

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

EARLY WARNING SERVICES, LLC,

Petitioner

v.

INTELLECTUAL VENTURES II, LLC,

Patent Owner

U.S. Patent No. 7,314,167
Inter Partes Review No. 2024-01221

**PETITIONER'S REPLY TO
PATENT OWNER RESPONSE**

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I. Introduction

Petitioner submits this reply to Patent Owner's Response (Paper 16, "POR") and the Board's Decision Granting Institution of *Inter Partes* Review (Paper 10, "ID"). In trying to avoid the prior art, Patent Owner's Response narrowly construes the claim limitations "image capture device" and "embedded." Patent Owner's constructions, however, are inconsistent with the challenged patent, the plain and ordinary meaning of these terms, and their own expert's deposition testimony. Properly construed, an "image capture device" is *any* device that can capture an image and is not limited to imaging-based barcode readers. Additionally, Patent Owner's assertion that "embedded" information excludes human readable text is incorrect and inconsistent with the Board's construction in its Institution Decision. Patent Owner's narrow constructions should be rejected. As demonstrated in the Petition, the cited art anticipates and/or renders obvious the challenged claims.

II. Claim Construction

A. "image capture device"

Independent Claims 1 and 19 recite an "image capture device configured to capture an image." Ex. 1001. Patent Owner asserts that the term "image capture device" is limited exclusively to one specific type of barcode scanner: an

“imaging-based barcode reader¹ and not a laser-based barcode scanner.” POR, 26-27; Ex. 2029, ¶ 66. This narrow construction is inconsistent with the plain and ordinary meaning of this term as well as their expert’s deposition testimony and should be rejected.

As an initial matter, rooted in the claim term “image capture device” is the term “image,” which Patent Owner has incorrectly limited to barcodes. POR, 26-27; Ex. 2029, ¶ 66. There is nothing in the ’167 patent that limits the image to a “barcode.” In fact, the patent refers to barcodes as only one type of image, indicating merely that the image “may” include a barcode. Ex. 1001, 5:24-25. Patent Owner’s expert, Dr. Berisso, conceded in his deposition that the use of the term “may” in this context indicates that the image “can be displayed in another form.”² Ex. 1048, 67:13-20. In fact, the patent describes several other types of images, including “a unique number,” which Dr. Berisso agreed is different from a

¹ Notably, there appears to be no dispute that an OCR-reader, which is also disclosed in Wang, includes an imaging-based barcode reader and is thus an “image capture device” even under Patent Owner’s narrow construction. Ex. 1048, 166:8-12.

² Dr. Berisso’s deposition testimony contradicts his declaration testimony, which characterized the image as being limited to barcodes. Ex. 2029, ¶¶ 60-61.

barcode. *Id.*, 70:7-23, Ex. 1001, 7:55-61. In view of the foregoing, the plain meaning of the term “image,” as used in the ’167 patent, is not limited to barcodes.

Further, dependent Claims 7 and 29 recite that the “image includes a barcode.” Under the doctrine of claim differentiation, independent Claims 1 and 23, from which Claims 7 and 29 depend, respectively, must be broader in scope, i.e., they must cover images that include barcodes and that do *not* include barcodes—otherwise Claims 7 and 29 would be rendered superfluous. *See Phillips v. AWH Corp.* 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc) (“Differences among claims can also be a useful guide in understanding the meaning of particular claim terms.”). For this reason also, the term “image” should not be limited to images including barcodes.

Additionally, the ’167 patent makes clear that the term “image” refers to a *printed* object or symbol—not to an image contained within an image capture device. For example, in referring to FIG. 7 (reproduced below), the ’167 patent indicates that a printed barcode is one type of “image.” Ex. 1001, 10:33-35. Specifically, the patent states that “[t]he printed form 700 includes certain transaction information as well as *an image 710, such as a barcode . . .*” *Id.*, 10:29-35 (emphasis added).

