

Filed on behalf of ST Reproductive Technologies, LLC.
By: Daniel L. Moffett (dmoffett@akingump.com)
AKIN GUMP STRAUSS HAUER & FELD LLP
112 E. Pecan Street, Suite 1010
San Antonio, Texas 78205
Tel: (210) 281-7155
Fax: (210) 224-2035

Paper No. 29
Date Filed:
September 16, 2025

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SMAXTEC INC. and
SMAXTEC ANIMAL CARE GMBH,
Petitioners

v.

ST REPRODUCTIVE TECHNOLOGIES, LLC,
Patent Owner

Case IPR2024-01067
Patent No. 10,231,644

**ST REPRODUCTIVE TECHNOLOGIES, LLC'S
SUR-REPLY TO PETITIONERS' REPLY**

TABLE OF CONTENTS

	Page
I. INTRODUCTION	1
II. GROUND I: HARVEY DOES NOT ANTICIPATE CLAIMS 5 OR 6	3
A. Harvey Does Not Disclose “Sensors” and “a Radio Signal Generator” in a “Bolus” as Claimed	3
B. Harvey Does Not Disclose “Encoding” Physiological Data.....	5
C. Harvey Does Not Disclose “Generat[ing] a Radio Signal to Carry Said Encoded Physiological Data” at “Pre-Determined Intervals”	9
III. GROUND II: RISKEY DOES NOT ANTICIPATE CLAIMS 5 OR 6	11
A. Risky Does Not Disclose “Encoding” Physiological Data	11
B. Risky Does Not Disclose “Generat[ing] a Radio Signal to Carry Said Encoded Physiological Data” at “Pre-Determined Intervals”	14
IV. GROUND III: HARVEY AND RISKEY DO NOT RENDER OBVIOUS CLAIMS 5 OR 6	18
A. Petitioners Cannot Cure Improper Obviousness Challenge With New Argument.....	18
B. There is No Motivation to Combine Harvey and Risky.....	20
V. GROUND IV: HARVEY AND RETTEDAL DO NOT RENDER OBVIOUS CLAIM 7	21
A. Claim 7 Requires Adjusting the Antenna’s Resonant Frequency	21
B. There is No Motivation to Combine Harvey and Rettedal	23
VI. GROUND V: HARVEY AND KUNDA DO NOT RENDER OBVIOUS CLAIMS 9 OR 10	24
VII. CONCLUSION.....	25

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.</i> , 876 F.3d 1350 (Fed. Cir. 2017)	15
<i>BlephEx, LLC v. Myco Industries, Inc.</i> , 24 F.4th 1391 (Fed. Cir. 2022)	4
<i>Eli Lilly & Co. v. Los Angeles Biomedical Rsch. Inst. at Harbor- UCLA Med. Ctr.</i> , 849 F.3d 1073 (Fed. Cir. 2017)	15
<i>ERBE Elektromedizin GmbH v. Canady Tech. LLC</i> , 629 F.3d 1278 (Fed. Cir. 2010)	21
<i>In re Magnum Oil Tools Int’l, Ltd.</i> , 829 F.3d 1364 (Fed. Cir. 2016)	20
<i>Microsoft Corp. v. Biscotti, Inc.</i> , 878 F.3d 1052 (Fed. Cir. 2017)	4
<i>PAR Pharm., Inc. v. TWI Pharms., Inc.</i> , 773 F.3d 1186 (Fed. Cir. 2014)	21
<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005)	21, 22
<i>In re Robertson</i> , 169 F.3d 743 (Fed. Cir. 1999)	5
<i>S.-Tek Sys., LLC v. Engineered Corrosion Sols., LLC</i> , 748 F. App’x 1003 (Fed. Cir. 2018)	20
<i>Sisvel Int’l S.A. v. Sierra Wireless, Inc.</i> , 82 F.4th 1355 (Fed. Cir. 2023)	18, 19
<i>Wasica Fin. GmbH v. Cont’l Auto. Sys.</i> , 853 F.3d 1272 (Fed. Cir. 2017)	<i>passim</i>

IPR2024-01067

Patent No. 10,231,644

<i>Yita LLC v. MacNeil IP LLC</i> , 69 F.4th 1356 (Fed. Cir. 2023)	6
---	---

EXHIBIT LIST

Exhibit	Description
EX2001	Declaration of Dr. Edwin Kan
EX2002	<i>Curriculum Vitae</i> of Dr. Edwin Kan
EX2003	U.S. Patent Publication No. 2010/0302039 (“Goto”)
EX2004	Disclaimer of Claim 13 of U.S. Patent No. 10,231,644
EX2005	Declaration of Thomas W. Landers, IV in Support of Patent Owner’s Notice of Intent to Designate a Provisionally Recognized PTAB Attorney as Backup Counsel Under 37 C.F.R. § 42.10(c)(2)
EX2006	Declaration of Dr. Edwin Kan in Support of Patent Owner Response
EX2007	Deposition Transcript of Professor Darrin J. Young (April 1, 2025)
EX2008	Deposition Transcript of Professor Darrin J. Young (September 5, 2025)

I. INTRODUCTION

Petitioners' Reply confirms that each of the Petition's grounds fail to establish the unpatentability of the challenged claims. Petitioners elected to rely on anticipation for their principal grounds, but fail to meet its strict requirements. In tacit acknowledgement of that failure, the Reply pivots to new theories and claim interpretations, which would be more appropriate (but still lacking) for a single-reference obviousness argument, if one had been made. Under both Petitioners' original arguments and new Reply theories, however, Petitioners fail to demonstrate that the claimed inventions are expressly or inherently disclosed in Harvey or Risky as arranged in the claims.

