

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SHENZHEN QIANFENYI INTELLIGENT TECHNOLOGY CO., LTD.,
(A.K.A. MAXEYE)
Petitioner,

v.

WACOM CO. LTD.,
Patent Owner.

Case IPR2025-01556
Patent 9,280,220

PATENT OWNER'S PRELIMINARY RESPONSE

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PATENT OWNER'S EXHIBIT LIST

Exhibit No.	Description
2001	Assignment from Atmel Corp. to Wacom Co., Ltd., Reel 047640, Frame 0227 (Sept. 25, 2018)
2002	Second Amended Complaint, <i>Wacom, Co., Ltd. v. Shenzhen Qianfenyi Intelligent Technology Co., Ltd.</i> , Civ. No. 2:24-cv-702 (E.D. Tex. Oct. 27, 2025)
2003	Defendant's Preliminary Invalidity Contentions, <i>Wacom, Co., Ltd. v. Shenzhen Qianfenyi Intelligent Technology Co., Ltd.</i> , Civ. No. 2:24-cv-702 (E.D. Tex. Mar. 4, 2025)
2004	Agreed Docket Control Order, <i>Wacom, Co., Ltd. v. Shenzhen Qianfenyi Intelligent Technology Co., Ltd.</i> , Civ. No. 2:24-cv-702 (E.D. Tex. Feb. 6, 2025)
2005	U.S. District Courts - Federal Court Management Statistics– Comparison Within Circuit (June 30, 2025) (available at https://www.uscourts.gov/sites/default/files/document/fcms_na_distcomparison0630.2025.pdf) (annotated)
2006	Memorandum Order, <i>Headwater Research LLC v. Samsung Electronics Co., Ltd.</i> , Civ. No. 2:23-CV-00103 (Dec. 11, 2024)

Pursuant to 37 C.F.R. § 42.107, Patent Owner Wacom Co. Ltd. (“Patent Owner” or “Wacom”) files this preliminary response to the Petition, setting forth reasons why the Petition for *inter partes* review (“IPR”) of claims 1-5, 7-11, and 13-17 of U.S. Patent No. 9,280,220 (the “’220 patent”), as requested by Shenzhen Qianfenyi Intelligent Technology Co., Ltd. (a.k.a Maxeye) (“Petitioner” or “Maxeye”), should be denied on the merits.¹

I. INTRODUCTION

Conventional wisdom notes that when a person has difficulty deciding between several choices –which they subjectively view as each being equally good—the objective reality is that there are no good choices because none of the choices stand out as being actually good. Such wisdom applies to this case and the over-inflated Grounds presented by the Petitioner.

Flaunting the rules of the Board with an 81-page Petition that seeks to incorporate by reference a 40,000 word expert declaration, the Petition presents no fewer than six (6) Grounds of challenge that apply to each challenged claim, and even presents alternative challenges within Grounds 2, 4, and 5, thus increasing the number of challenges actually presented:

¹ By submitting this Preliminary Response, no waiver of any argument is intended by Patent Owner. Patent Owner will have a right to file a complete response to the Petition, should the Board institute *inter partes* review. 37 C.F.R. § 42.120(a).

Ground	'220 Patent Claims	Basis for Rejection of the Challenged Claims under 35 U.S.C. §§ 102 & 103
<u>Ground 1</u>	1-5, 7-11, and 13-17	Rendered obvious by Kaneko in view of Vuppu
<u>Ground 2</u>	1-5, 7-11, and 13-17	Rendered obvious by Kaneko in view of Vuppu, Cao, and/or King-Smith
<u>Ground 3</u>	1-5, 7-11, and 13-17	Rendered obvious by Kaneko in view of Harley
<u>Ground 4</u>	1-5, 7-11, and 13-17	Rendered obvious by Kaneko in view of Harley, Cao, and/or King-Smith
<u>Ground 5</u>	1-5, 7-11, and 13-17	Anticipated or rendered obvious by Kremin
<u>Ground 6</u>	1-5, 7-11, and 13-17	Rendered obvious by Kremin in view of Harley

Highlighting Petitioner's inability to objectively determine the strength of its challenges, Petitioner ranks its anticipation ground against all challenged claims as challenge number 5, four steps below the obviousness challenges in Grounds 1-4.

As will be explained in detail below, each of Petitioner's six grounds have fundamental flaws and should be rejected on the merits. No *inter partes* review should be granted.

II. THE '220 PATENT

The '220 patent is entitled, "Pulse- Or Frame-Based Communication Using Active Stylus," and concerns itself with active stylus communications including how the electrodes of a stylus transmit signals to, and receive signals from, a touch sensor.

FIG. 3 of the '220 patent depicts internal components of an active stylus 20 ('220 patent, 7:57-9:9):

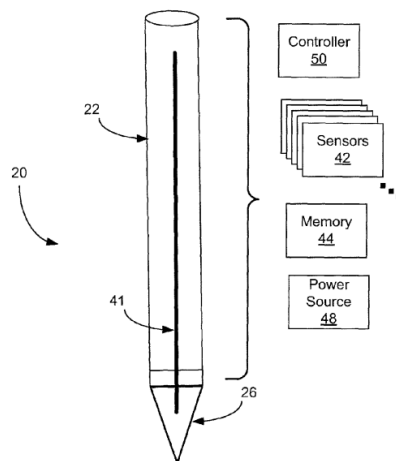


Figure 3

As shown, an active stylus 20 allows interaction between active stylus 20 and a user or between a device and a user. '220 patent, 7:62-63. Active stylus 20 may include a controller 50, sensors 42 that detect or measure data about the environment in which active stylus 20 operates, memory 44, or power source 48. '220 patent, 7:57-62.