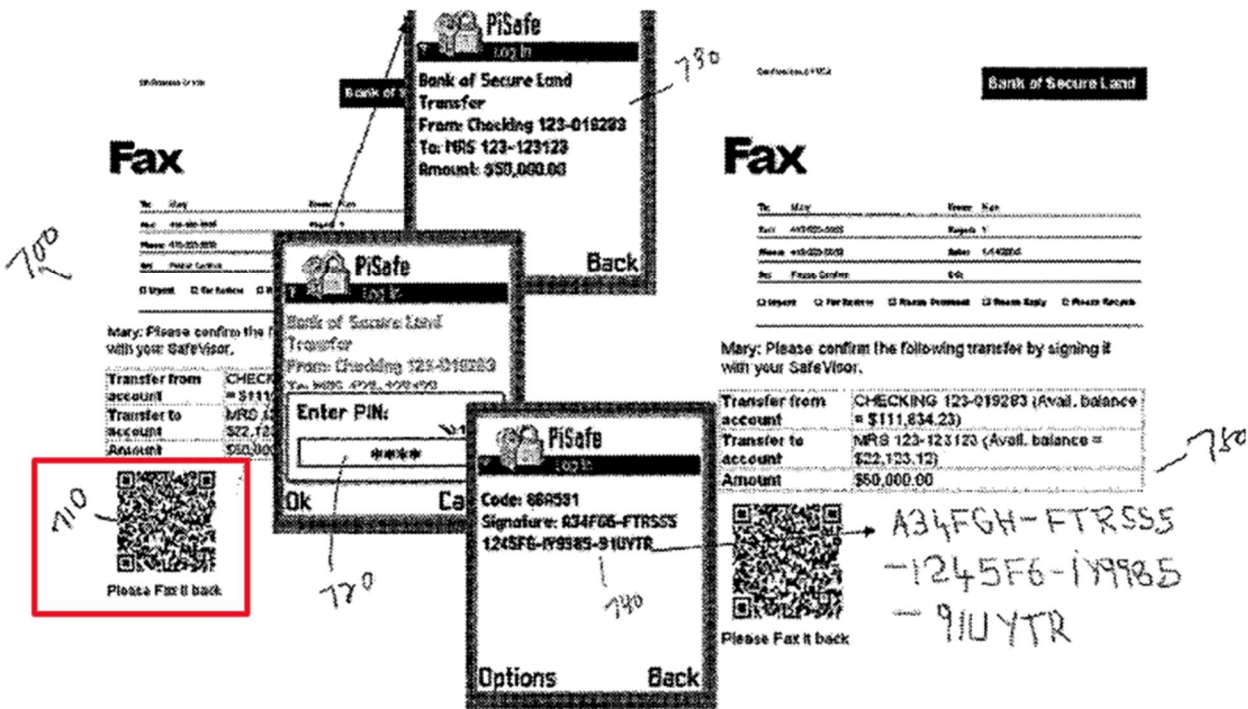


FIG. 7

Id., Fig. 7 (annotated). The printed form—here, a Fax cover page—includes an image of a printed barcode 710. *Id.*, 10:33-35, Fig. 7. The patent also states that the image printed on the Fax cover page contains embedded information. *Id.*, 10:35-37. Thus, the captured “image” as used by the ’167 patent encompasses a *printed* object or symbol—it does not refer to an internal digitized version of the image that may be displayed by some “image capture devices.”³ *Id.*, 10:35-37; Ex. 1048,

³ In fact, Dr. Berisso testified that, with a few exceptions, a “barcode imager will not show on the device itself what it is seeing.” Ex. 1048, 156:12-157:9 (emphasis added).

160:13-16, 161:18-25. Thus, the term “image capture device,” as used in the ’167 patent, is any device that can capture that image, i.e., can capture the printed object or symbol. Importantly, both imaging-based barcode scanners *and* laser-based barcode scanners can capture a printed object or symbol, e.g., a printed barcode, thus rendering Patent Owner’s proposed construction unduly narrow and inconsistent with the ’167 patent specification.

Patent Owner’s expert confirmed that Patent Owner’s construction is improperly narrow by testifying that, just like imaging-based barcode scanners, laser-based barcode scanners can capture barcodes:

Q. And you would agree, then, that a laser barcode scanner can scan an image, such as a UPC barcode, as the term ‘image’ is used in the challenged patent, wouldn't you?

A. Yes.

Ex. 1048, 163:25-164:4. In fact, Patent Owner’s expert volunteered—unprompted—that even a laser-based barcode scanner “captures” a barcode image:

A. (Dr. Berisso) So the *laser* can specifically scan the printed paper version.

Q. And the printed paper version is the image, right?

A. The image that has been *captured*, yes.

Id., 163:1-6 (emphasis added). Thus, Patent Owner’s own expert testified, without qualification, that a laser-based barcode scanner is a device that can “capture” a

barcode image—just like an imaging-based barcode scanner. *Id.* 111:22-112:16, 114:1-4.