As one example, Petitioners are unable to establish that Harvey, the primary reference for the majority of grounds, discloses a bolus with a "sensor" and "radio signal generator" arranged as claimed. In the absence of that threshold disclosure (and with no argument that such a modification of Harvey would have been obvious), Grounds I and III-IV all fail.

As another example, Petitioners have backtracked on their position that "encoding" is inherent in both Harvey and Risky after both experts testified that these systems can transmit and store analog signals that are not necessarily encoded into digital form. Petitioners have also manufactured new constructions for both "encoding" and "pre-determined intervals" in an effort to preserve their

Harvey and Risky anticipation arguments when confronted with the references' limited disclosures. Each of these new arguments are improper at this stage and fail to establish anticipation.

Petitioners' obviousness ground for Harvey and Risky similarly relies on a procedurally improper change in argument. The Petition vaguely asserted that a POSA would combine both references to arrive at the claims, but left the Board to fashion together its precise combinations. Upon the Board's refusal, Petitioners now attempt to shoehorn a combination into their prior argument. Not only are Petitioners limited to the insufficient positions put forth in their Petition, but Petitioners' new arguments likewise fail to demonstrate any reason why or how a POSA would combine Risky's teachings into Harvey's ear tag.

Even though Harvey's failure to disclose the claimed bolus is fatal to Petitioners' Rettedal and Kunda grounds, both grounds fail for additional reasons. Petitioners' Rettedal position asks the Board to ignore a claim interpretation from the perspective of a POSA to force Rettedal's insufficiently disclosed "match element" into the claims. And Petitioners' Kunda ground fails to explain why a POSA would look to a mobile phone antenna to enhance Harvey's transmission with any reasonable expectation of success, despite Petitioners' acknowledgement that Kunda's antenna would not have been an ideal solution.

For the reasons discussed herein and in the Patent Owner Response, the Board should uphold the validity of the challenged claims.

II. GROUND I: HARVEY DOES NOT ANTICIPATE CLAIMS 5 OR 6

A. Harvey Does Not Disclose “Sensors” and “a Radio Signal Generator” in a “Bolus” as Claimed

Recognizing that Harvey fails to expressly disclose a “bolus” with the claimed “sensors” and “radio signal generator,” the Reply attempts to broadly connect the alleged sensors and radio signal generator of “XPDR 5000” to every embodiment of Harvey’s “IAT 1110.” But there is no connection between XPDR 5000 and any “bolus” embodiment of IAT 1110. Contrary to Petitioners’ characterization of IAT 1110 as a “single embodiment” that includes XPDR 5000 (Reply, 4), Harvey expressly separates IAT 1110 into distinct “embodiments” and “implementations.” *See, e.g.*, EX1004, ¶¶34, 38, 40, 42, 45, 49, 51, 89 (referring to various “embodiments” and “implementations” of IAT 1110). But as Petitioners’ citations support, Harvey’s description of XPDR 5000 as an IAT 1110 component only occurs in the context of various ear tag IAT embodiments. Reply, 3-4 (citing EX1004, 48:31-33 and 70:22-23, which describe XDPR 5000 as a constituent of the ear tags in Figs. 1-4) ; EX2008, 43:1-44:12 (confirming Figure 1 depicts IAT 1110 as ear tags). Harvey’s brief mention that one “implementation” of IAT 1110 “may be” a “digestive tract bolus device” does not disclose or even suggest including an XPDR 5000 in this separate and distinct bolus

implementation. Because “anticipation is not proven by ‘multiple, distinct teachings that the artisan might somehow combine to achieve the claimed invention,’” as Petitioners seek to do, the Petition fails to demonstrate Harvey’s XPDR 5000 comprises a “bolus” as arranged in the claims. *Microsoft Corp. v. Biscotti, Inc.*, 878 F.3d 1052, 1069 (Fed. Cir. 2017); *see also BlephEx, LLC v. Myco Industries, Inc.*, 24 F.4th 1391, 1402 (Fed. Cir. 2022) (rejecting anticipation where generic statements concerning “other embodiments” did not disclose specific combination of features as claimed).