Controller 50 may include a processor unit, a drive unit, a sense unit, and a storage unit. '220 patent, 8:10-11. The drive unit may supply signals to electrodes of a stylus tip 26 through center shaft 41. '220 patent, 8:12-13. The drive unit may also supply signals to control or drive sensors 42 or one or more external components of active stylus 20. '220 patent, 8:13-15. The sense unit may sense signals received by electrodes of tip 26 through center shaft 41 and provide measurement signals to the processor unit representing input from a device. '220

patent, 8:15-18. The sense unit may also sense signals generated by sensors 42 or one or more external components and provide measurement signals to the processor unit representing input from a user. '220 patent, 8:18-21. The processor unit may control the supply of signals to the electrodes of tip 26 and process measurement signals from the sense unit to detect and process input from the device. '220 patent, 8:21-24. The processor unit may also process measurement signals from sensors 42 or one or more external components. '220 patent, 8:24-26.

As explained with regard to FIG. 4 and FIG. 5 ('220 patent, 9:10-10:60), active stylus 20 receives the signal or signals from one or more drive lines (e.g., the X lines in its vicinity) of device 52. '220 patent, 10:61-63. The stylus (e.g., active stylus 20) may then process this received signal to create another signal to transmit back to device 52. '220 patent, 10:63-65. As an example, the stylus may transmit a function of the received signal (whether linear or non-linear) that is then multiplied by a gain and that may be added to an offset value. '220 patent, 10:65-11:1. Thus, if R is the signal received at active stylus 20 (e.g., from device 52), T is the signal transmitted by active stylus 20 (e.g., back to device 52), f is a function (whether linear or non-linear), A is a gain factor, and B is an offset, the transmitted signal T may be written as:

$$T=A*f(R)+B.$$

'220 patent, 11:1-8. The signal R received by the stylus may be the series of pulses sent down each drive line that active stylus 20 is able to detect. '220 patent, 11:9-10. The transmitted signal T will create a transfer of charge through capacitive coupling between active stylus 20 and the sense lines (e.g., Y1 to Yn) of touch-sensitive area 500. '220 patent, 11:12-15. Device 52, and, in certain embodiments, touch controller 12 may then receive samples of transmitted signal T via a scan of the nodes along the sense lines of touch-sensitive area 500. '220 patent, 11:15-18.

FIG. 7A, reproduced below, illustrates an exemplary method for communicating modulated data between active stylus 20 and device 52, including touch controller 12 ('220 patent, 13:51-14:15):

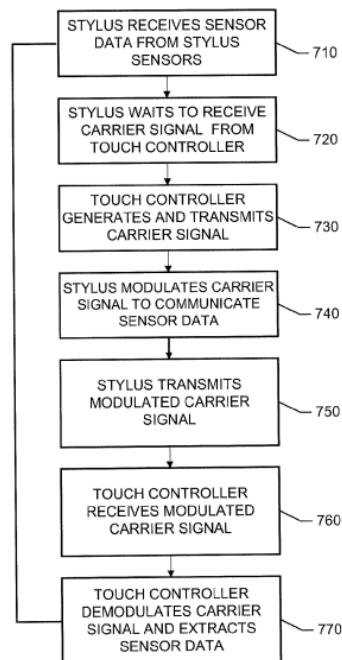


Figure 7A

The method may start at step 710, where active stylus 20 receives sensor data from sensors 42. '220 patent, 13:53-55. At step 720, active stylus 20 waits to receive a carrier signal from touch controller 12. '220 patent, 13:55-56. At step 730, a carrier signal is generated by touch controller 12 and transmitted to active stylus 20. '220 patent, 13:56-58. At step 740, the carrier signal is modulated by active stylus 20 to include the sensor data so that the sensor data may be communicated from active stylus 20 to touch controller 12. '220 patent, 13:58-60. At step 750, the modulated carrier signal including the sensor data is transmitted from active stylus 20 to touch controller 12. '220 patent, 13:61-63. At step 760, touch controller 12 receives the modulated carrier signal including the sensor data. '220 patent, 13:64-66. At step 770, touch controller 12 demodulates the carrier signal and extracts the sensor data. '220 patent, 13:66-67.

The '220 patent includes three independent claims (claims 1, 7, and 13), and each of these claims is challenged in the Petition:

Independent claim 1 recites in full:

1. **1[pre]**² A stylus comprising:
 1[a] one or more sensors;

² The bolded designations added before the preamble and each claim element correspond to Petitioner's designations as set forth in the Petition.

1[b] *one or more electrodes* configured to communicate with a device *by receiving signals from* and *transmitting signals to* a touch sensor of the device; and

1[c] one or more computer-readable non-transitory storage media embodying logic that is operable when executed to:

1[c1] receive sensor data from the one or more sensors;

1[c2] *receive a first signal generated by the device*;

1[c3] generate a second signal by modulating a carrier signal based on the sensor data; and

1[c4] *transmit to the device*, in response to the first signal, the second signal, the sensor data being obtainable by demodulating the second signal.

'220 patent, claim 1 (emphasis added by Patent Owner to elements 1[b], 1[c2], and 1[c4]).

Independent claim 7 recites in full:

7. **7[pre]**³ One or more computer-readable non-transitory storage media embodying logic that is operable when executed to:

7[a] receive sensor data from one or more sensors in or on a stylus, the stylus comprising *one or more electrodes* configured to communicate with a device *by receiving signal from* and *transmitting signals to* a touch sensor of the device;

7[b] *receive a first signal* generated by the device;

³ Once again, the bolded designations added before the preamble and each claim element correspond to Petitioner's designations as set forth in the Petition.

7[c] generate a second signal by modulating a carrier signal based on the sensor data; and

7[d] *transmit to the device*, in response to the first signal, the second signal, the sensor data being obtainable by demodulating the second signal.

