the challenged method claims 17-20 have been statutorily disclaimed to simplify the issues before the Board. Therefore, no *inter partes* review of claims 17-20 may be instituted.

For all of these reasons, the Petition should be denied.

II. BACKGROUND

A. The '330 Patent

The '330 patent (Ex. 1001), entitled "Low Mutual Inductance Matched Inductors," is entitled to a priority date of September 22, 2006. The '330 patent is directed to, among other things, positioning two inductors in a multi-inductor array such that both are coupled to a common node that receives first and second currents and such that the polarities of the magnetic fields produced by each are opposite to

each other, causing net reduction in parasitic mutual inductance because the magnetic field produced by each inductor is at least partially canceled out when it interferes with the field produced by the other. (Ex. 2001 at ¶ 55.)

The '330 patent was developed to address problems arising from the continual increase of component density within electrical circuits, particularly the effects of electrical cross-coupling, which are a more significant issue in circuits that are operating at high frequencies and negatively impact device timing. (Ex. 1001 at 1:17-19; Ex. 2001 at ¶ 56.)

An embodiment of the invention, illustrated in Figure 4 of the '330 patent (reproduced below), includes running two currents from a common node through the inductors in opposite directions to generate magnetic fields with opposite polarities, such that the respective magnetic fields interfere with each other and at least partially cancel at a particular point, thereby reducing parasitic mutual inductance. (Ex. 1001 at 2:17-26; Ex. 2001 at ¶ 57.)

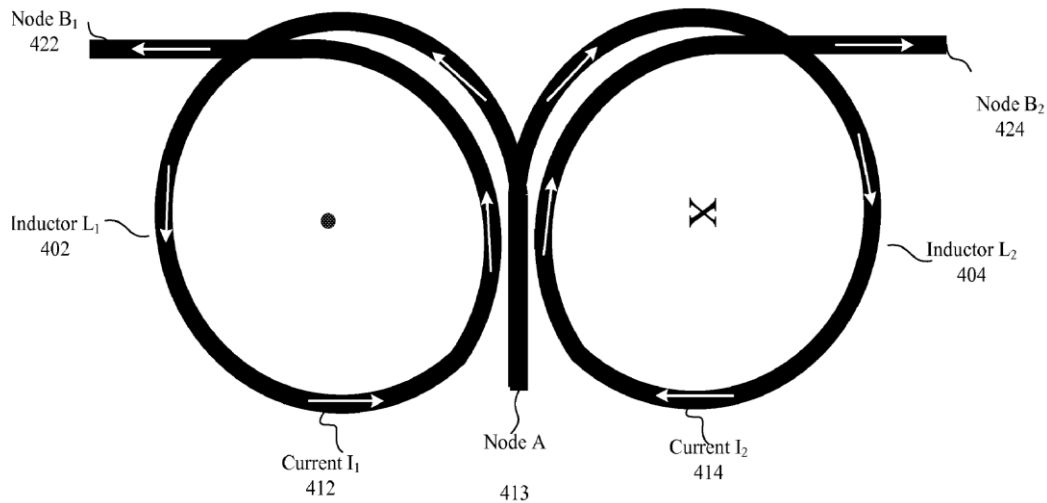


Figure 4

The '330 patent contains 3 independent claims and 20 total claims, covering the placement of inductors in electrical circuits. (Ex. 1001 at 5:44-6:65.) Claim 1 of the '330 patent reads:

1. A multiple inductor array comprising:

a first node that receives a first current and a second current;

a first inductor coil, coupled to the first node and to a second node, that communicates the first current in a clockwise direction and generates a first magnetic field;

a second inductor coil, coupled to the first node and to a third node, that communicates the second current in a counter clockwise direction and generates a second magnetic field having an opposing orientation to the first magnetic field; and

wherein the first magnetic field and the second magnetic field at least partially cancel at an interference point.

This claim, as a whole, provides significant benefits and improvements to the function of the semiconductor device, including, e.g., meeting electromagnetic compatibility requirements, improving system performance by reducing crosstalk, and improving efficiency and reducing production cost by increasing component density. (Ex. 2001 at ¶ 59.)

The development of the innovation described in the '330 patent addressed problems arising from the continual increase of component density within electrical circuits, particularly the effects of electrical cross-coupling, which are a more significant issue in circuits that are operating at high frequencies and negatively impact device timing. (Ex. 1001 at 1:17–19; Ex. 2001 at ¶ 60.) Prior to the inventions of the '330 patent, the typical placement of certain electrical components within a circuit (particularly inductors) would produce unwanted cross-coupling. (Ex. 1001 at 1:25–28; Ex. 2001 at ¶ 60.) This forced circuit designers to provide a sufficient distance between inductor coils to sufficiently reduce electro-magnetic interference between them, which made it difficult to obtain the frequencies and component densities that current technologies required. (Ex. 1001 at 1:33–37; Ex. 2001 at ¶ 60.)

Recognizing this drawback, Sean Christopher Erickson, Jason Dee Hudson, and Michael J. Saunders (“the ’330 Inventors”), set out to develop circuits that could place two inductors more closely than before while minimizing the effects of the cross-coupling. (Ex. 2001 at ¶ 61.) The ’330 Inventors ultimately conceived of a method for minimizing mutual inductance between the inductors, at least at particular locations in close proximity to the inductors. (Ex. 1001 at 2:16–17; Ex. 2001 at ¶ 61.) One embodiment of the invention includes running current through the inductors in opposite directions to generate magnetic fields with opposite polarities, such that the respective magnetic fields interfere with each other and at least partially cancel at a particular point in proximity to the inductors, thereby reducing parasitic mutual inductance. (See Ex. 1001 at 2:17–26; Ex. 2001 at ¶ 61.)

B. The Cited References

The Petition cites the following references:

- U.S. Patent No. 7,955,886 to Marques (“Marques”) (Ex. 1005), issued on June 7, 2011, based on an application filed March 30, 2005;
- Thomas A. Lee, *The Design of CMOS Radio-Frequency Integrated Circuits* (2d ed. 2009) (“Lee”) (Ex. 1007); and
- U.S. Patent No. 7,221,251 to Menegoli et al. (“Menegoli”) (Ex. 1008), issued May 22, 2007, based on an application filed March 22, 2005.

III. LEVEL OF ORDINARY SKILL IN THE ART

Petitioner and its expert Dr. Kiaei allege a definition of a person of ordinary skill in the art (“POSITA”). (Pet. at 4; Ex. 1002 at ¶29.) Neither explain why a POSITA would require such qualifications. For purposes of this Preliminary Response only, PO’s analysis of the Challenged Claims and the cited art adopts Petitioner’s alleged definition. Should *inter partes* review be instituted, PO reserves the right to present an alternative definition for a person of ordinary skill in the art, along with any appropriate additional evidence.

IV. CLAIM CONSTRUCTION

Claims in an *inter partes* review are construed using the same claim construction standard as in a civil action. 37 C.F.R. § 42.100(b). Under this standard, claims are construed in accordance with their ordinary and customary meaning as understood by a person of ordinary skill in the art (“POSITA” or “skilled artisan”). *Id.* The person of ordinary skill in the art is deemed to read the claim term in the context of the entire patent, including the specification and prosecution history. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313-1316 (Fed. Cir. 2005) (en banc). Indeed, claims must be construed so as to be consistent with the specification. *Id.*

The Petition alleges that no express constructions of the claims are necessary to assess whether the cited art reads on the challenged claims. (Pet. at 8.) However, Petitioner later relies on a tentative construction of “node” as “a point of connection or intersection in an electrical circuit” from the Special Master Report and Recommendation on Claim Construction (Ex. 1015 at 27) in its arguments that the cited art reads on the challenged claims. (*See, e.g.*, Pet. at 9.)

For purposes of this Preliminary Response only, Patent Owner adopts the construction of “node” from the Special Master Report—“a point of connection or intersection in an electrical circuit.” Patent Owner reserves the right to propose an alternative construction of “node” and of other terms should *inter partes* review be instituted.