Petitioners further conflate a POSA’s ability to select appropriate sensors for monitoring physiological parameters with a POSA’s alleged understanding that Harvey discloses an XPDR 5000 embodiment of a bolus. *See* EX1025, ¶¶6-7. But such knowledge is irrelevant because Harvey does not disclose or teach an XPDR 5000 configured for an internal sensing application. *See* EX1024, 55:10-57:11 (clarifying that Harvey’s disclosure of “#N” sensors does not teach an infinite number of sensors could be used within XPDR 5000 but rather that some sensors are located *outside* the transponder). Even so, Petitioners fail to explain how sensor selection based on “intended transponder environment” discloses the use of XPDR 5000 in a bolus environment, particularly where the transponder design itself would differ between an internal and external environment. *See* EX2008, 23:6-24:7, 29:16-30:2. Because the entirety of Harvey’s XPDR 5000 discussion

occurs in the context of external ear tags, a POSA would not understand Harvey to disclose a singular embodiment using the *same* XPDR 5000 but in a *different* IAT embodiment (i.e., bolus) and a *different* environment (i.e., internal). *Id.*; EX2006, ¶¶106-07. Accordingly, contrary to Petitioners' anticipation ground, Harvey does not disclose a bolus that uses Harvey's XPDR 5000.

B. Harvey Does Not Disclose “Encoding” Physiological Data

Petitioners' Reply attempts to recast their inherency argument from the Petition as a teaching that a POSA would have understood, but both of these arguments fail to establish that Harvey discloses the “encoding” of sensor signals or storage of “encoded” physiological data. Petitioners try to avoid Patent Owner's demonstration, and their expert's admissions, that the transmission and storage of sensor signal data in Harvey could occur in analog form—and therefore was not *necessarily* encoded into digital form—by claiming they never made an inherency argument. Reply, 5. But that is not true. The Petition and Petitioners' expert explicitly argued that the “encoding” of physiological data was *necessarily* present in Harvey. *See, e.g.,* Pet., 21 (“***Harvey necessarily requires the analog signals to be encoded into digital form*** as physiological data corresponding to the measured physiological parameters.”) (emphasis added); EX1002, ¶¶61 (“The specification ***implicitly discloses*** that said sensor signal from said one or more sensors are digital representation...”), 62. This is fundamentally an inherency argument. *See In re*

Robertson, 169 F.3d 743, 745 (Fed. Cir. 1999) (noting that inherency requires the limitation to be “necessarily present,” not merely a possibility).

Because the Petition only advanced an inherency argument, Petitioners are strictly limited to that theory of anticipation. *See Wasica Fin. GmbH v. Cont'l Auto. Sys.*, 853 F.3d 1272, 1286-87 (Fed. Cir. 2017) (affirming Board’s rejection of position not in petition because “[s]hifting arguments in this fashion is foreclosed by statute, our precedent, and Board guidelines”) (citing 35 U.S.C. § 312(a)(3)); *Yita LLC v. MacNeil IP LLC*, 69 F.4th 1356, 1367 (Fed. Cir. 2023) (affirming Board’s rejection of arguments that petitioner “could have presented” in its petition “but chose not to”). Nevertheless, Petitioners and their expert now contend that “**Harvey discloses** the use of digital (and otherwise encoded) data” and “**a POSA would have understood**” Harvey’s disclosures to be directed to digital data. *See* Reply, 5; EX1025, ¶¶10, 11 (“***It would have been obvious to a POSA*** at the relevant time of the alleged invention to have that encoding done before memory storage...” (emphasis added)). Even considering this new argument despite its lack of foundation in the Petition, neither Petitioners nor their expert address how or why a POSA would have understood Harvey’s discussion of unspecified processors or transmission methods to disclose the use of the digital sensor signal representations. *See id.* Their conclusory allegations concerning what a POSA would have “understood” cannot establish anticipation.

Despite relying on inherency to establish the “encoding” limitations, Petitioners fail to overcome the fact that analog sensor signals can be transmitted and stored, and Harvey does not require digital transmission or storage. Both parties’ experts agree that sensor signals can be transmitted and stored in their analog form, including in Harvey’s system. EX2006, ¶¶85-92, 110-11, 114-17; EX2007, 180:20-181:2, 191:8-193:15, 198:6-203:17, 214:6-217:17, 276:10-15. Neither Petitioners nor their expert challenge that Harvey would allow for transmission of analog data. Instead, Petitioners focus their criticism on the storage of analog data by claiming a POSA would have understood Harvey’s disclosure of EEPROM to be digital. Petitioners also misconstrue Dr. Kan’s testimony to suggest that his example of analog EEPROM is not suitable for animal monitoring systems. Reply, 6. But as Dr. Kan testified, analog EEPROM as used in neuromorphic computing “definitely [could] be” used in such systems. EX1024, 84:20-24, 85:4-7. And Petitioners’ expert’s opinion that a POSA “would not have expected” analog EEPROM or would have preferred digital EEPROM does not detract from the fact that analog EEPROM that would not be encoded *could* have been used in Harvey’s system, and therefore digital EEPROM was not *necessarily* required. See EX1025, ¶¶12-13. A POSA’s preference for storing digital data is at best an obviousness consideration that cannot satisfy the high

burden of establishing that the transmission and storage of sensor data is *necessarily* digital or encoded.