As explained in the Petition, the '167 patent does not define an “image capture device,” but indicates that an image capture device may include digital cameras “or other types of image capturing devices” that are used to capture images. Pet., 15; Ex. 1001, 5:8-11. Thus, consistent with the '167 patent specification, the plain and ordinary meaning of the term “image capture device” refers to “any device that can capture an image,” which includes both imaging-based and laser-based barcode scanners. ID, 21-22 (previously rejecting Patent Owner’s narrow construction); Pet., 15; Ex. 1048, 163:1-6.

B. “the image having information embedded therein”

Patent Owner initially construed “the image having information embedded therein” as “information in the image that is hidden in the image and used to provide security for the transaction.” POPR, Paper 6, 34, 38. In the Institution Decision (ID), the Board rejected Patent Owner’s construction and determined the term “embedded” should be given its plain and ordinary meaning. ID, 13 (noting “[w]e find nothing in the claims that requires us to import a ‘hidden’ or ‘provide security’ limitation into the claims.”).

Pivoting, Patent Owner now purports to adopt Mr. Purves’ opinion, which the ID determined was consistent with the '167 Patent, that “*embedded*

information includes information contained in any barcode.”⁴ POR, 31; ID, 15 (internal quotations omitted) (emphasis added). But Patent Owner did not simply adopt Mr. Purves’ opinion. Instead, Patent Owner *modified* that interpretation by inserting another claim limitation; Patent Owner now construes “embedded” information as somehow excluding “human readable text in the form of unencrypted human readable alphanumeric characters.” POR, 31-32. This construction contradicts the ’167 patent and should be rejected.

The plain and ordinary meaning of “embedded” does not exclude human readable alphanumeric characters. Indeed, the ’167 patent itself gives several examples of alphanumeric characters that can contain embedded information. Ex. 1001, 7:55-59 (“[T]he image . . . may include a unique number, nonce, a transaction number or a random number, a number that the secure device 100 will use to derive the authentication code.”). Moreover, Patent Owner’s expert conceded that “a numeric message could include embedded information, such as the message that is intended for the recipient” Ex. 1048, 72:21-23, 25.

⁴ As discussed above, the term “image” is not limited to barcodes. Ex. 1048, 70:18-23. For this reason, the “embedded information” may be contained in a barcode, but it may also be contained in a different type of image, such as, for example, in alphanumeric characters contained in an image. Ex. 1001, 7:55-58.

Additionally, in the context of UPC barcodes, Dr. Berisso acknowledged that alphanumeric characters can contain embedded product information:

Q. And isn't it also true, then, that the numbers at the bottom of what is shown in Exhibit 1046 [(a UPC Barcode)] also contain product information?

A. Again, indirectly, yes.

Id., 214:8-11. Thus, contrary to Patent Owner's construction, Patent Owner's own expert agreed that alphanumeric characters can contain embedded information, such as product information in the case of UPC barcodes.

As noted above, and as supported by Dr. Berisso's testimony, the plain and ordinary meaning of "embedded" does not exclude human readable alphanumeric characters. Consequently, Patent Owner's construction of "the image having information embedded therein," as excluding alphanumeric characters is incorrect. Instead, "the image having information embedded therein" should be construed as any information "derived from" an image, whether contained in a barcode, in alphanumeric characters, or in some other type of image. *See ID*, 15.

III. Ground I: Claims 1, 4, 5, 7, 12, 17, 23, 26, 27, 29, 34, and 43 are anticipated by Wang and obvious over Wang in view of Drummond

As explained in the Petition, Wang discloses a barcode scanner and an optical character recognition (OCR) reader—two types of image capture devices—both of which capture an image of a UPC barcode containing item index data

(embedded information) to provide a secure transaction. Pet., 30-43; Ex. 1004 [0002], [0072], [0115]; Ex. 1048, 168:2-12.

A. Wang’s “barcode scanner” is an image capture device

Patent Owner argues that although Wang discloses a barcode scanner, Wang is ambiguous as to whether it is disclosing an imaging-based barcode scanner or a laser-based barcode scanner. POR, 38. Relying on Patent Owner’s (incorrect) narrow construction in which a laser-based barcode scanner is not an image capture device, Patent Owner argues that Wang does not expressly or inherently disclose the claimed “image capture device.” *Id.*

As discussed above, however, Patent Owner’s construction of “image capture device” is inconsistent with the plain an ordinary meaning of the term, which is “any device that can capture an image.” *See supra* II.A. Additionally, Patent Owner’s position is contradicted by Dr. Berisso’s deposition testimony, in which he volunteered that laser-based barcode scanners, in fact, do “capture” images as the term is used in the ’167 patent. *See supra* II.A; Ex. 1048, 163:1-6. Thus, since both imaging-based barcode scanners and laser-based barcode scanners constitute image capture devices, Wang’s disclosure of a “barcode scanner” satisfies the claimed “image capture device” recited in the challenged claims.