V. ARGUMENT

A. THE PETITION FAILS TO ESTABLISH A REASONABLE LIKELIHOOD THAT ANY OF THE CHALLENGED CLAIMS ARE UNPATENTABLE

The petitioner in an *inter partes* review bears the burden of proving that there is a reasonable likelihood that it will prevail with respect to at least one of the challenged claims. 35 U.S.C. § 314(a). Petitioner has failed to meet this burden. Specifically, Petitioner has failed to show that it is more likely than not that the cited art anticipates or renders obvious the claimed invention.

1. Ground 1: Anticipation of Claims 1, 2, 4-10, 17, 18, and 20 by Marques

With regard to claims 1, 2, and 4-10, Petitioner has failed to show a reasonable likelihood that Marques anticipates by expressly or inherently disclosing each and every element of the challenged claims. *Guangdong Alison Hi-Tech Co. v. Int'l Trade Comm'n*, 936 F.3d 1353, 1363 (Fed. Cir. 2019) (“A patent claim is invalid as anticipated only if each and every element of the claim is expressly or inherently disclosed in a single prior art reference.”).

a. Claim 1

(1) Marques Does Not Disclose A Multiple Inductor Array With Three Nodes

Claim 1 recites a multiple inductor array comprising, *inter alia*, the following limitations:

a first node that receives a first current and a second current;

a first inductor coil, coupled to the first node and to ***a second node***, that communicates the first current in a clockwise direction and generates a first magnetic field;

a second inductor coil, coupled to the first node and to ***a third node***, that communicates the second current in a counter clockwise direction and generates a second magnetic field having an opposing orientation to the first magnetic field.

(Ex. 1001 at 5:44-55) (emphasis added). In the '330 patent, the three nodes are utilized to connect the inductive array to other components in a circuit. (*See, e.g.*, Ex. 1001 at 1:67-2:2, 2:46-48, 5:33-35, and FIG. 2 (showing two inductors L_{s1} and L_{s2} connected by two nodes to a pair of transistors and by a common node to a ground in a DLNA circuit); Ex. 2001 at ¶ 63.) Because the claimed inductive array includes three nodes, it is suitable for use in circuits where there may be a transient differential between the first and second currents flowing through the inductors that could result in a change in mutual inductance in one of the inductors. (Ex. 1001 at 4:56-62; Ex. 2001 at ¶ 63.) For example, if there is a change of current flowing through the first inductor such that a corresponding first magnetic field produced by the first inductor changes and results in a change in mutual inductance in the second inductor, the claimed invention allows the change in mutual inductance in the second inductor to be addressed by changing the oppositely oriented magnetic field generated by the second inductor to achieve appropriate interference cancellation, e.g., by making a change in the current flowing through the second inductor. (Ex. 1001 at 4:63-5:5; Ex. 2001 at ¶ 63.) This interference cancellation results in a reduction of cross talk between the first and second inductors. (Ex. 1001 at 5:5-8; Ex. 2001 at ¶ 63.)

Marques fails to anticipate claim 1 because none of the inductive structures it discloses include three nodes. To the contrary, every inductive structure disclosed

in Marques consists of only two nodes—terminals 12 and 14 in FIGS. 2-6 and terminals 20 and 22 in FIGS. 7 and 8—so that each inductive structure may be used in place of a conventional two-terminal inductor (such as the single loop inductor 10 with two terminals 12 and 14 depicted in FIG. 1 of Marques) in a circuit where an inductance is required. (Ex. 2001 at ¶ 64.) That is, just like a conventional two-terminal inductor, each inductive structure in Marques is designed to be connected in a circuit via two terminals. (Ex. 2001 at ¶ 64.) For example, Marques notes that “[in] some conventional applications, . . . inductor designs use inductors with one loop The present invention utilizes structures with two differential loops, in order to minimize noise and interference with other components in a device.” (Ex. 1005 at 3:35-40; Ex. 2001 at ¶ 64.) The conventional inductor is shown and described in Marques as having two terminals, e.g., Ex. 1005 at FIG. 1 labels 12 and 14, as is every disclosed inductor design, *see, e.g.*, Ex. 1005 at FIGS. 2-6 labels 12 and 14 and FIGS. 7-8 labels 20 and 22. (Ex. 2001 at ¶ 64.) There is absolutely no disclosure in Marques of there being an additional node that connects the inductive loop structure in a circuit. (Ex. 2001 at ¶ 64.)

Because the inductive structures of Marques are two terminal devices, the currents across the inductors are not individually adjustable, so the inductive structures of Marques are not able to address a change in mutual inductance in one

inductor caused by a transient change in current in the other inductor. (Ex. 2001 at ¶ 65.) Instead, Marques purports to solve a different problem, namely that “in a circuit where inductors are used, **the inductors can interfere with other components in the circuit.**” (Ex. 1001 at 1:14-16 (emphasis added); Ex. 2001 at ¶ 65.) To address this problem, Marques “utilizes structures with two differential loops, in order to reduce or minimize noise and interference with other components in a device.” (Ex. 1001 at 3:38-40; Ex. 2001 at ¶ 65.) In other words, Marques proposes replacing conventional inductors with his magnetically differential inductor structures in such cases. (*See, e.g.*, Ex. 1001 at 10:62-67, 11:17-20, and 11:25-29; Ex. 2001 at ¶ 65.) More specifically, Marques proposes positioning other components of a circuit along an “axis 38” defined where magnetic cancellation between the magnetically differential inductors is optimal. (*See, e.g.*, Ex. 1001 at 11:40-53; Ex. 2001 at ¶ 65.) Marques explains that magnetic cancellation is optimal “where the two opposite magnetic fields will be equal” (Ex. 1001 at 7:8-12), which is another reason for its two terminal structure in which the same current flows through each inductor. (Ex. 2001 at ¶ 65.)

The Petition relies on an annotated version of Figure 5 of Marques (reproduced below), in which the Petitioner added an extra “node” to the inductor structure between terminals 12 and 14 to create three nodes where only two exist.

(Compare Marques, FIG. 5 with Pet. at 10.) However, as noted above, the inductor structure in Figure 5 of Marques is connected in a circuit using terminals 12 and 14. (Ex. 2001 at ¶ 66.) There is no disclosure in Marques of connecting the inductor structure in a circuit using the fictitious extra “node” added to Figure 5 by Petitioner. (Ex. 2001 at ¶ 66.) For this reason alone, Petitioner has not shown a reasonable likelihood that FIG. 5 of Marques discloses an inductor structure with three nodes as claimed. (Ex. 2001 at ¶ 66.)

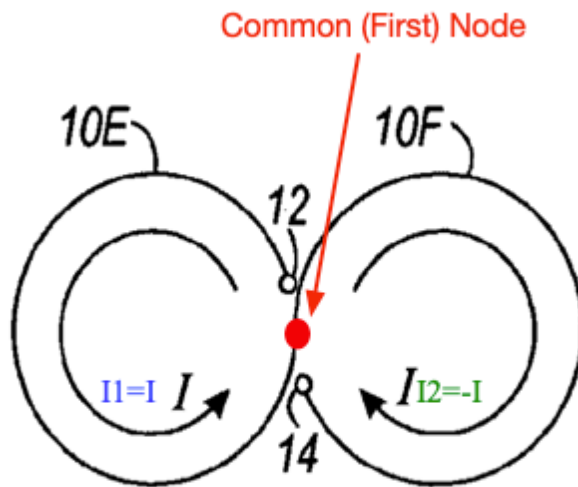


FIG. 5

FIG. 5 of Marques (Ex. 1005) (Annotated by Petitioner)

Petitioner also relies on the inductor structure shown in FIGS. 7 and 8 of Marques for disclosure of a first node. (Pet. at 10-11; Ex. 2001 at ¶ 67.) More

specifically, Petitioner identifies terminal 20 in an annotated version of FIG. 8 of Marques (reproduced below) as a “Common (First) Node.” (Pet. at 10-11; Ex. 2001 at ¶ 67.) Notably, Petitioner does not identify either a “second node” or a “third node” in the annotated version of FIG. 8 or in its discussion of the inductor structure shown in FIGS. 7 and 8. (Pet. at 10-17; Ex. 2001 at ¶ 67.) In fact, like the inductor structure shown in FIG. 5, the inductor structure in FIGS. 7 and 8 includes only two nodes—terminals 20 and 22. (Ex. 2001 at ¶ 67.) Thus, Petitioner has not shown a reasonable likelihood that FIGS. 7 and 8 of Marques disclose an inductor structure with three nodes as claimed. (Ex. 2001 at ¶ 67.)