Petitioners' final attempt to save their anticipation challenge raises a new argument that does not rely on analog-to-digital conversion for the claimed "encoding" steps. Rather, they argue for the first time that "encoding" occurs when Harvey's temperature sensors generate an analog signal "indicating whether [the] temperature is above, below or within a defined range." Reply, 6-7. As a threshold matter, this new argument should be rejected. *Wasica*, 853 F.3d at 1286-87. Even if considered, Petitioners' new argument fails because they never explain how an analog signal "above, below or within a defined range" involves "encoding." For example, according to Petitioners' own definition, "encode" means "to change information into a form that can be processed by a computer." EX1020, 3. Petitioners fail to explain how an above, below or within range indication involves "changing" the analog signal at all, let alone "into a form that can be processed by a computer." Moreover, even if such indication involves "encoding," Petitioners fail to address the claim requirements that the encoded data is "stored" in "non-transitory computer readable media" or "carried" by a "radio signal generator." Accordingly, Petitioners fail to show how Harvey discloses "encoding" sensor signals or the storage or transmission of "encoded" data.

C. Harvey Does Not Disclose “Generat[ing] a Radio Signal to Carry Said Encoded Physiological Data” at “Pre-Determined Intervals”

Petitioners again offer a new construction for the first time in their Reply, this time contorting claim element 5[F] into two sequential components to force a match with Harvey’s alleged disclosure. Despite previously claiming that IAT messages with encoded “subject data” transmitted in a “periodic” manner disclose element 5[F], Petitioners now contend that element 5[F] can be satisfied by the generation of a radio signal at pre-determined intervals without carrying encoded physiological data, so long as encoded physiological data is transmitted at some point thereafter. *Compare* Pet., 25-26 *with* Reply, 8-9. Even if Petitioners could raise a new construction at this time—which they cannot, *Wasica*, 853 F.3d at 1286-87—Petitioners’ construction is contrary to the plain language of the claim, which requires that the radio signal generator is “activat[ed]...at pre-determined intervals,” and that this activation generates “a radio signal ***to carry said encoded physiological data.***” EX1001, claim 5 (emphasis added); EX1002, ¶74; EX1024, 235:14-22; EX2006, ¶129. Petitioners’ interpretation that the predetermined activation of the radio signal generator is independent from the generated radio signal carrying physiological data contravenes the plain language of the claim.

Petitioners seemingly created this new construction to try and map the claim language onto Harvey’s “collision avoidance protocol,” but this new argument still fails to meet the exacting standard of anticipation. Specifically, Petitioners argue

that Harvey's collision avoidance protocol—where a transponder ping without physiological data is sent first to confirm the channel is clear—discloses element 5[F] because the ping intervals are “pre-determined” and, once it confirms there would be no collision, the transponder is safe to send animal data. Reply, 9. Not only does this position require accepting a new argument at the Reply stage—an argument that Dr. Kan does not have an opportunity to opine on—it directly contradicts what the claim requires, which is a radio signal generated at predetermined intervals that carries animal data.

Perhaps knowing that their new construction is unworkable, Petitioners also attempt to argue that the same collision avoidance protocol discloses element 5[F] under the prior interpretation, but as Petitioners and their expert acknowledge, that is not how Harvey's collision avoidance protocol works. The entire purpose of a collision avoidance protocol is to send an outbound IAT ping *without* animal data to confirm there will be no collision at the receiver that would result in data loss. See EX2008, 31:5-36:20 (agreeing that the purpose of a collision avoidance protocol is to “avoid the potential loss of information” because losing information carried by a collided signal “would not be desirable”); EX2006, ¶¶136-37; Reply, 9 (“[T]he purpose of sending an IAT message in this protocol...is to determine whether a channel is clear so that physiological data can be sent.”). Petitioners downplay the disclosed two-second intervals as merely an “example,” but as Dr.

Kan explained, Harvey's discussion of the two-second interval example only makes sense if the outbound ping does not include animal data. See Reply, 9; PO Resp., 26-27. Otherwise, the transmission of animal data every two seconds would defeat the purpose of a collision avoidance protocol by transmitting data at risk of loss. PO Resp., 26-27; EX2006, ¶140. A POSA reading Harvey would therefore interpret Harvey's discussion of "periodic" or "preselected" transmission intervals, which only occurs in the context of a collision avoidance protocol, as describing the empty outbound transmissions that confirm a channel is clear. EX2006, ¶¶131, 140. Only upon receiving that confirmation would animal data be transmitted. This is not a radio signal carrying physiological data at predetermined intervals as required by the claim.

III. GROUND II: RISKEY DOES NOT ANTICIPATE CLAIMS 5 OR 6

A. Risky Does Not Disclose "Encoding" Physiological Data

Petitioners' Ground 2 inherency argument with respect to "encoding" fails for similar reasons as with Harvey. *Supra* Section II.B. Petitioners again try to reframe their argument as a disclosure that a POSA "would have understood" encoding to occur. Reply, 10; EX1025, ¶¶21-23. But the Petition and its supporting declaration argued that Risky "*necessarily requires*" encoding the analog sensor signals to their digital form. Pet., 32; EX1002, ¶¶86-87. Petitioners' new contention that Risky "would have disclosed the use of digital data to a

POSA” and a “POSA would have understood” Risky’s disclosure of “encoding” is thus an attempt to evade the rigidity of their prior inherency position, which is improper at this stage. *Wasica*, 853 F.3d at 1286-87.