'220 patent, claim 7 (emphasis added by Patent Owner to elements 7[a], 7[b], and 7[d]).

Independent claim 13 recites in full:

13. **13[pre]**⁴ A system comprising:

13[a] a device comprising a touch sensor; and

13[b] a stylus comprising:

13[b1] one or more sensors;

13[b2] *one or more electrodes* configured to communicate with a device *by receiving signals from* and *transmitting signals to* a touch sensor of the device; and

13[b3] one or more computer-readable non-transitory storage media embodying logic that is operable when executed to:

13[b3A] receive sensor data from the one or more sensors;

13[b3B] *receive a first signal* generated by the device;

13[b3C] generate a second signal by modulating a carrier signal based on the sensor data; and

13[b3D] *transmit to the device*, in response to the first signal, the second signal, the device being operable to

⁴ Again, the bolded designations added before the preamble and each claim element correspond to Petitioner's designations as set forth in the Petition.

obtain the sensor data by demodulating the second signal.

'220 patent, claim 13 (emphasis added by Patent Owner to elements 13[b2], 13[b3B], and 13[b3d]).

III. CLAIM CONSTRUCTION

Petitioner provides no “formal” claim construction for any claim terms and violates 37 C.F.R. § 42.104(b)(3) with an allegation that it “reserves the right to raise claim construction arguments in the co-pending district court action and any other proceedings as appropriate.” Pet., 12 n.3.

Further, as will be addressed below, Petitioner provides an inadequate and conclusory analysis of the challenged claims, and fails to address a variety of claim terms, particularly the requirement of a stylus to have “one or more electrodes” that are configured for “receiving signals from” and “transmitting signals to” a device. Without waiving its right to submit responsive express constructions in a Patent Owner Response, Patent Owner shows in Section IV that Petitioner's failure to provide its interpretation of the language in these recitations magnifies fundamental flaws in Petitioner's analysis, resulting in Petitioner's failure to establish the disclosure of every claimed element in each independent claim.

IV. PETITIONER'S CHALLENGES FAIL ON THE MERITS

Petitioner's six Grounds present six redundant challenges against all challenged claims 1-5, 7-11, and 13-17, including independent claims 1, 7, and 13.

Ground 1 asserts that the challenged claims are rendered obvious in view of Kaneko⁵ in view of Vuppu.⁶ Ground 2 asserts that the challenged claims are rendered obvious in view of Kaneko in view of Vuppu, Cao,⁷ and/or King-Smith.⁸ Ground 3 asserts that the challenged claims are rendered obvious in view of Kaneko in view of Harley.⁹ Ground 4 asserts that the challenged claims are rendered obvious in view of Kaneko in view of Harley, Cao and/or King-Smith. Ground 5 asserts that the challenged claims are anticipated or rendered obvious in view of Kremin.¹⁰ Ground 6 asserts that the challenged claims are rendered obvious in view of Kremin in view of Harley.

As addressed below, each Ground fails to establish that any independent claim is unpatentable. Petitioner's challenges against the independent claims, and their dependent claims, each fail.

⁵ Ex. 1005, Japanese Patent Publication No. JP 2008-152640 to Kaneko ("Kaneko").

⁶ Ex. 1006, U.S. Patent No. 8,766,954 to Vuppu ("Vuppu").

⁷ Ex. 1007, U.S. Patent No. 8,988,398 to Cao ("Cao").

⁸ Ex. 1008, U.S. Patent Publication No. 20100085325 to King-Smith et al. ("King-Smith").

⁹ U.S. Patent No. 8,928,635 to Harley et al. ("Harley").

¹⁰ Ex. 1009, U.S. Patent Publication No. 20120105362 to Kremin ("Kremin").

A. The Petitioner Improperly Attempts to Incorporate External Materials By Reference to its Petition

As an initial matter, the Petition violates the Board's rules against incorporation-by-reference for each Ground. In addressing Ground 1, Petitioner states:

Petitioner demonstrates obviousness of the Challenged Claims by adopting the claim mapping set forth *supra* at pages i-iii and in the Declaration of Nabil J. Sarhan, Ph.D. *See* Ex. 1003. ***Petitioner cites and incorporates Dr. Sarhan's more fulsome analysis of the Challenged Claims found at Appendix A1 of Ex. 1003***, portions of which are excerpted and summarized below.

Pet., 21 (emphasis added). The other Grounds also include a similar incorporation-by-reference statement. Such a proclamation is improper for a variety of reasons, including that it fails to provide notice of Petitioner's theories, and it completely upends the type-volume limitations on a Petition. The Declaration and its Appendices (Ex. 1003) span 193 pages, with over 130 of those pages presented in a single-spaced landscape format and is conservatively estimated to contain over 40,000 words.

At minimum, Petitioner's approach is a clear violation of the Board's rules. Under 37 C.F.R. § 42.6(a)(3), the Board prohibits incorporation by reference, stating "Arguments must not be incorporated by reference from one document into another document." To that end, Patent Owner will address the theories presented