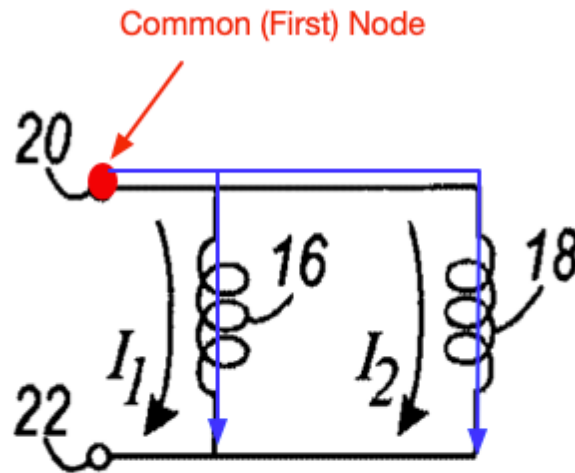


FIG. 8

FIG. 8 of Marques (Ex. 1005) (Annotated by Petitioner)

Even assuming Marques discloses a multiple inductor array with three nodes (which it doesn't), Petitioner's three nodes, *i.e.*, Petitioner's fictional "common node" and terminals 12 and 14 (or 20 and 22), would not operate in accordance with the language of claim 1. (Ex. 2001 at ¶ 68.)

(2) Petitioner's Fictitious First Node Does Not Receive a First Current and a Second Current

As noted above, claim 1 calls for a first node that “receives a first current and a second current.” Neither the made-up “common node” in Petitioner’s annotated FIG. 5 of Marques, which Petitioner identifies as the claimed “first node” (*e.g.*, Pet. at 9-10), nor the terminal 20 in FIG. 8 of Marques, which Petitioner alternatively identifies as the claimed “first node” (*Id.* at 10-11), **receive** a first current **and** a second current, as required by the claim language. (Ex. 2001 at ¶ 69.)

The original FIG. 5 of Marques (reproduced below) shows a single current, *I*, flowing from terminal 12 to terminal 14. (Ex. 2001 at ¶ 70.) Inductor coils 10E and 10F are arranged in series between terminals 12 and 14 (Ex. 1005 at 5:12-14) and, therefore, the same current *I* also flows through the two inductor coils of the inductive structure (*Id.* at 5:21-25; Ex. 2001 at ¶ 70).

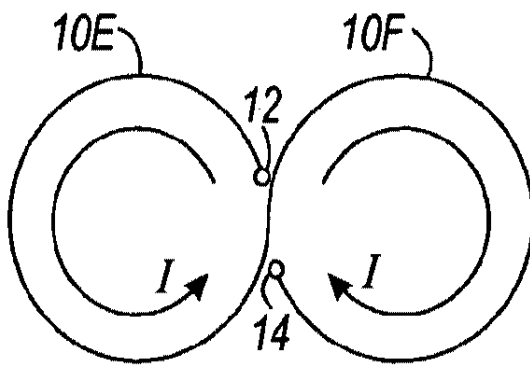


FIG. 5

Further, Marques states that “[a]n equivalent circuit diagram of the example shown in FIG. 5 would be similar to the diagram shown in FIG. 3.” (Ex. 1005 at 5:15-17.) Figure 3 of Marques is shown below.



FIG. 3

FIG. 3 of Marques (Ex. 1005)

Again, as in FIG. 5, there is only a **single current**, *I*, flowing from terminal 12 to terminal 14 in FIG. 3. (See also *Id.* at 3:67-4:2; Ex. 2001 at ¶ 72.)

In Petitioner’s annotated FIG. 5, the fictitious common node is positioned between the terminals 12 and 14 and will therefore receive only a single current, *I*. (Ex. 2001 at ¶ 73.) Nevertheless, Petitioner asserts that “[t]he common node can . . . be viewed as the intersection of where *I*₁ and *I*₂ meet (i.e., the first node receives

a first and second current).” (Pet. at 9.) But there is no disclosure in Marques of separate currents, I1 and I2, in the embodiment of FIG. 5. (Ex. 2001 at ¶ 73.) There is only a single current, I, disclosed. (Ex. 2001 at ¶ 73.) Petitioner self-servingly re-names the current I as I1 when it travels through the first inductor coil and re-names the same current I as I2 when it travels through the second inductor coil. (Ex. 2001 at ¶ 73.) The separate currents I1 and I2 in Petitioner’s annotated version of FIG. 5 are thus fictitious, like its common node. (Ex. 2001 at ¶ 73.) Moreover, even if Marques does disclose separate currents, I1 and I2 (which it does not), an examination of the direction of current flow in annotated FIG. 5 reveals that only I1 would be received at the fictitious common node proposed by the Petitioner, while the fictitious current I2 would flow **from** the fictitious common node. (Ex. 2001 at ¶ 73.) Thus, the inductor structure in Petitioner’s annotated Figure 5 would not include a first node “that **receives** a first current and a second current,” as required by claim 1. (*Id.*)

Similarly, there is no support in Marques for Petitioner’s contention that terminal 20 in Petitioner’s annotated version of FIG. 8 of Marques, which Petitioner identifies as a “Common (First) Node,” receives first and second currents I1 and I2. (Ex. 2001 at ¶ 74.) Indeed, an examination of the current flow in FIG. 8 reveals that the first and second currents I1 and I2 flow **from** the terminal 20 as opposed to being

received by the terminal 20. (Ex. 2001 at ¶ 74.) As such, Petitioner’s annotated Figure 8 would not include a first node “that **receives** a first current and a second current,” as required by claim 1. (*Id.*)

Thus, Petitioner has failed to show a reasonable likelihood that Marques discloses a multiple inductor array in which a first of three nodes receives first and second currents. (Ex. 2001 at ¶ 75.)

**(3) Marques Does Not Disclose a First Inductor Coil
Coupled to the First Node and a Second Node**

Petitioner identifies inductor coil 10F of annotated FIG. 5 of Marques as a first inductor coil coupled to the first node and a second node. (Pet. at 11-13.) However, as noted above, the inductive structure shown in FIG. 5 of Marques lacks “a first node that receives a first current and second current,” as claimed. (Ex. 2001 at ¶ 76.) The fictitious first node proposed by Petitioner receives only a single current, I, and therefore does not qualify as a first node that receives a first current and a second current. (Ex. 2001 at ¶ 76.) Therefore, Petitioner has failed to show a reasonable likelihood that Marques discloses “a first inductor coil, coupled to the first node and to a second node,” wherein the first node “receives a first current and a second current,” as claimed. (Ex. 2001 at ¶ 76.)

With regard to annotated FIG. 8, as noted previously, Petitioner fails to identify a second node in the figure. (Ex. 2001 at ¶ 77.) Regardless, the terminal 20 identified as the first node by Petitioner has not been shown to “receive a first current and a second current,” as claimed. (Ex. 2001 at ¶ 77.) On the contrary, first and second currents I1 and I2 are shown flowing from the terminal 20. (Ex. 2001 at ¶ 77.) Therefore, Petitioner has failed to show a reasonable likelihood that Marques discloses “a first inductor coil, coupled to the first node and to a second node,” wherein the first node “receives a first current and a second current,” as claimed. (Ex. 2001 at ¶ 77.)

Accordingly, Petitioner has failed to show a reasonable likelihood that FIG. 5 or FIG. 8 of Marques show this limitation. (Ex. 2001 at ¶ 78.)