B. Wang’s OCR reader is an image capture device configured to capture an image having information “embedded” therein.

As an initial matter, Patent Owner does not appear to dispute that Wang’s OCR reader is an image capture device. POR, 38-39; Ex. 1048, 166:8-12, 168:2-12, 180:2-8. Instead, relying on its (incorrect) narrow construction of the term “embedded,” Patent Owner argues that the OCR reader disclosed in Wang does not capture “embedded” information, since it scans human readable alphanumeric characters underneath the bars and spaces in a UPC barcode. POR, 39.

As discussed above, however, Patent Owner’s interpretation of embedded contradicts the plain and ordinary meaning of the term, which is any information “derived from”⁵ an image. *See supra* II.A.; ID, 15; Ex. 1036, ¶ 10. Simply put, the plain and ordinary meaning of “embedded” does not exclude human readable alphanumeric characters. ID, 17 (determining the plain and ordinary meaning of “embedded” should control). Dr. Berisso’s deposition testimony supports this

⁵ Although Patent Owner’s Response acknowledged that the ID construed “embedded” as “derived from,” Patent Owner asserts that embedded information is information “contained in” any barcode. POR, 30-31. Although “derived from” is the better construction since it is used multiple times in the challenged patent (Ex. 1001, 9:24-31; 10:15-19), Petitioner does not appreciate a meaningful difference between these constructions.

conclusion. Ex. 1048, 72:21-23, 25 (“[A] numeric message could include embedded information”), 185:4-14. In view of the foregoing, Wang’s disclosure of an OCR reader for capturing a barcode image (optionally including an alphanumeric image in the barcode), and deriving product information from that image, satisfies the “embedded” information feature of the challenged claims. Pet., 33; Ex. 1004, [0115]; Ex. 1002, ¶¶ 59, 62-63; Ex. 1048, 141:11-142:13 (explaining how product and price information is stored in a database and derived from UPC codes and from corresponding alphanumeric information); 143:5-11 (agreeing that “information, by virtue of the database, is *embedded* in the barcode”) (emphasis added).

As discussed in the Petition, Wang discloses scanning a barcode, e.g., with a barcode scanner or an OCR reader, and deriving embedded information therefrom. Pet., 30-43; Ex. 1004, [0002], [0072], [0115]; Ex. 1002, ¶¶ 38, 63. Wang thus anticipates Claims 1, 4, 5, 7, 12, 17, 23, 26, 27, 29, 34, and 43. Moreover, as stated in the Petition, a POSA would be motivated to modify the image capture device of Wang to forward receipts using email or text message protocols, as taught by Drummond. Pet., 31-32, 36. Claims 1, 4, 5, 7, 12, 17, 23, 26, 27, 29, 34, and 43 are

thus obvious over Wang in view of Drummond as outlined in the Petition.⁶ *Id.*, 30-43.

IV. Ground II: Wang anticipates Claims 1, 2, 4, 7, 12, and 17

As discussed above in Ground I, Wang discloses using an image capture device (a barcode scanner or OCR reader) to capture an image of a UPC barcode having item index information and product information embedded therein. *Id.*, 30-43; Ex. 1004, [0002], [0072], [0115]. Patent Owner's arguments that Wang does not disclose an image capture device and that embedded information excludes human readable alphanumeric characters are baseless and incorrect for the reasons articulated above. *See supra* III.A.-B. Wang thus anticipates Claims 1, 2, 4, 7, 12, and 17 as outlined in the Petition. Pet., 43-49.