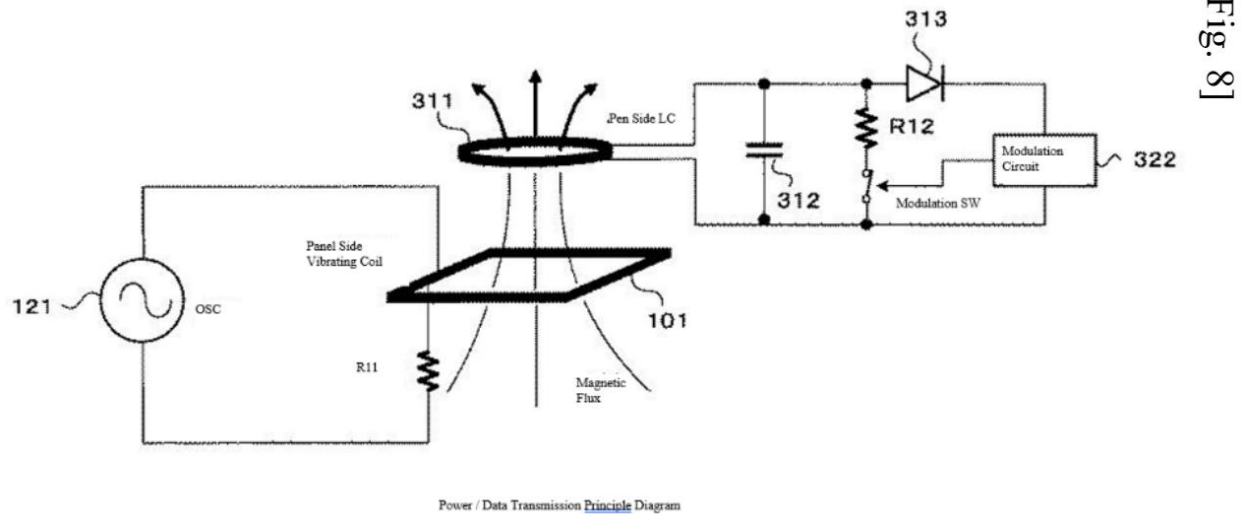
in the Petition, but will also point out selected instances in the Declaration that highlight the deficiencies of Petitioner's challenges.

B. Ground 1 Fails to Establish the Unpatentability of Claims 1, 7, and 13 Because Petitioner Fails to Establish a Proper Motivation to Combine Kaneko and Vuppu

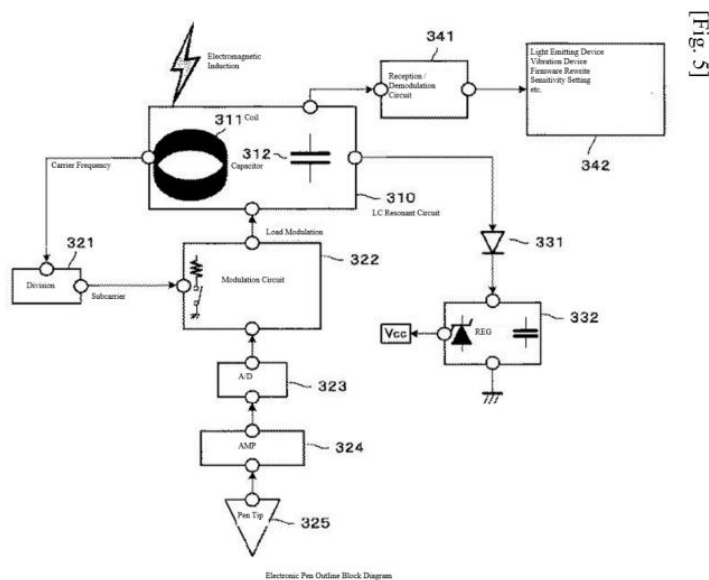
Petitioner presents its Ground 1 challenge to claim 1 on pages 20-32 of the Petition. Element 1[b] of claim 1 recites “one or more electrodes configured to communicate with a device by receiving signals from and transmitting signals to a touch sensor of the device.” Petitioner's primary reference, Kaneko, fails to disclose or suggest such electrodes. Instead, Petitioner looks to another reference, Vuppu, to suggest that a “compound tip” in Vuppu remedies the deficiencies of Kaneko. Pet., 21-22. As presented in the Petition, the only stated reason for the modification is for “creating a stronger signal by a stylus, which is easier for a touch-sensitive device to detect.” Pet., 22. But Petitioner fails to realize that the principles of operation of Kaneko are different than how Vuppu operates. As such, Petitioner's motivation is grounded in hindsight rather than a technical underpinning.

Kaneko operates on the principle of magnetic induction between a loop on a device (specifically loop coil 101 in FIG. 4 of Kaneko) and a coil on a stylus (coil 311 in FIG. 5 of Kaneko) such that a change in the coupling on a stylus will produce a change in a device, and vice versa. This operation, using loop coil 101

and coil 311 is also depicted in Kaneko's Fig. 8 (reproduced below) (Kaneko, [0044]):



Kaneko also detects the strength of an electric field at a pen tip 325 produced from a matrix pattern in the device. Kaneko, [0024]. But, as implicit from the lack of a depiction of a pen tip in FIG. 8 and as explicitly shown in FIG. 5 of Kaneko (reproduced below), loop 311 and pen tip 325 are distinct components:



After digitizing information concerning the strength of the electric field detected by the pen tip 325 (Kaneko, [0045]), the stylus changes “the electric current flowing through the loop coil 101 with the generated anti-magnetic field” from coil 311 to transmit data from the stylus to the device. Kaneko, [0040]-[0041].

At this point, it should be evident that a POSITA would find no advantage to adding the compound tip of Vuppu into Kaneko for the purpose of “creating a stronger signal by a stylus, which is easier for a touch-sensitive device to detect,” as asserted at page 22 of the Petition. Since the pen tip of Kaneko's stylus does not create a signal for the device to detect, there is no need to provide a “stronger” signal. Moreover, the Petition does not explain how such a combination would operate using the principles of Kaneko, as adding something that generates an electric field at Kaneko's pen tip would interfere with the detection of an electric field from the device that Kaneko seeks to achieve.

As such, the Petition fails to justify the alleged combination of Kaneko and Vuppu. Further, Petitioner advances no theory that Kaneko alone, or Vuppu alone, renders any challenged claim obvious. As such, Ground 1 against claim 1 fails.