(4) Marques Does Not Disclose a Second Inductor Coil Coupled to the First Node and a Third Node

Petitioner identifies inductor coil 10E of annotated FIG. 5 of Marques as a second inductor coil coupled to the first node and a third node. (Pet. at 11-13.) However, as noted above, the inductive structure shown in FIG. 5 of Marques lacks “a first node that receives a first current and second current,” as claimed. (Ex. 2001 at ¶ 79.) The fictitious first node proposed by Petitioner receives only a single current, I, and therefore does not qualify as a first node that receives a first current

and a second current. (Ex. 2001 at ¶ 79.) Therefore, Petitioner has failed to show a reasonable likelihood that Marques discloses “a second inductor coil, coupled to the first node and to a third node,” wherein the first node “receives a first current and a second current,” as claimed. (Ex. 2001 at ¶ 79.)

With respect to annotated FIG. 8 of Marques, as noted previously, Petitioner fails to identify a third node in the figure. (Ex. 2001 at ¶ 80.) Regardless, the terminal 20 identified as the first node by Petitioner has not been shown to receive a first current and a second current. (Ex. 2001 at ¶ 80.) On the contrary, first and second currents I1 and I2 are shown flowing from the terminal 20. (Ex. 2001 at ¶ 80.) Therefore, Petitioner has failed to show a reasonable likelihood that Marques discloses a second inductor coil coupled to the first node and a third node, wherein the first node receives a first current and a second current. (Ex. 2001 at ¶ 80.)

Accordingly, Petitioner has failed to show a reasonable likelihood that FIG. 5 or FIG. 8 of Marques show this limitation. (Ex. 2001 at ¶ 81.)

(5) Marques’s Inductive Structure Would Not Operate Like the Claimed Invention Even If First and Second Currents Are Received at the Fictitious First Node

Assuming for the sake of argument that Marques’s inductive structure included a first node between the coils that received first and second currents (which

it doesn't), it's clear that such an inductive structure would not operate as claimed. (Ex. 2001 at ¶ 82.) To demonstrate this point, an annotated version of Marques's Figure 5 was prepared (see below) in which a fictitious common (first) node is positioned between the coils as proposed by Petitioner, and first, second, and third nodes are connected to a circuit so that the fictitious first node receives first and second currents I_1 and I_2 as claimed. (Ex. 2001 at ¶ 82.)

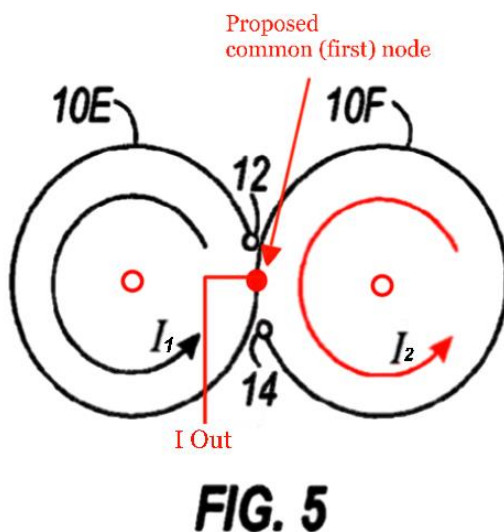


Figure 5 of Marques (Ex. 1005) (Annotated by PO)

The first current I_1 flows in a counterclockwise direction from node 12 to the fictitious (first) node, and the second current I_2 flows in a counterclockwise direction from node 14 to the fictitious (first) node. (Ex. 2001 at ¶ 83.) Applying the right-hand rule, both currents generate an electromagnetic field oriented out of the plane

(denoted by the small red circles at the centers of the coils), because they are both flowing in a counterclockwise direction. (Ex. 2001 at ¶ 83.) Because the electromagnetic fields generated by the coils have the same orientation, the inductive structure cannot meet the limitations in claim 1 of “a second magnetic field having an opposing orientation to the first magnetic field” and “the first magnetic field and the second magnetic field at least partially cancel at an interference point.” (Ex. 2001 at ¶ 83.) On the contrary, because the electromagnetic fields generated by Marques’s coils would have the same orientation, the first and second magnetic fields would tend to reinforce each other. (Ex. 2001 at ¶ 83.) For this additional reason, it is clear that Marques does not anticipate claim 1. (Ex. 2001 at ¶ 83.)

(6) Claim 1 is not Anticipated by Marques

For at least all of the reasons set forth in this Section V.A.1.a, Petitioner has not shown a reasonable likelihood that claim 1 is anticipated by Marques.

b. Claims 2, 4-10

Claims 2, and 4-10 depend from claim 1. A dependent claim contains all of the limitations of the claim or claims from which it depends. Therefore, claims 2, and 4-10 distinguish over Marques for at least all of the reasons discussed above with regard to claim 1. PO reserves the right to present additional arguments for patentability of claims 2, and 4-10 should *inter partes* review be instituted.

c. Claims 17, 18, and 20

Claims 17, 18, and 20 have been statutorily disclaimed. (Ex. 2002.) Therefore, no *inter partes* review of claims 17, 18, and 20 may be instituted. 37 C.F.R. § 42.107(e).

2. Ground 2: Marques Does Not Render Obvious Claims 3 and 19

a. Claim 3

Claim 3 depends from claim 1. A dependent claim contains all of the limitations of the claim or claims from which it depends. Therefore, claim 3 distinguishes over Marques for at least all of the reasons discussed above with regard to claim 1 in Section V.A.1. Petitioner's conclusory statement that it would have been obvious to modify the hexagonal spiral shape of Marques to an octagonal spiral shape (without reference to any support in the prior art) does not remedy the deficiencies of Marques with respect to claim 1 discussed above in Section V.A.1. PO reserves the right to present additional arguments for patentability of claim 3 should *inter partes* review be instituted.

b. Claim 19

Claim 19 has been statutorily disclaimed. (Ex. 2002.) Therefore, no *inter partes* review of claim 19 may be instituted. 37 C.F.R. § 42.107(e).

3. Ground 3: The Combination of Marques and Lee Does Not Render Obvious Claims 3, 11-16, and 19

a. Lee Is Not Prior Art

Petitioner misrepresents the date of publication of Lee as 2004 (Pet. at 3, 34), when in fact the actual date of publication of the reference is no earlier than 2009 (Ex. 1007 at 2 (“Reprinted 2005, 2006, 2008 (twice), **2009**”))—three years after the priority date of the ’330 patent. No explanation is given by Petitioner for mischaracterizing the date of this document from 2009. Thus, the Petition fails to establish a reasonable likelihood that Lee is prior art. *See, e.g., Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29 at 13 (PTAB Dec. 20, 2019) (precedential) (“. . . at the institution stage, **the petition must identify, with particularity, evidence sufficient to establish a reasonable likelihood that the reference was publicly accessible before the critical date of the challenged patent** and therefore that there is a reasonable likelihood that it qualifies as a printed publication.”) (emphasis added). For this reason alone, the Board should find that the Petitioner failed to show a reasonable likelihood of prevailing with respect to Ground 3.

b. Claim 3

A dependent claim contains all of the limitations of the claim or claims from which it depends. Therefore, claim 3 distinguishes over Marques for at least all of the reasons discussed above in Section V.A.1 with regard to claim 1. Because Lee is not prior art, it cannot remedy the deficiencies of Marques with respect to claim 1. Furthermore, Lee may not be relied on to provide the additional limitations recited in claim 3 that are not disclosed by Marques (e.g., the octagonal inductor structures). Even if Lee is considered prior art (which it is not), Petitioner relies on Lee in Ground 3 for allegedly disclosing the octagonal inductor structures recited in claim 3, not for overcoming the deficiencies of Marques with respect to claim 1, from which claim 3 depends. Therefore, Petitioner fails to establish a reasonable likelihood that claim 3 is obvious over Marques and Lee.

PO reserves the right to present additional arguments for patentability of claim 3 should *inter partes* review be instituted.

c. Claims 11-16

Independent claim 11 recites a differential low noise amplifier comprising the following limitations:

a voltage supply that generates a first current and a second current;

a first inductor coil, coupled to the voltage supply and to a first transistor, that communicates the first current in a first direction and generates a first magnetic field;

a second inductor coil, coupled to the voltage supply, a second transistor, and in parallel with the first inductor coil, that communicates the second current in a second direction that is opposite to the first direction and generates a second magnetic field having an opposing orientation to the first magnetic field;

a first RLC section that is coupled to the first inductor coil;

a second RLC section that is coupled to the second inductor coil; and

an output that is coupled to the first inductor coil, the second inductor coil, the first transistor, and the second transistor.