V. Ground III: Claims 19-21 and 39-41 are obvious over Wang in view of Drummond

As discussed above in Ground I, Wang discloses using an image capture device (a barcode scanner or OCR reader) to capture an image of a UPC barcode

⁶ Patent Owner's Response fails to present any arguments concerning the patentability of any of the challenged dependent claims, thereby waiving any arguments in this regard. *In re Nuvasive, Inc.*, 842 F.3d 1376, 1381 (Fed. Cir. 2016); Scheduling Order, Paper 11, 9 ("Patent Owner is cautioned that any arguments not raised in the response may be deemed waived.").

having item index information and product information embedded therein. Pet., 30-43; Ex. 1004, [0002], [0072], [0115]. Patent Owner's arguments that Wang does not disclose an image capture device and that embedded information excludes human readable alphanumeric characters are baseless and incorrect for the reasons articulated above. *See supra* III.A.-B. For the reasons provided on pages 31-32 of the Petition, a POSA would be motivated to modify the image capture device of Wang to forward receipts using email or text message protocols, as taught by Drummond. Pet., 31-32, 36. Claims 19-21 and 39-41 are thus rendered obvious by Wang in view of Drummond as outlined in the Petition. *Id.*, 49-54.

VI. Ground IV: Claims 8 and 30 are obvious over Wang and Denso

As discussed above in Ground I, Wang discloses using an image capture device (a barcode scanner or OCR reader) to capture an image of a UPC barcode having item index information and product information embedded therein. Pet., 30-43; Ex. 1004, [0002], [0072], [0115]. As stated in the Petition, Denso teaches a two-dimensional (multi-dimensional) barcode. Pet., 55-56; Ex. 1026, [0013]. For the reasons discussed on pages 55-56 of the Petition, a POSA would be motivated to modify the image capture device disclosed in Wang to capture the multi-dimensional barcode taught by Denso. Pet., 54-56. Claims 8 and 30 are thus rendered obvious by Wang in view of Denso as outlined in the Petition. *Id.*, 54-56.

VII. Ground V: Claim 13 is obvious over Wang and Raines

As discussed above in Ground I, Wang discloses using an image capture device (a barcode scanner or OCR reader) to capture an image of a UPC barcode having item index information and product information embedded therein for the purpose of providing secure transactions. Pet., 30-43; Ex. 1004, [0002], [0072], [0115]. Wang also discloses transaction approval data including user identification data and transaction data as an output, and that user-supplied data, such as a credit card number may be stored on the PEAD device disclosed. Pet., 43; Ex. 1004., [0075]-[0083], [0115]. As discussed in the Petition, Raines discloses that it was known to include the account number and expiration date of the credit card in transaction information for a credit card transaction to be processed. Pet., 57-58; Ex. 1009, [0008]. For the reasons discussed on pages 57-58 of the Petition, a POSA would be motivated to modify Wang to include the previously stored credit card number as transaction data in the transaction approval data (output) as taught by Raines to enable the transaction to be completed. Pet., 58. Claim 13 is thus rendered obvious by Wang in view of Raines as outlined in the Petition. *Id.*, 57-59.

VIII. Ground VI: Claims 1, 4, 5, 7, 23, 26, 27, 29, and 43 are obvious over TAO in view of PTM and Wang

As discussed in the Petition, TAO discloses software executable on a Palm Treo device equipped with a barcode scanner (an image capture device). Pet., 24,

65; Ex. 1005, 1-3. The software enables Palm Treo users to scan a barcode to add an item to their order. Pet., 65; Ex. 1005, 1-3.

A. The laser-based barcode scanner in TAO is an image capture device.

Patent Owner argues TAO discloses exclusively laser-based barcode scanners, not imaging-based barcode scanners, and thus does not disclose an image capture device. POR, 35. First, Patent Owner's characterization of TAO as only disclosing laser-based barcode scanners is factually incorrect for the reasons discussed below in Section VIII.B. Second, as discussed above, and as Dr. Berisso admits, a laser-based barcode scanner does, in fact, "capture" an image as the term is used in the '167 Patent. *See supra* II.A; Ex. 1048, 163:1-8, 163:25-164:4. Thus, even if TAO only disclosed laser-based barcode scanners, such scanners constitute image capture devices, thereby satisfying this requirement of the challenged claims.

B. TAO discloses an imaging-based barcode scanners, which is an image capture device

Additionally, contrary to Patent Owner's contentions otherwise, TAO discloses imaging-based barcode scanners in addition to laser-based barcode scanners. Pet., 65; Ex. 1002, ¶ 59; Ex. 1010, 5-6. TAO, a webpage operated by

Steven's Creek Software, instructs the reader to click a hyperlink to view the "variety of options for barcode scanning using PalmOS handhelds." Ex. 1005, 3.

Want to learn more about PalmOS handhelds?

Our software runs on the Palm operating system (PalmOS). PalmOS is developed by [PalmSource](#), and is licensed for use on handheld devices made by [palmOne](#) (including the Treo, Zire, and Tungsten lines), Handspring (now part of palmOne), Sony, Symbol (some models), Kyocera, Samsung, and others. A complete, current list of licensees, with links to their respective websites, can be found [here](#).