The Petition also incorporates this flawed analysis of claim 1 when addressing independent claims 7 and 13, therefore ensuring that Ground 1 against these other dependent claims is also deficient. *See* Pet., 35-36, 37-40:

7. Claim 7

Claim 7 is obvious over Kaneko in view of Vuppu for the reasons discussed below. All limitations of claim 7 are disclosed in the prior art and/or obvious to a POSITA.

a. Limitation 7[pre]

Limitation 7[pre] is obvious for the reasons discussed with reference to limitation 1[c] above.

b. Limitation 7[a]

Limitation 7[a] is obvious for the reasons discussed with reference to limitations 1[b] and 1[c1] above.

c. Limitation 7[b]

Limitation 7[b] is obvious for the reasons discussed with reference to limitation 1[c2] above.

d. Limitation 7[c]

Limitation 7[c] is obvious for the reasons discussed with reference to limitation 1[c3] above.

e. Limitation 7[d]

Limitation 7[d] is obvious for the reasons discussed with reference to limitation 1[c4] above.

c. Limitation 13[b]

Limitation 13[b] is obvious for the same reasons discussed above with reference to limitation 1[pre].

d. Limitation 13[b1]

Limitation 13[b1] is obvious for the same reasons discussed above with reference to limitation 1[a].

e. Limitation 13[b2]

Limitation 13[b2] is obvious for the same reasons discussed above with reference to limitation 1[b].

f. Limitation 13[b3]

Limitation 13[b3] is obvious for the same reasons discussed above with reference to limitation 1[c].

g. Limitation 13[b3A]

Limitation 13[b3A] is obvious for the same reasons discussed above with reference to limitation 1[c1].

h. Limitation 13[b3B]

Limitation 13[b3B] is obvious for the same reasons discussed above with reference to limitation 1[c2].

i. Limitation 13[b3C]

Limitation 13[b3C] is obvious for the same reasons discussed above with reference to limitation 1[c3].

j. Limitation 13[b3D]

Limitation 13[b3D] is obvious for the same reasons discussed above with reference to limitation 1[c4].

Thus, Ground 1 fails against independent claims 1, 7, and 13 and their dependent claims for the reasons as stated above.

C. Ground 2 (Kaneko, Vuppu, Cao, and/or King-Smith) Fails to Establish the Unpatentability of Claims 1, 7, and 13 Because Ground 2 Does Not Remedy the Deficiencies of Ground 1

Petitioner presents its Ground 2 challenge to claim 1 on pages 40-45 of the Petition (and incorporates its analysis of claim 1 when addressing claims 7 (Pet., 47-48) and 13 (Pet., 48-49)). Once again, Petitioner seeks an improper incorporation of its expert's declaration. Pet., 40-41. Nevertheless, Ground 2 can be easily disposed of because Ground 2 depends on the success of Ground 1 to combine Kaneko and Vuppu. For example, the Petition merely incorporates, and does not remedy the deficiencies of, its flawed reasoning for combining Kaneko and Vuppu as presented in Ground 1. *See* Pet., 41 (“A POSITA would be motivated to modify Kaneko in view of Vuppu for the reasons discussed at Section VII(A)(1) above.”).

Moreover, Petitioner offers a truncated analysis of its theories that fails to show how this new combination would satisfy each element of the claim. Although the Petition proclaims that claim 1 is “obvious over Kaneko in view of Vuppu, Cao, and/or King-Smith for the reasons discussed below” (Pet., 43), the Petition omits, and does not even address, how its new combination would satisfy elements 1[pre], 1[b], and 1[c2]. Rather, the Petition leaves it up to speculation, perhaps based on the improper incorporation by reference, to discern what Petitioner's theories are concerning the absent elements from the new combination.

Patent Owner notes that Appendix A2 to the Declaration (Ex. 1003 at 86) states, “Limitation 1[b] is obvious for the reasons discussed in Appendix A1 [corresponding to Ground 1], and limitation 1[b] is further obvious in view of Kaneko and Vuppu for the reasons discussed in Appendix A1.” Similar omissions can be found in Petitioner's incorporations for claims 7 and 13. Thus, even if the Petitioner's improper incorporation-by-reference document were to be considered, the challenge is not salvaged. Ground 2 fails for the same reasons as stated above with regard to Ground 1.

D. Ground 3 Fails to Establish the Unpatentability of Claims 1, 7, and 13 Because of Inconsistencies in Petitioner's Proposed Combination of Kaneko and Harley

Petitioner presents its Ground 3 challenge on pages 50-53 of the Petition. Once again, Petitioner seeks an improper incorporation of its expert's declaration. Pet., 50. In this combination, the Petition seeks to somehow combine Kaneko with Harley because the “electrode of Harley is used for both transmitting and receiving a signal.” Pet., 51. But the details of that combination are absent from the Petition for no good reason, especially when those details highlight the inconsistent and entirely conclusory nature of Ground 3.