Claims 12-16 depend from independent claim 11. The Petition fails to demonstrate a reasonable likelihood that claims 11-16 would have been obvious in view of Marques and Lee for at least the following reasons.

(1) Lee Is Not Prior Art

Petitioner admits that “Marques does not explicitly disclose using its inductor structure in a differential low noise amplifier.” (Pet. at 39.) Instead, Petitioner relies on Lee for its disclosure of a differential low noise amplifier circuit diagram. (*Id.* at

39-47.) However, as explained above in Section V.A.3, Lee is not prior art.¹ Therefore, Lee may not be relied on for the limitations of claims 11-16 that are not disclosed by Marques (e.g., the differential low noise amplifier limitation, the voltage supply limitation, the first inductor coil coupled to the voltage supply and a first transistor, the second inductor coil coupled to the voltage supply and a second transistor, first and second RLC sections coupled to the first and second inductor coils, and the output limitation). For this reason alone, Petitioner has failed to demonstrate that claims 11-16 are more likely than not obvious over Marques in view of Lee.

(2) Lee Teaches Away From The Proposed Combination

Even if Lee is considered to be prior art (which it is not), there would have been no motivation to combine the inductor structures of Marques in the differential low noise amplifier of Lee because Lee teaches away from such a combination. (Ex. 2001 at ¶ 85.) That is, Petitioner alleges that the inductor structures of Marques

¹ Petitioner also alleges that “the ’330 Patent discloses the above circuit diagram [of Lee] as Prior Art Figure 2.” (Pet. at 40.) However, contrary to Petitioner’s allegation, FIG. 2 is not labeled or described as “prior art” in the ’330 patent.

include a first inductor that communicates a first current in a counterclockwise direction and a second inductor that communicate a second current in a clockwise direction (i.e., the first and second inductors are laid out with an “opposite” or “mirrored” orientation) (Pet. at 41-44), whereas Lee teaches “[a]nother important attribute of the differential connection is, of course, its ability to reject common-mode disturbances,” and “[t]o ensure the truth of this statement [regarding the circuit’s ability to reject common-mode disturbances], **the spiral inductors of both half-circuits should be laid out with the same orientation, not mirrored;** otherwise, inductively coupled noise will not appear as a common-mode signal.” (Ex. 1007 at 6 (p. 388, 388 n.21)) (emphasis added) (Ex. 2001 at ¶ 85.) Lee goes on further to state “[t]o maximize common-mode rejection at high frequencies, **it is critically important for the layout to be absolutely as symmetrical as possible.**” (Ex. 1007 at 6 (p. 388) (emphasis added)). These statements in Lee teaching away from the proposed combination are yet another reason why there is no reasonable likelihood that claims 11-16 would have been obvious over Marques and Lee. (Ex. 2001 at ¶ 85.)

(3) Petitioner Fails to Show a Reasonable Likelihood That the Proposed Combination Reads on Claims 11-16

Even if Lee is considered to be prior art (which it is not), and even if there were motivation to combine the inductor structures of Marques in the differential low noise amplifier of Lee (which there is not), Petitioner has not shown a reasonable likelihood that the resulting combination would read on claims 11-16. (Ex. 2001 at ¶ 86.) Petitioner states several times that a POSITA would have been motivated “to combine” the inductor structure of Marques in the DLNA of Lee (Pet. at 40, 41, and 43), but fails to explain with any particularity how they are combined. (Ex. 2001 at ¶ 86.) More specifically, Petitioner notes that Lee discloses, in annotated Figure 12.10 (reproduced below), “a first inductor coil coupled to the voltage source (VDD) and to a first transistor” (Pet. at 41) and “a second inductor coil coupled to the voltage source (VDD), a second transistor, and in parallel with the first inductor coil” (Pet. at 42).

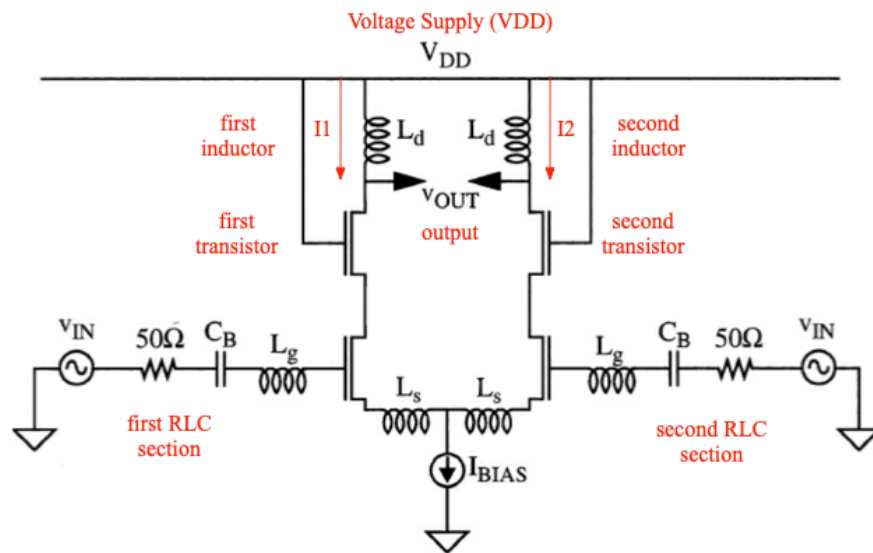


FIGURE 12.10. Differential LNA (simplified).

At the same time, Petitioner notes that Marques, in annotated Figure 7 (reproduced below) discloses “a first inductor 16 that communicates a first current I_1 in a first direction (shown here as counterclockwise)” (Pet. at 41), where the first inductor is “in parallel with a second conductor 18 [and] where the second inductor 18 communicates a second current I_2 in a second direction (shown here as clockwise)” (Pet. at 42).

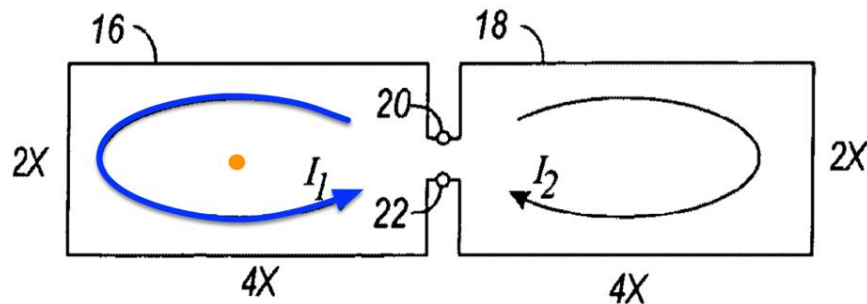


FIG. 7

Nowhere in Ground 3 does Petitioner explain how the two terminal (20, 22) inductor structure of Marques shown in annotated FIG. 7 is combined with the DLNA of Lee. (Ex. 2001 at ¶ 88.) For example, Petitioner fails to explain whether the inductor structure of Marques is substituted for an inductor in the DLNA of Lee, or whether the inductor structure of Marques is split apart into separate inductors that are substituted for inductors in the DLNA, or whether it is combined in some other way. (Ex. 2001 at ¶ 88.) Nor does Petitioner provide any evidence that a POSITA would combine the inductor structure of Marques in the DLNA in any particular way or that there would have been a reasonable expectation of success (which is relevant given Lee's statements teaching away from such a combination). (Ex. 2001 at ¶ 88.) Without a particular explanation of how the Petitioner proposes combining the inductor structure of Marques into the DLNA of Lee, it is not possible to assess whether the combination meets the claimed invention and whether there

would have been a reasonable expectation of success. *See, e.g., In re Schweickert*, 676 F. App'x 988, 995 (Fed. Cir. 2017) (“The Board's decision is deficient in another respect. Even if the semaphore in Cunniff were readily applicable to the RAM in Birrell, **the Board has not explained why or how** a skilled artisan would further configure or manipulate Birrell's RAM such that there would be multiple lockable buffers as claimed in the '272 Patent.”) (emphasis added); (Ex. 2001 at ¶ 88.)