Nevertheless, Petitioners again miss the mark on what is required to show inherency by not countering that analog sensor signals *could* be transmitted and stored in Risky’s system, and therefore Risky does not *necessarily require* encoded signals. For example, Petitioners criticize the possibility of analog EEPROM storage by arguing a POSA would have understood Risky’s discussion of EEPROM to be digital because Risky discusses digital transmission and storage methodologies. Reply, 10-12. But Petitioners fail to explain how or where Risky *requires* that EEPROM utilize a digital transmission or storage methodology. Risky’s alleged contemplation of digital data “in many instances,” as Petitioners claim, does not demonstrate that digital, “encoded” sensor signals are *necessarily required* by Risky, as Petitioners must show for their chosen anticipation argument.

Petitioners’ new contention that Risky discloses “encoding” through examples other than digital conversion is both inconsistent with their prior definition of “encoding” and an acknowledgement that sensor signals in Risky can be transmitted and stored in their analog form, thus defeating their inherency position. Petitioners defined “encoding” in the Petition as the conversion from an

analog signal to its digital form. *See, e.g.*, Pet., 20-22; EX1002, ¶¶61 (“The digital representation of an analog signal is an encoded signal.”), 63, 86-87. Petitioners now claim that “encoding” can also be a thermistor’s conversion from resistance, to current or voltage, and then to temperature. Reply, 12-13. But current, voltage, and temperature are all analog signals or values measured by the sensor. *See* EX2007, 154:3-155-6 (confirming that thermistor outputs in the form of voltage, current, and charge are analog signals). And Petitioners concede that such analog signals could be stored in Risky’s memory unit and transmitted by communication module. Reply, 13; EX1025, ¶24. Petitioners are thus making two incompatible arguments: one where digital “encoding” is necessarily required or inherent, and the other where analog transmission and storage also constitutes “encoding.” Not only are Petitioners prohibited from advancing a new definition of “encoding” that Dr. Kan cannot respond to, Petitioners’ new construction directly contradicts its inherency position by acknowledging that Risky does not require digital “encoding” of sensor signals as claimed.

Finally, even considering the merits of Petitioners’ new “encoding” definition, Petitioners failed to connect or otherwise explain how the conversion of measured resistance to an analog sensor signal nevertheless satisfies “encoding” as the claims require. Petitioners’ only alleged support is their expert’s conclusory assertion that a thermistor’s resistance value “needs to be converted.” EX1025,

¶24. Yet he fails to explain, for example, how “converting” an analog resistance value to an analog voltage or current signal requires “encoding” or results in “encoded” data that is “stored” or “carried” as claimed. He simply defines “converted” as “encoded” without explanation. EX1025, ¶24. This fails to satisfy Petitioners’ burden to show anticipation under either their prior inherency argument or their newly-articulated “would have understood” argument.

B. Risky Does Not Disclose “Generat[ing] a Radio Signal to Carry Said Encoded Physiological Data” at “Pre-Determined Intervals”

Petitioners’ contention that Risky’s “machine readable instructions 252” do not vary the transmission frequency in “burst” mode improperly ignores Risky’s only explanation of how such machine readable instructions 252 operate.

Petitioners rely exclusively on Risky paragraph 49, which explains that burst mode uses machine “readable instructions 252” to specify the transmission interval. EX1005, ¶49; EX2008, 53:8-12 (agreeing that machine readable instruction 252 specify transmission interval in burst mode). However, paragraph 49 does not explain *how* machine readable instructions 252 specify a transmission interval. Instead, Risky provides that explanation in paragraph 48, which describes that machine readable instructions 252 define and vary the transmission frequency based on the health status or location of the animal. EX1005, ¶48.

Paragraph 49 then further elaborates on the use of machine readable instructions 252 to implement the burst operational mode. EX1005, ¶49. Risky provides no

other explanation for how machine readable instructions 252 would specify a transmission interval as required by burst mode, nor do Petitioners suggest how a POSA would understand this based off paragraph 49 alone.

To the contrary, as Dr. Kan explained, a POSA would consult the remainder of Risky's disclosure to understand the interplay between machine readable instructions and transmission interval. *See* Response, 40-41; EX2006, ¶¶158-60. This is consistent with a POSA's propensity to consult all of the teachings within a reference as a whole to understand its disclosure. *See Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1360 (Fed. Cir. 2017) (recognizing it is an error to fail to consider the entirety of the reference); *Eli Lilly & Co. v. Los Angeles Biomedical Rsch. Inst. at Harbor-UCLA Med. Ctr.*, 849 F.3d 1073, 1075 (Fed. Cir. 2017) (looking to embodiments and examples in reference to understand "chronic administration" disclosure). Based on Risky's full disclosure, a POSA would understand that the operation of machine readable instructions 252 explained in paragraph 48 applies to how the transmission interval is specified in burst mode. EX2006, ¶¶158-60. And because paragraph 48 explains that machine readable instructions 252 determines the transmission interval after the conditional occurrence of some external input, such as health status or location, *id.*, the transmission intervals in burst mode are thus not "pre-determined."