In particular, Petitioner contends that the combination would “simplify[] the stylus design and/or reduc[e] costs.” Pet., 51 (citing “Ex. 1003, Appx. A3”). In Appendix A3 of Ex. 1003 (presented at pages 93-118 of Ex. 1003 for the Board's

convenience), Petitioner's expert provides more hints regarding the proposed combination, and those hints completely upend Petitioner's theories. Petitioner's expert states (Ex. 1003, 97) (with emphasis added):

A person of ordinary skill in the art would have been motivated to modify the technology of Kaneko based on Harley so that the stylus can use capacitive coupling for both sending and receiving all data to be communicated. This combination greatly simplifies the design and reduces the cost. While Kaneko uses capacitive coupling by stylus to receive data from the touch sensor/host, ***it discloses, in an embodiment, the use of electromagnetic induction/coupling for other types of communication. See, e.g., Figure 5 of Kaneko, which is discussed in limitations 1[c], 1[c1], 1[c2], and 1[c3] below.*** A person of ordinary skill in the art would have been motivated to use capacitive coupling for both ways of communication, as in Harley, for the obvious benefits of reducing cost and simplifying the implementation. Electromagnetic induction/coupling requires dedicated coils in the touch sensor/touch screen instead of relying only on the standard capacitive touch layers in the case of capacitive coupling. These coils make the touch sensor more complex to manufacture, thereby further increasing the cost. It would be well within the capabilities of a person of ordinary skill in the art to modify the stylus and touch sensor of Kaneko based on Harley, and a person of ordinary skill in the art would have a reasonable chance of success in doing so. Although this combination may require the use of a battery within the stylus, a person of ordinary skill in the art would understand that it is one of a small number of design choices and is an excellent tradeoff considering the achieved simplicity of design and reduced cost.

Thus, what Petitioner proposes is eliminating the components used for Kaneko's electromagnetic induction communication scheme with something disclosed in

Harley. But then, ironically, the expert tries to rely on the same components used in Kaneko's electromagnetic induction communication scheme to satisfy elements 1[c], 1[c1], 1[c2], and 1[c3] of claim 1 without ever mentioning anything in Harley that would satisfy the same elements. *See* Ex. 1003, 100-08.

So, how then does the Petition propose to satisfy the requirements of the particular communications recited in elements 1[c], 1[c1], 1[c2], and 1[c3] of claim 1? It doesn't. The Petition completely ignores elements 1[c], 1[c1], 1[c2], and 1[c3], and only addresses element 1[b]. Pet., 52. Petitioner similar ignores like requirements in claims 7 and 13. Pet., 52-53.

Patent Owner should not be forced to speculate as to how Petitioner believes Kaneko and Harley should be combined and how that combination would satisfy each element of the claims, particularly where the combination removes the very elements the Petition earlier relied on to satisfy those elements. Ground 3, therefore, is facially deficient and cannot support institution.

E. Ground 4 (Kaneko, Harley, Cao, and/or King-Smith) Fails to Establish the Unpatentability of Claims 1, 7, and 13 Because Ground 4 Does Not Remedy the Deficiencies of Ground 3

Petitioner presents its Ground 4 challenge on pages 52-59 of the Petition. Once again, Petitioner seeks an improper incorporation of its expert's declaration. Pet., 53-54. Nevertheless, Ground 4 can also be disposed of because Ground 4 depends on the success of Ground 3 to combine Kaneko and Harley. For example,

the Petition merely incorporates, and does not remedy the deficiencies of, its flawed combination of Kaneko and Harley. *See* Pet., 54 (“A POSITA would be motivated to modify Kaneko in view of Harley for the reasons discussed at Section VII(C)(1) above.”).

Moreover, Petitioner offers a truncated analysis of its theories that fails to show how this new combination would satisfy each element of the claim. The Petition selectively chooses which limitations to address and then offers vague incorporations without analysis or explanation (*see e.g.*, Pet., 55):

b. Limitation 1[c]

Even if limitation 1[c] were not disclosed in Kaneko, this limitation is also disclosed in Cao, and a POSITA would be motivated to modify Kaneko in view of Cao, for the reasons discussed in Section VII(B) above.

c. Limitation 1[c1]

Even if limitation 1[c1] were not disclosed in Kaneko, this limitation is also disclosed in Cao, and a POSITA would be motivated to modify Kaneko in view of Cao, for the reasons discussed in Section VII(B) above.

d. Limitation 1[c3]

Even if limitation 1[c3] were not disclosed in Kaneko, this limitation is also disclosed in Cao, and a POSITA would be motivated to modify Kaneko in view of Cao, for the reasons discussed in Section VII(B) above.

e. Limitation 1[c4]

Even if limitation 1[c4] were not disclosed in Kaneko, this limitation is also disclosed in Cao, and a POSITA would be motivated to modify Kaneko in view of Cao, for the reasons discussed in Section VII(B) above.

And Ground 4 even mistakenly proclaims that claim 1 is “obvious over Kaneko in view of *Vuppu*, Cao, and/or King-Smith for the reasons discussed below.” Pet., 54 (emphasis added). And like Ground 2’s challenge involving Vuppu, in Ground 4, the Petition omits, and does not even address, how its new combination would satisfy elements 1[pre], 1[b], and 1[c2]. Rather, the Petition leaves it up to speculation, perhaps based on the improper incorporation by reference, to discern what Petitioner’s theories are concerning the absent elements from the new combination. Pet., 54-55. This is improper.

Ground 4 therefore fails on the merits and also for the same reasons as stated above with regard to Ground 3.

F. Ground 5 Fails to Establish the Unpatentability of Claims 1, 7, and 13 Because Kremin Does Not Satisfy Each Element of Each Independent Claim

Petitioner presents its Ground 5 challenge to claim 1 based on Kremin on pages 59-69 of the Petition (and incorporates its analysis of claim 1 when addressing claim 7 (Pet., 71-72) and claim 13 (Pet., 74-75). Once again, Petitioner seeks an improper incorporation of its expert’s declaration. Pet., 59.