The Board should deny institution because Petitioner has failed to explain, with particularity, its obviousness grounds. 35 U.S.C. § 312(a)(3) (A petition for *inter partes* review must identify “**with particularity**, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim.” (emphasis added)); *Adaptics Limited v. Perfect Co.*, IPR2018-01596, Paper 20 at 17 (P.T.A.B. Mar. 6, 2019) (informative) (“Because the Board’s practice, in light of SAS, is to institute on all grounds asserted in a petition, the Board may consider whether a lack of particularity as to one or more of the asserted grounds justifies denial of an entire petition.”).

d. Claim 19

Claim 19 has been statutorily disclaimed. (Ex. 2002.) Therefore, no *inter partes* review of claim 19 may be instituted. 37 C.F.R. § 42.107(e).

4. Ground 4: Anticipation of Claims 1, 2, 4, 5, and 7-10 by Menegoli

Petitioner has failed to show a reasonable likelihood that Menegoli anticipates by expressly or inherently disclosing each and every element of the challenged claims. *Guangdong Alison Hi-Tech Co.*, 936 F.3d at 1363.

a. Claim 1

(1) Menegoli Does Not Disclose A Multiple Inductor Array With Three Nodes

Claim 1 recites a multiple inductor array comprising, *inter alia*, the following limitations:

a first node that receives a first current and a second current;

a first inductor coil, coupled to the first node and to ***a second node***, that communicates the first current in a clockwise direction and generates a first magnetic field;

a second inductor coil, coupled to the first node and to ***a third node***, that communicates the second current in a counter clockwise direction and generates a second magnetic field having an opposing orientation to the first magnetic field.

(Ex. 1001 at 5:44-55) (emphasis added). In the '330 patent, the three nodes are utilized to connect the inductive array to other components in a circuit. (See, e.g., Ex. 1001 at 1:67-2:2, 2:46-48, 5:33-35, and FIG. 2 (showing two inductors L_{s1} and L_{s2} connected by two nodes to a pair of transistors and by a common node to a ground

in a DLNA circuit); Ex. 2001 at ¶ 63.) Because the claimed inductive array includes three nodes, it is suitable for use in circuits where there may be a transient differential between the first and second currents flowing through the inductors that could result in a change in mutual inductance in one of the inductors. (Ex. 1001 at 4:56-62; Ex. 2001 at ¶ 63.) For example, if there is a change of current flowing through the first inductor such that a corresponding first magnetic field produced by the first inductor changes and results in a change in mutual inductance in the second inductor, the claimed invention allows the change in mutual inductance in the second inductor to be addressed by changing the oppositely oriented magnetic field generated by the second inductor to achieve appropriate interference cancellation, e.g., by making a change in the current flowing through the second inductor. (Ex. 1001 at 4:63-5:5; Ex. 2001 at ¶ 63.) This interference cancellation results in a reduction of cross talk between the first and second inductors. (Ex. 1001 at 5:5-8; Ex. 2001 at ¶ 63.)

Menegoli fails to anticipate claim 1 because none of the inductor devices it discloses include three nodes. (Ex. 2001 at ¶ 90.) To the contrary, every inductor device disclosed in Menegoli consists of only two nodes—i.e., the terminal ends of the inductor devices L2, L3, L4, and L5 shown in the figures—so that each of the inductor devices may be used in place of a conventional two-terminal inductor (such as the two terminal inductor L1 depicted in FIG. 1 of Menegoli) in a circuit where

an inductance is required. (*See generally* Ex. 1008; Ex. 2001 at ¶ 90.) That is, just like a conventional two-terminal inductor, each inductive device in Menegoli is designed to be connected in a circuit via two terminals. (Ex. 2001 at ¶ 90.) There is absolutely no disclosure in Menegoli of there being an extra node to connect the inductor devices in a circuit. (Ex. 2001 at ¶ 90.)

The inductor devices of Menegoli are two-terminal devices because they are intended to solve a problem with conventional inductors wherein the “[i]nductor creates large undesired magnetic fields” (Ex. 1008 at 2:7-16), and that “[t]he coupling of the magnetic field of a printed wiring inductor **to nearby circuitry** due to stray magnetic fields can be minimized by the invention” (*Id.* at 3:12-15) (emphasis added). (Ex. 2001 at ¶ 91.) By utilizing two terminals, the same current passes through all of the inductors in the inductor device, so that the two generated magnetic fields can be coupled to each other. (Ex. 1008 at 7:26-29; Ex. 2001 at ¶ 91.) Improved coupling of the inductors in the inductor device lowers the radiated magnetic energy that can result in undesirable coupling with nearby circuitry. (Ex. 1008 at 7:34-35; *see also id.* at 3:60-63, 5:23-26, 5:34-42, 5:52-56, 8:29-33, 9:4-9, 9:18-20, and 9:35-39; Ex. 2001 at ¶ 91.) Because the inductor devices in Menegoli are two terminal devices, the currents across the inductors are not individually adjustable, so the inductive devices of Menegoli are not able to address a change in

mutual inductance in one inductor caused by a transient change in current in the other inductor. (Ex. 2001 at ¶ 91.)

The Petition relies on annotated versions of FIG. 2A of Menegoli (reproduced below), in which the Petitioner added an extra “node” to the inductor device L2 between the terminal ends (identified in the Petition as second and third nodes, respectively) to create three nodes where only two exist. (*Compare* Ex. 1008 FIG. 2A with Pet. at 54 and 56; Ex. 2001 at ¶ 92.) However, as noted above, the inductor devices in Menegoli (including the inductor device L2 in FIG. 2A) are meant to replace conventional two-terminal inductors to reduce interference with nearby circuitry and are therefore connected in a circuit using the terminal ends of the device (labeled as second and third nodes in Petitioner’s annotated version of FIG. 2A). (Ex. 2001 at ¶ 92.) There is no disclosure in Menegoli of connecting the inductor devices in a circuit using the fictitious extra “node” added to FIG. 2A by Petitioner. (Ex. 2001 at ¶ 92.) For this reason alone, Petitioner has not shown a reasonable likelihood that Menegoli discloses a multiple inductor array with three nodes as claimed. (Ex. 2001 at ¶ 92.)