Petitioners' claim that Risky's "on-line"/"offline" mode also discloses the transmission of animal data at "pre-determined intervals" likewise fails to explain how the oscillation between "on-line" and "offline" status—an unpredictable change that occurs based on whether the bolus is within range of a receiver—nevertheless transmits at intervals that are "pre-determined." Petitioners contend that the claim language does not require the bolus to activate the generator at predetermined intervals "at all times." Reply, 14. But such an interpretation runs counter to the word "pre-determined" in view of the claim language and specification, which does not support that any isolated period of time in which the transmission intervals are constant can be "pre-determined." Instead, a *pre*-determined transmission interval is determined *before* or without consideration of a variable external input. *See, e.g.*, EX2006, ¶129; EX1024, 109:16-112:25. Because Risky's online/offline mode necessarily varies the transmission frequency based on receiver proximity (*i.e.*, decreases the frequency when offline), the overall transmission intervals cannot be "pre-determined" as required by the claims. EX2008, 48:20-49:7 ("[I]f it's in online mode, then it's not in offline mode, right? If it's in offline mode, it is not in online mode simultaneously[.]"), 51:7-16 (agreeing that an offline bolus transmits at a lesser frequency than an online bolus). Petitioners cannot ignore this change in transmission frequency

when the bolus is offline and simply point to a snapshot in time as evidence of predetermined transmission intervals because this is not what the claims require.

Even so, Risky's "on-line" transmission intervals are not "pre-determined" for similar reasons that "burst" mode transmission intervals are not "pre-determined." When Risky's bolus is online, the bolus transmits at a frequency "specified by machine readable instructions 252." EX1005, ¶55; EX2008, 50:1-5. As explained above, these machine readable instructions specify a transmission frequency based on the animal's current health or location. *See* EX1005, ¶48. Risky describes both "burst" and "on-line"/"off-line" modes as different "operational mode[s]" that define transmission frequencies using the same "machine readable instructions 252." *See* EX1005, ¶¶48-49, 54-56. Risky's discussion of machine readable instructions 252 is not a separate embodiment from Risky's disclosure of these operational modes. Accordingly, because Risky's transmission when "on-line" is set by the machine readable instructions that vary the transmission intervals based on some external variable, such transmission does not occur at "pre-determined intervals."

IV. GROUND III: HARVEY AND RISKEY DO NOT RENDER OBVIOUS CLAIMS 5 OR 6

A. Petitioners Cannot Cure Improper Obviousness Challenge With New Argument

As the Board correctly recognized in its Institution Decision, the Petition failed to “engage in a proper obviousness analysis” in Ground 3 because Petitioners did not “explain with particularity how the prior art would have rendered the challenged claims unpatentable.” Paper 11, 31-32 (“[W]e decline to fashion an obviousness argument for Petitioner.”). For example, the Petition asserted that Harvey and Risky together disclose all elements because “[t]o the extent...that either Harvey or Risky fails to teach any claim element, that element is provided by the other reference,” and a POSA would be motivated to combine Harvey and Risky because they describe “the same type of apparatus used for the same purpose.” Pet., 38, 42. This does not identify a primary reference, secondary reference, elements missing from the primary reference that the secondary reference provides, or why the combination of those elements would be obvious, all of which are required to demonstrate obviousness. *See Sisvel Int’l S.A. v. Sierra Wireless, Inc.*, 82 F.4th 1355, 1364 (Fed. Cir. 2023).

Despite the procedural safeguards that restrict Petitioners to only the arguments in the Petition, Petitioners now try to retrofit their improper obviousness challenge by describing Harvey and Risky as “complementary references” and

identifying two general teachings from Risky that would be incorporated into Harvey's XPDR 5000 embodiment. Reply, 15-17. Such a shift at this time is not permitted. *Wasica*, 853 F.3d at 1286-87. Petitioners' expert now suggests that "a POSA would have been motivated to look to Risky for additional information about the physical design considerations of the bolus device into which Harvey's XPDR can be incorporated." See EX1025, ¶31. Tellingly, Petitioners do not cite any support from his first declaration, which shows that Petitioners are attempting to "effectively abandon[] its petition in favor of a new argument." *Wasica*, 853 F.3d at 1286. Therefore, even if Petitioners are credited with making an alternative obviousness challenge under *Sisvel* in the Reply, they cannot simply "abandon" the insufficient challenge they advanced in their Petition.

Presumably not wanting to stray too far from the Petition's improper obviousness challenge or concede that the "bolus" element is missing from Harvey, Petitioners continue to use vague language that still ultimately asks the Board to fashion their obviousness combination for them. See, e.g., Reply, 16 ("Risky discloses additional details about the bolus form."). Petitioners fail to articulate which "additional details" from Risky's bolus are combined with which "components" of Harvey's XPDR 5000 to be arranged as required by the claims. Even considering Petitioners' new obviousness position, Petitioners have failed to identify the precise combination of elements required to meet the claims.