Element 1[b] of claim 1 recites “one or more electrodes configured to communicate with a device by receiving signals from and transmitting signals to a touch sensor of the device.” Kremin fails to disclose or suggest such electrodes. The Petition points to the stylus tip 895 of Kremin, as reproduced below (Pet., 62):

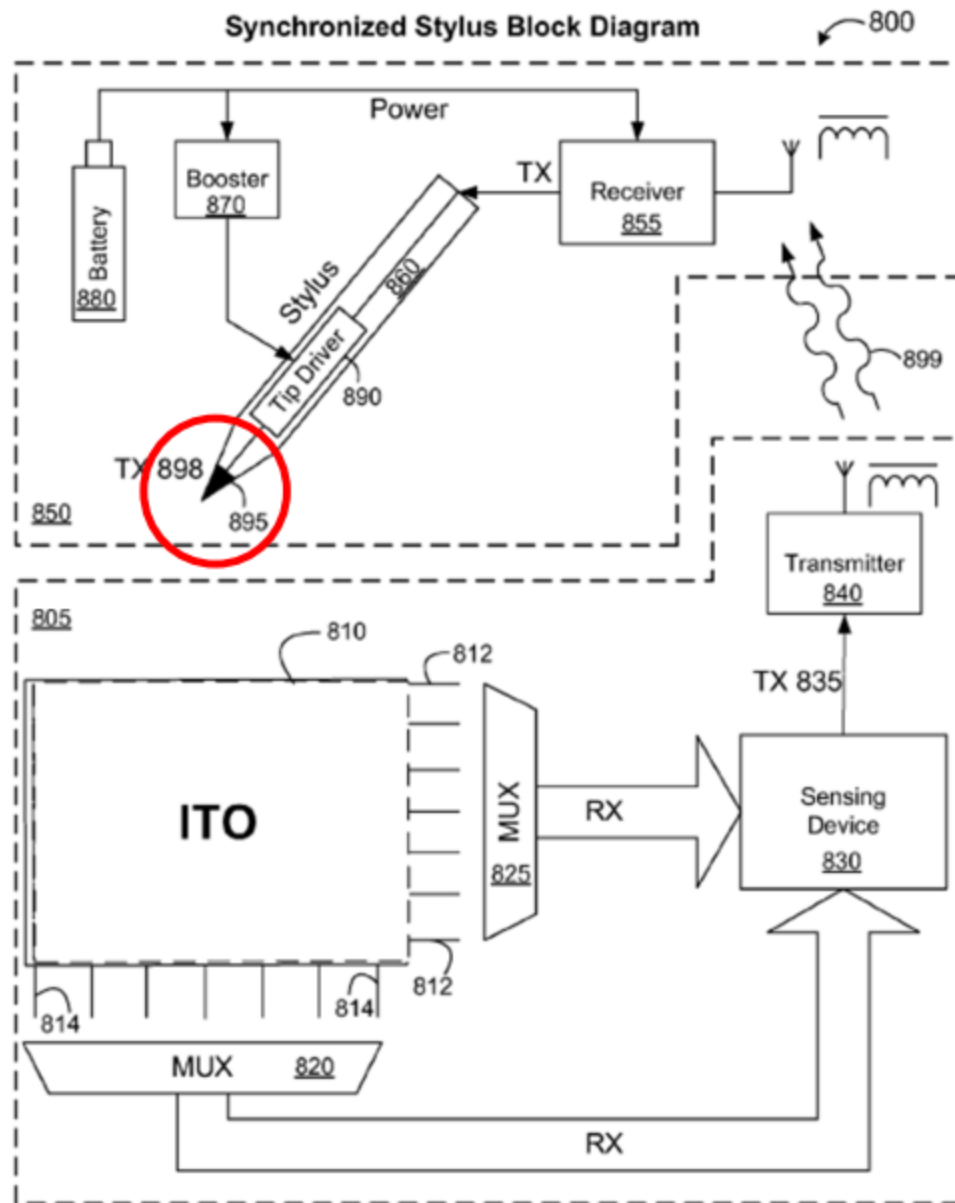


FIG. 8 of Kremin (annotated) (Ex. 1009)

But the stylus tip of Kremin does not receive signals from the touch sensor of the device. *See Pet.*, 61 (“The stylus of Kremin contains a stylus tip by which the stylus transmit signal is capacitively coupled to the capacitive sense array.”). Rather, as depicted by element 899 in Fig. 8, a transmitter in a device 805

communicates on a different channel with a receiving antenna on the device.

Indeed, in another annotation of Fig. 8 of Kremin, the Petition shows this distinct channel for receiving signals from a device (Pet., 65):