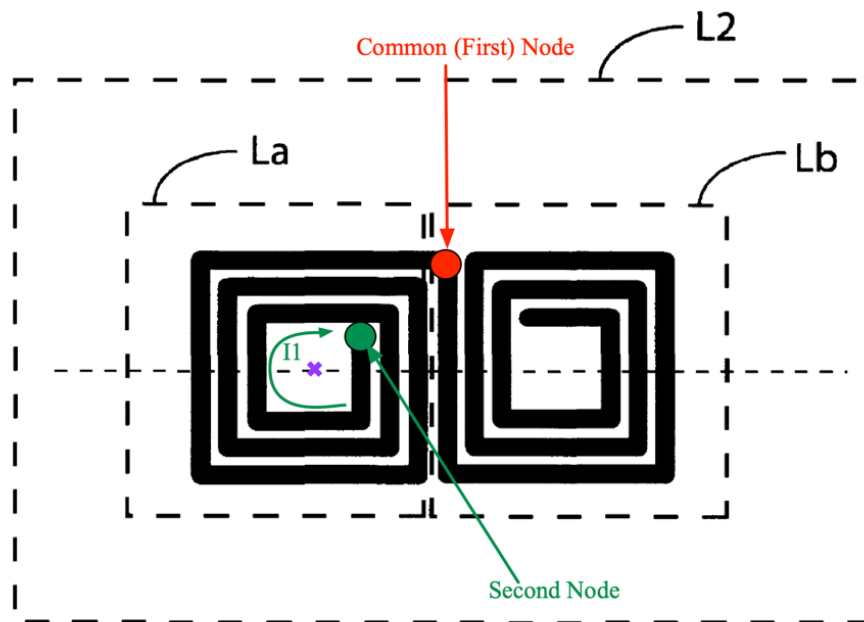


FIG.2A

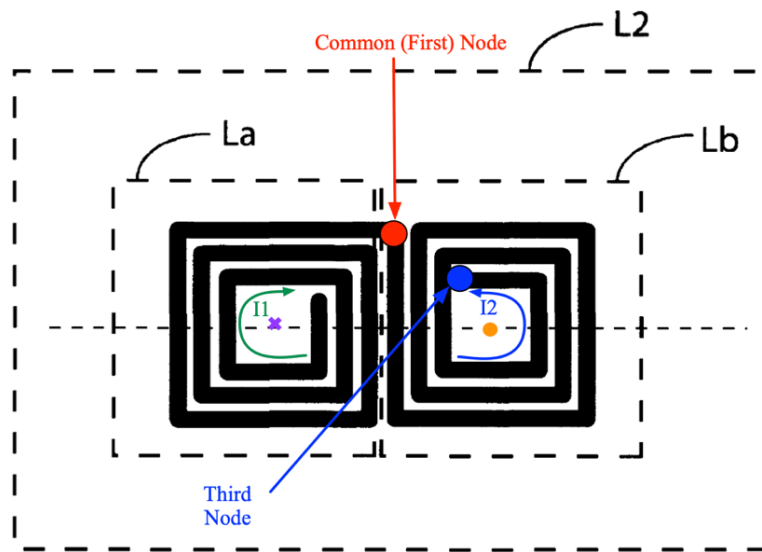


FIG.2A

Annotated Versions of FIG. 2A of Menegoli, Pet. at 54 and 56.

Menegoli describes Figure 2A as follows:

The two conductors . . . are electrically connected to each other to form one single inductive element constituted by the series of the two spiral inductors. Namely, the inductor device L2 comprises the paired two spiral formed interconnection structures La and Lb. The current is flowing in the two square spiral conductors in opposite direction. If the current is flowing clockwise in one spiral inductor La then it flows counter-clockwise into the spiral inductor Lb such that the two generated magnetic fields can be coupled to each other.

(Ex. 1008 at 8:13-23.) The fact that *the same current* is described as flowing through the two spiral conductors confirms that only two terminals are present. (Ex. 2001 at ¶ 93.) So, even assuming Menegoli discloses a multiple inductor array with three nodes (which it doesn't), Petitioner's three nodes, *i.e.*, Petitioner's fictional "common node" and the terminal ends of the inductor device L2, etc., do not operate in accordance with the language of claim 1. (Ex. 2001 at ¶ 93.)

(2) Petitioner's Fictitious First Node Does Not Receive a First Current and a Second Current

As noted above, claim 1 calls for a first node that "receives a first current and a second current." The made-up "common node" in Petitioner's annotated FIG. 2A of Menegoli, which Petitioner identifies as the claimed "first node" (*e.g.*, Pet. at 52-53), does not *receive* a first current *and* a second current, as required by the claim language. (Ex. 2001 at ¶ 94.)

As noted above, the inductive device in FIG. 2A of Menegoli is shown and described as “one single inductive element constituted by the series of the two spiral inductors.” (Ex. 1008 at 8:13-23; Ex. 2001 at ¶ 95.) Because the two spiral inductors La and Lb are arranged in series, by definition the same current must flow through the two spiral inductors La and Lb. (Ex. 2001 at ¶ 95.)

In Petitioner’s annotated FIG. 2A, the fictitious common node is positioned between terminal ends of the device and will therefore receive only a single current—the same current that flows through the two spiral inductors La and Lb. (Ex. 2001 at ¶ 96.) Nevertheless, Petitioner asserts that “[t]he (common) first node . . . can be viewed as the point where I1 and I2 meet (i.e., the first node receives a first and second current).” (Pet. at 52.) But there is no disclosure in Menegoli of separate currents, I1 and I2, in the embodiment of FIG. 2A. (Ex. 2001 at ¶ 96.) There is only a single current disclosed. (Ex. 2001 at ¶ 96.) Petitioner self-servingly re-names the single current as I1 when it travels through the first spiral inductor La and re-names the same current as I2 when it travels through the second spiral inductor Lb. (*E.g.*, Pet. at 53; Ex. 2001 at ¶ 96). The separate currents I1 and I2 in Petitioner’s annotated version of FIG. 2A are thus fictitious, like its common node. (Ex. 2001 at ¶ 96.) Moreover, even if Menegoli does disclose separate currents, I1 and I2 (which it does not), an examination of the direction of current flow in

annotated FIG. 2A reveals that only I1 would be received at the fictitious common node proposed by the Petitioner, while the fictitious current I2 would flow **from** the fictitious common node. (Ex. 2001 at ¶ 96.)

Thus, Petitioner has failed to show a reasonable likelihood that Menegoli discloses a multiple inductor array in which a first of three nodes receives first and second currents. (Ex. 2001 at ¶ 97.)

(3) Menegoli Does Not Disclose a First Inductor Coil Coupled to the First Node and a Second Node

Petitioner identifies spiral inductor La of annotated FIG. 2A of Menegoli as a first inductor coil coupled to the first node and a second node. (Pet. at 53-55.) However, as noted above, the inductive device L2 in FIG. 2A of Menegoli lacks a first node “that receives a first current and second current,” as claimed. (Ex. 2001 at ¶ 98.) The fictitious first node proposed by Petitioner receives a single current, and therefore does not qualify as a first node that receives a first current and a second current. (Ex. 2001 at ¶ 98.) Therefore, Petitioner has failed to show a reasonable likelihood that Menegoli discloses “a first inductor coil, coupled to the first node and to a second node,” wherein the first node “receives a first current and a second current,” as claimed. (Ex. 2001 at ¶ 98.)

Accordingly, Petitioner has failed to show a reasonable likelihood that FIG. 2A of Menegoli shows this limitation. (Ex. 2001 at ¶ 99.)

(4) Menegoli Does Not Disclose a Second Inductor Coil Coupled to the First Node and a Third Node

Petitioner identifies spiral inductor Lb of annotated FIG. 2A of Menegoli as a second inductor coil coupled to the first node and a third node. (Pet. at 55-57.) However, as noted above, the inductive device L2 shown in FIG. 2A of Menegoli lacks a first node that receives a first current and a second current. (Ex. 2001 at ¶ 100.) The fictitious first node proposed by Petitioner receives a single current, and therefore does not qualify as a first node that receives a first current and a second current. (Ex. 2001 at ¶ 100.) Therefore, Petitioner has failed to show a reasonable likelihood that Menegoli discloses a second inductor coil “coupled to the first node and a third node,” wherein the first node “receives a first current and a second current,” as claimed. (Ex. 2001 at ¶ 100.)

Accordingly, Petitioner has failed to show a reasonable likelihood that FIG. 2A of Menegoli shows this limitation. (Ex. 2001 at ¶ 101.)

(5) Menegoli’s Inductive Structure Would Not Operate Like the Claimed Invention Even If First and Second Currents Are Received at the Fictitious First Node

Assuming for the sake of argument that that Menegoli's inductive structure included a first node between the coils that received first and second currents (which there isn't), it's clear that such an inductive structure would not operate as claimed. (Ex. 2001 at ¶ 102.) To demonstrate this point, an annotated version of Menegoli's Figure 2A was prepared (see below) in which a fictitious common (first) node is positioned between the coils as proposed by Petitioner, and first, second, and third nodes are connected to a circuit so that the fictitious first node receives first and second currents I_1 and I_2 as claimed. (Ex. 2001 at ¶ 102.)