B. There is No Motivation to Combine Harvey and Risky

In contrast to Petitioners' attempt to reconstruct its combination of elements between Harvey and Risky, Petitioners do not address Patent Owner's challenge that a POSA would not have been motivated to combine their teachings. In fact, the Reply does not provide any additional support for this alleged motivation. Instead, Petitioners simply rely on their Petition, which claimed that a POSA would combine the references because they disclose "the same type of apparatus" with "other similarities and common features" that are "used for the same purpose" and ultimately "recognize[] and solve[] [the] same problem—extending the operational life of a bolus." Pet., 38-42. This is not a reason to combine Harvey and Risky. *See, e.g., In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1379 (Fed. Cir. 2016) (finding no reason to combine where only cited motivation was "surface similarities" between the references); *see also* PO Resp., 50-52. Petitioners likewise do not counter that Harvey's and Risky's similarity is a reason **not** to combine the references, as a POSA would have understood that neither reference adds something new. *See S.-Tek Sys., LLC v. Engineered Corrosion Sols., LLC*, 748 F. App'x 1003, 1006-07 (Fed. Cir. 2018) (affirming no motivation to combine "given the redundant functions"); *see also* PO Response, 51; EX2006, ¶178. Petitioners cannot successfully advance their obviousness challenge without articulating both why and how a POSA would combine Harvey

and Risky to arrive at the claims with a reasonable expectation of success. *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1193-94 (Fed. Cir. 2014).

Because Petitioners fail to do so, Ground 3 fails.

V. GROUND IV: HARVEY AND RETTEDAL DO NOT RENDER OBVIOUS CLAIM 7

A. Claim 7 Requires Adjusting the Antenna’s Resonant Frequency

In view of the specification and claim language, a POSA would understand claim 7 to require “matching elements” to compensate for the change in the radio signal frequency by adjusting the antenna’s resonant frequency. Petitioners acknowledge that adjusting the antenna’s resonant frequency addresses the “mismatch” created by the radio signal shift as it passes through the animal. Reply, 18. Yet Petitioners contend that the word “said” controls the interpretation of claim 7 rather than how a POSA would understand it in view of the specification. Reply, 18-19. But such claim construction guidelines should not be applied so rigidly, particularly where an alternative construction is consistent with the specification’s description of the invention. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (recognizing the construction that “most naturally aligns with the patent’s description of the invention” is the correct construction) (citation omitted); *ERBE Elektromedizin GmbH v. Canady Tech. LLC*, 629 F.3d 1278, 1286 (Fed. Cir. 2010) (“[N]o canon of claim construction is absolute in its application.”) (citation omitted). Petitioners’ interpretation of claim 7 in a vacuum is thus improper.

Moreover, Petitioners mischaracterize Dr. Kan’s testimony to support their rigid interpretation. There can be no dispute that claim language must be interpreted from the perspective of a POSA. *See Phillips*, 415 F.3d at 1313-14 (holding that POSAs read claim terms “in the context of the entire patent, including the specification”). As Dr. Kan repeatedly explained, after reviewing the language of claim 7 and the specification, a POSA would understand the ’644 Patent’s invention as using matching elements to adjust the *antenna*’s resonant (or “center”) frequency, not to adjust the radio signal generator’s *output* frequency. EX2006, ¶188; EX1024, 188:23-192:11, 192:22-195:4, 196:6-197:10, 201:5-203:24, 208:10-209:20. According to Dr. Kan, Petitioners’ understanding of the claim—which requires the matching elements to adjust the frequency of the signal output—is not possible in view of the specification’s teachings. *See* EX1024, 208:10-211:3 (“I would not read it that way because it’s not possible[.]”). The testimony that Petitioners elicited from Dr. Kan regarding the use of “said” was limited to the claim language in a vacuum, not from his perspective as a POSA reading the claims in view of the specification.

Contrary to Petitioners’ accusation, Dr. Kan’s reading of claim 7 is not an improper redrafting of the claim. Petitioners’ cited case law actually supports this position. The Federal Circuit in *Rembrandt Data Technologies., LP v. AOL, LLC* refused to redraft a claim because the patent owner “ha[d] not demonstrated that a

skilled artisan would have read its proposed language into the claim.” 641 F.3d 1331, 1339 (Fed. Cir. 2011). Dr. Kan’s understanding of claim 7, however, does not require a correction or addition of terms; it is simply the interpretation of the claim language from the perspective of a POSA in view of the specification.

B. There is No Motivation to Combine Harvey and Rettedal

The merits of Petitioners’ claim that a POSA would have been motivated to combine Rettedal’s matching elements into Harvey’s XPDR 5000 hinges on Harvey’s disclosure being incorporated into a bolus. As previously explained, *supra* Section II.A, Harvey’s isolated mention of a bolus does not disclose or even suggest the use of XPDR 5000 in a bolus. This absence is critical given Petitioners’ explanation that Rettedal’s “match element” provides an adjustment to accommodate for a signal passing through an animal’s body. Without a bolus, a POSA would have no reason to modify Harvey’s XPDR 5000 to account for such signal changes.