Take An Order! is enhanced to take advantage of barcode-scanning capability, which means that if you have a PalmOS handheld equipped with a barcode scanner, the software will operate even more efficiently (although it definitely works without barcode scanning on "normal" PalmOS handhelds). There are a variety of options for barcode scanning using PalmOS handhelds; you can read all about them [here](#).

Id. (hyperlink annotation added). Clicking "here" in the red box takes the viewer to an associated Steven's Creek Software webpage describing various barcode scanners, including the Socket SDIO scanner. Ex. 1010, 3-6; Ex. 1002, ¶59.

The Socket SDIO scanner is a plug-in scanner that is compatible with various Palm devices. Ex. 1010, 6; Ex. 1002, ¶ 59; Pet., 65. The Socket SDIO scanner includes a camera and is an *imaging-based barcode scanner* rather than a laser-based barcode scanner. Ex. 1010, 6; Ex. 1002, ¶ 59; Pet., 65. In fact, Dr. Berisso conceded in his deposition that the "Socket SDIO scanner is an imaging-based barcode scanner." Ex. 1048, 206:25-207:3. A POSA thus would understand

(as Patent Owner has asserted in its Response⁷) that an imaging-based barcode scanner is a type of image capture device within the scope of the challenged claims. Ex. 1002, ¶ 59; POR, 1, 15; Ex. 2029, ¶ 66. In fact, in his deposition, Dr. Berisso conceded that, assuming the TAO hyperlink links to the Socket SDIO description, “TAO refers to an image-based barcode scanner.” Ex. 1048, 203:21-204:10; Ex. 1010, 5-6; Ex. 1045.⁸ In view of the forgoing, TAO describes imaging-based barcode scanners satisfying the “image capture device” feature of the challenged claims.⁹ *See, e.g., Husky Injection Molding Systems Ltd. v. Athena Automation Ltd.*, 838 F.3d, 1236, 1248 (Fed. Cir. 2016) (indicating a host

⁷ Patent Owner asserted: “*image capture devices use a camera . . .*” (POR, 15) (emphasis added). Patent Owner’s central argument is that a POSA would understand an image capture device to be referring to an imaging-based barcode reader. POR, 1; Ex. 2029, ¶66.

⁸ Ex. 1045 is an excerpt of Ex. 1010, containing the first 6 pages from that exhibit.

⁹ The argument that TAO discloses imaging-based barcode scanners was presented in the Petition and the Purves Declaration, but it appears to have been overlooked by Patent Owner and its expert. Pet., 65; Ex. 1002, §59; Ex. 1005, 3; Ex. 1010, 5-6; Ex. 1048, 199:17-201:7 (testifying that Dr. Berisso was not provided, did not review, and did not ask to review Ex. 1010).

document incorporates material by reference if it identifies with sufficient particularity the material meant to be incorporated).

As discussed above, TAO describes imaging-based barcode scanners, which Patent Owner's expert concedes are image capture devices. As such, Claims 1, 4, 5, 7, 23, 26, 27, 29, and 43 are obvious over TAO in view of PTM and Wang as outlined in the Petition. Pet., 59-70.

IX. Conclusion

For the foregoing reasons, Claims 1, 2, 4, 5, 7, 8, 12, 13, 17, 19-21, 23, 26, 27, 29, 30, 34, 39-41, and 43 of U.S. Patent No. 7,314,167 are invalid over the cited art and should be cancelled accordingly.

Dated: August 1, 2025

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

The undersigned certifies pursuant to 37 C.F.R. § 42.24(d) that the foregoing **PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE** excluding any table of contents, mandatory notices, certificates of service or word count, or appendix of exhibits or claim listing, contains 3,582 words according to the word-processing program used to prepare this paper (Microsoft Word). The foregoing word count complies with the 5,600 word type-volume limit specified by 37 C.F.R. § 42.24(c)(1).

Respectfully submitted,

Filed: August 1, 2025

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CERTIFICATE OF SERVICE

I hereby certify that on August 1, 2025, I caused a true and correct copy of the foregoing **PETITIONER’S REPLY TO PATENT OWNER’S RESPONSE** (Paper 19), **PETITIONER’S UPDATED EXHIBIT LIST** (Paper 20), and new **Exhibits 1045 and 1048** to be served electronically on Patent Owner at the following email addresses:

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