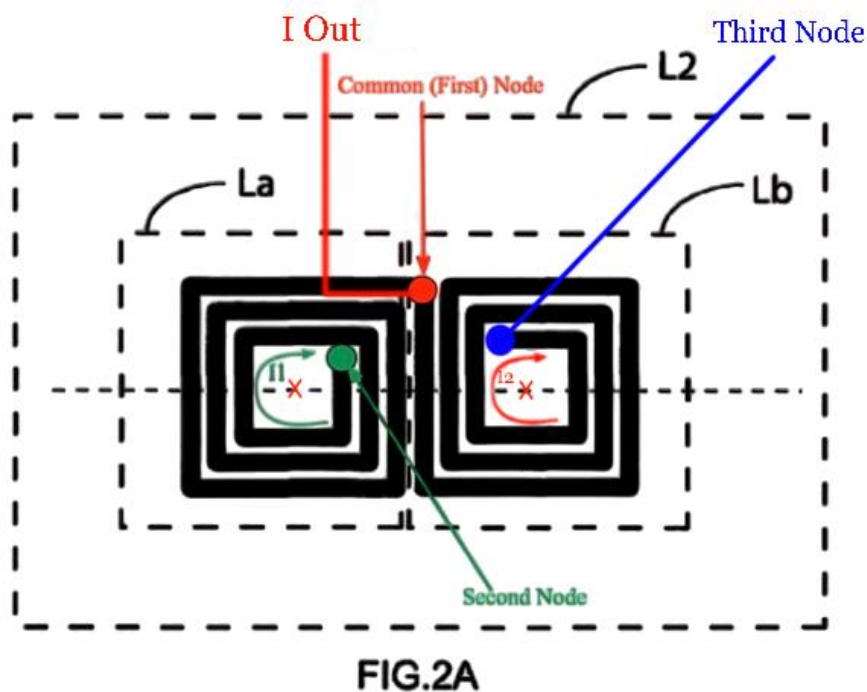


Figure 2A of Menegoli (Ex. 1008) (Re-annotated)

The first current I_1 flows in a clockwise direction from the second node to the fictitious (first) node, and the second current I_2 flows in a clockwise direction from the third node to the fictitious (first) node. (Ex. 2001 at ¶ 103.) Applying the right-hand rule, both currents generate an electromagnetic field oriented into the plane (denoted by the small red X's at the centers of the coils), because they are both flowing in a clockwise direction. (Ex. 2001 at ¶ 103.) Because the electromagnetic fields generated by the coils have the same orientation, the inductive structure cannot meet the limitations in claim 1 of “a second magnetic field having an opposing orientation to the first magnetic field” and “the first magnetic field and the second magnetic field at least partially cancel at an interference point.” (Ex. 2001 at ¶ 103.) On the contrary, since the electromagnetic fields generated by Menegoli's coils would have the same orientation, the first and second magnetic fields would tend to reinforce each other. (Ex. 2001 at ¶ 103.) For this additional reason, it is clear there is no reasonable likelihood that Menegoli would have anticipated claim 1. (Ex. 2001 at ¶ 103.)

(6) Menegoli Does Not Anticipate Claim 1

For at least all of the reasons set forth in this Section V.A.4, Petitioner has not shown a reasonable likelihood that claim 1 is anticipated by Menegoli.

b. Claims 2, 4, 5, and 7-10

Claims 2, 4, 5, and 7-10 depend from claim 1. A dependent claim contains all of the limitations of the claim or claims from which it depends. Therefore, claims 2, 4, 5, and 7-10 distinguish over Menegoli for at least all of the reasons discussed above in Section V.A.4 with regard to claim 1. PO reserves the right to make additional arguments regarding patentability of claims 2, and 4-10 should *inter partes* review be instituted.

5. Ground 5: Menegoli Does Not Render Claim 3 Obvious

Claim 3 depends from claim 1. A dependent claim contains all of the limitations of the claim or claims from which it depends. Therefore, claim 3 distinguishes over Menegoli for at least all of the reasons discussed above with regard to claim 1 in Section V.A.4. Petitioner's conclusory statement that it would have been obvious to modify the hexagonal spiral shape of Menegoli to an octagonal spiral shape (without reference to any support in the prior art) does not remedy the deficiencies of Menegoli with respect to claim 1 discussed above in Section V.A.4. PO reserves the right to present additional arguments for patentability of claim 3 should *inter partes* review be instituted.

6. Ground 6: The Combination of Menegoli and Lee Does Not Render Obvious Claim 3

a. Lee Is Not Prior Art

Petitioner misrepresents the date of publication of Lee as 2004 (Pet. at 3, 34), when in fact the actual date of publication of the reference is no earlier than 2009 (Ex. 1007 at 2 (“Reprinted 2005, 2006, 2008 (twice), **2009**”))—three years after the priority date of the '330 patent. No explanation is given by Petitioner for mischaracterizing the date of this 2009 publication which is relied on by Petitioner as a reference in this proceeding. Thus, the Petition fails to establish a reasonable likelihood that Lee is prior art. *See, e.g., Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29 at 13 (PTAB Dec. 20, 2019) (precedential) (“... at the institution stage, **the petition must identify, with particularity, evidence sufficient to establish a reasonable likelihood that the reference was publicly accessible before the critical date of the challenged patent** and therefore that there is a reasonable likelihood that it qualifies as a printed publication.”) (emphasis added). For this reason alone, the Board should refuse to institute on Ground 6.

b. Claim 3

A dependent claim contains all of the limitations of the claim or claims from which it depends. Therefore, claim 3 distinguishes over Menegoli for at least all of the reasons discussed above with regard to claim 1. Because Lee is not prior art, it cannot remedy the deficiencies of Menegoli with respect to claim 1. Even if Lee is considered prior art (which it is not), Petitioner relies on Lee for allegedly disclosing

the octagonal inductor structures recited in claim 3, not for overcoming the deficiencies of Menegoli with respect to claim 1, from which claim 3 depends. Therefore, Petitioner fails to establish a reasonable likelihood that claim 3 is obvious over Menegoli and Lee.

PO reserves the right to present additional arguments for patentability of claim 3 should *inter partes* review be instituted.

VI. CONCLUSION

For at least the foregoing reasons, Petitioner has failed to meet its burden to show that it has a reasonable likelihood of success with respect to at least one claim. Therefore, the Petition should be denied.

Dated: February 20, 2024

Respectfully submitted,

/Jason M. Shapiro/
Jason M. Shapiro (Reg. No. 35,354)
Counsel for Patent Owner
Bell Semiconductor, LLC

Case IPR2024-00142
Patent No. 7,535,330
Patent Owner Preliminary Response

CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITS

This Patent Owner Preliminary Response consists of 9,188 words, excluding cover page, table of contents, table of authorities, certificate of service, this certificate, or table of exhibits. The POPR complies with the type-volume limitation of 14,000 words as mandated in 37 C.F.R. §42.24. In preparing this certificate, counsel has relied on the word count of the word-processing system used to prepare the paper (Microsoft Word).

Dated: February 20, 2024

Respectfully submitted,

DEVLIN LAW FIRM LLC

/Jason M. Shapiro/

Jason M. Shapiro (Reg. No. 35,354)

Counsel for Patent Owner

Bell Semiconductor, LLC

CERTIFICATE OF SERVICE

I hereby certify that on this 20th day of February, 2024, the foregoing document was served by electronic mail to the following attorneys of record:

Counsel for NXP USA Inc.	
Lead Counsel	
Patricia Healy Reg. No. 73,072 Garlick & Markison 2025 Guadalupe Street, Suite 260 Austin, Texas 78705 Tel.: (512) 751-5682 Fax: (888) 456-7824 GM-NXP-Bell-IPR@texaspatents.com	
Back-up Counsel	
Bruce Garlick Reg. No. 36,520 Garlick & Markison 2025 Guadalupe Street, Suite 260 Austin, Texas 78705 Tel.: (512) 751-5682 Fax: (888) 456-7824 GM-NXP-Bell-IPR@texaspatents.com	Timothy Markison Reg. No. 33,534 Garlick & Markison 2025 Guadalupe Street, Suite 260 Austin, Texas 78705 Tel.: (512) 751-5682 Fax: (888) 456-7824 GM-NXP-Bell-IPR@texaspatents.com
Timothy Taylor Reg. No. 76,643 Garlick & Markison 2025 Guadalupe Street, Suite 260 Austin, Texas 78705 Tel.: (512) 751-5682 Fax: (888) 456-7824 GM-NXP-Bell-IPR@texaspatents.com	

/Feng Xu/
Feng Xu, Paralegal