Even assuming Harvey taught the use of XPDR 5000 in a bolus, Rettedal’s “match element” does not adjust the resonant frequency of the antenna, as required by claim 7 under the proper construction. As both parties agree, Rettedal’s “match element” adjusts the oscillator’s generated frequency, not the antenna’s resonant frequency. *See, e.g.*, PO Resp., 57-58; Reply, 21-22; EX2008, 54:16-55:15. Thus,

Rettedal does not disclose the adjustment of the antenna's resonant frequency under claim 7.

Finally, Petitioners fail to address that a POSA reading Rettedal would not have had an expectation of success in combining it with Harvey because Rettedal does not sufficiently disclose how its “match element” operates. Petitioners rely on conclusory assertions that Rettedal's technology is “well-understood” without explaining how a POSA would have used Rettedal's matching elements to create a resonant circuit that adjusts the antenna's resonant frequency as required by claim 7. Rettedal's vague references to common circuit components do not provide a POSA with guidance to successfully incorporate Rettedal's “match element” into Harvey's disclosure. *See* EX2006, ¶64.

VI. GROUND V: HARVEY AND KUNDA DO NOT RENDER OBVIOUS CLAIMS 9 OR 10

Petitioners fail to address the threshold issue that a POSA would not have been motivated to combine Harvey and Kunda to arrive at claims 9 and 10. Even assuming Harvey disclosed a “bolus” as claimed—which it does not, *supra* Section II.A—Petitioners provide no reason why a POSA would combine Kunda's mobile phone antenna with a bolus for use inside a reticulum, or why a POSA would have a reasonable expectation of success in doing so. Instead of responding on the merits, Petitioners deflect and claim that Kunda does not need to provide the “ideal solution” for a POSA to use it in Harvey's alleged bolus. Reply, 25. By doing so,

Petitioners effectively concede that Kunda's antenna is **not** the ideal or preferred feature to combine with an internal bolus. Yet Petitioners provide no reason why a POSA would combine Harvey and Kunda to arrive at an inferior solution, or why a POSA would expect success in doing so.

Petitioners also ignore Harvey's express teaching to embed the antenna *on* a printed circuit board with Kunda's opposing teaching to keep the antenna *away* from the circuit board. Petitioners try to cabin Kunda's disclosure to only prior art antennas. Reply, 24. But Kunda provides numerous examples of prior art problems, and Petitioners provide no evidence or citation as to where Kunda's "present invention" resolves all of the problems, including the proximity of the antenna from the circuit board. Without teaching how Kunda's alleged "double loop" antenna could operate near the circuit board, as described in Harvey—or teaching how Harvey's device could be modified to incorporate Kunda's antenna away from the circuit board—a POSA would not have been motivated to implement Kunda's antenna in Harvey's device, and Petitioners provide no argument to the contrary.

VII. CONCLUSION

Accordingly, the Board should uphold the patentability of all Challenged Claims.

Dated: September 16, 2025

Respectfully submitted,

By: /Daniel L. Moffett/

Daniel L. Moffett

Registration No. 60,715

dmoffett@akingump.com

Megan Mahoney

Registration No. 80,921

mmahoney@akingump.com

Thomas W. Landers

Admitted *Pro Hac Vice*

twlanders@akingump.com

AKIN GUMP STRAUSS HAUER &
FELD LLP

112 E. Pecan Street, Suite 1010

San Antonio, Texas 78205

Tel: 210-281-7100

Fax: 210-224-2035

Counsel for Patent Owner

ST Reproductive Technologies, LLC

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing ST Reproductive Technologies, LLC's Patent Owner Response was served on counsel of record on September 16, 2025 by filing this document through the Patent Trial and Appeal Case Tracking System (P-TACTS), as well as delivering a copy via electronic mail to counsel of record for the Petitioners at the following addresses:

GIBSON, DUNN & CRUTCHER LLP
Brian M. Buroker – BBuroker@gibsondunn.com
Benjamin Hershkowitz – BHershkowitz@gibsondunn.com
Nathan Curtis – NCurtis@gibsondunn.com
David Glandorf – DGlandorf@gibsondunn.com
GDC-smaXtec-IPRs@gibsondunn.com

Dated: September 16, 2025

Respectfully submitted,

By: /Daniel L. Moffett/
Daniel L. Moffett
Registration No. 60,715
Counsel for Patent Owner

CERTIFICATE OF COMPLIANCE PURSUANT TO 37 C.F.R. § 42.24

This paper complies with the type-volume limitation of 37 C.F.R. § 42.24. The paper contains 5,596 words, excluding the parts of the paper exempted by § 42.24(a).

This paper also complies with the typeface requirements of 37 C.F.R. § 42.6(a)(ii) and the type style requirements of §42.6(a)(iii)&(iv).

Dated: September 16, 2025

Respectfully submitted,

By: /Daniel L. Moffett/
Daniel L. Moffett
Registration No. 60,715
Counsel for Patent Owner