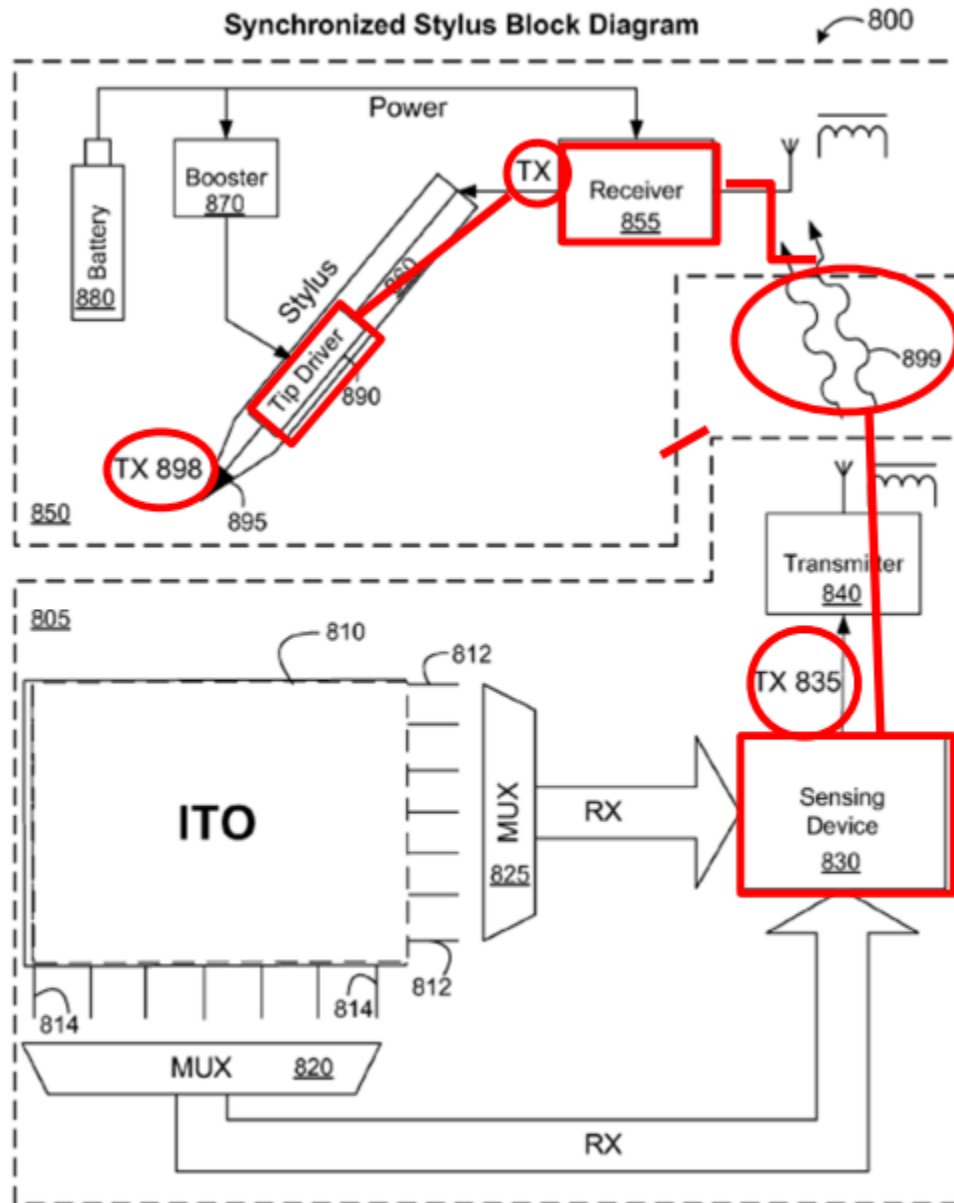


FIG. 8 of Kremin (annotated) (Ex. 1009)

Thus, by its own annotation of Kremin's Fig. 8, the Petition fails to show "one or more electrodes configured to communicate with a device by receiving signals from and transmitting signals to a touch sensor of the device," in Kremin, and Ground 5 fails.

Accordingly, Ground 5 against independent claims 1, 7, and 13 and their dependent claims fails for the reasons as stated above.

G. Ground 6 Fails to Establish the Unpatentability of Claims 1, 7, and 13 Because of Inconsistencies in Petitioner's Proposed Combination of Kremin and Harley

Petitioner presents its Ground 6 challenge on pages 76-79 of the Petition. Yet again, Petitioner seeks an improper incorporation of its expert's declaration. Pet., 76-77. In this combination, the Petition seeks to somehow combine Kremin with Harley because "Harley uses capacitive coupling for both sending and receiving data." Pet., 78. But like Ground 3, which seeks to combine Harley with Kaneko, the details of that combination are absent from the Petition for no good reason, especially when those details again highlight the inconsistent and entirely conclusory nature of Ground 6.

In particular, Petitioner contends that the combination would provide "a simplified design and sav[e] costs." Pet., 78 (citing "Ex. 1003, Appx. B2"). In Appendix B2 of Ex. 1003 (pages 168-193 of Ex. 1003 for the Board's convenience), Petitioner's expert provides more hints regarding the proposed

combination, and those hints completely upend Petitioner's theories. Petitioner's expert states (Ex. 1003, 176) (emphasis added):

A person of ordinary skill in the art would have been motivated to modify the technology of Kremin based on Harley so that the stylus can use capacitive coupling for both sending and receiving data. While Kremin uses capacitive coupling for sending data from the stylus to the touch sensor/host, in an embodiment, ***Kremin discloses the use of inductive coupling to send data from the touch sensor/host to the stylus.*** A person of ordinary skill in the art would have been motivated to use capacitive coupling for both ways of communication, as in Harley, for the obvious benefits of reducing cost and simplifying the implementation. Inductive coupling requires dedicated coils in the touch sensor/touch screen instead of relying only on the standard capacitive touch layers in the case of capacitive coupling. The magnetic coils make the touch sensor more complex to manufacture, thereby further increasing the cost. It would be well within the capabilities of a person of ordinary skill in the art to modify the stylus and touch sensor of Kremin based on Harley, and a person of ordinary skill in the art would have a reasonable chance of success in doing so. Although this combination may require the use of a battery within the stylus, a person of ordinary skill in the art would understand that it is one of a small number of design choices and is an excellent tradeoff considering the achieved simplicity of design and reduced cost.

What Petitioner proposes is eliminating the components used for Kremin's electromagnetic induction communication scheme with something disclosed in Harley. But then its expert tries to rely on the same components used in Kremin's electromagnetic induction communication scheme to satisfy elements 1[c], 1[c1], 1[c2], and 1[c3] of claim 1 without ever mentioning anything in Harley that would

satisfy the same elements. *See* Ex. 1003, 178-85.

So, how then does the Petition propose to satisfy the requirements of the particular communications recited in elements 1[c], 1[c1], 1[c2], and 1[c3] of claim 1? Again, it doesn't. The Petition completely ignores elements 1[c], 1[c1], 1[c2], and 1[c3], and only addresses element 1[b]. Pet., 78. Petitioner similarly ignores corresponding requirements in claims 7 and 13. Pet., 78-79.

Patent Owner should not be forced to speculate as to how Petitioner believes Kremin and Harley should be combined and how that combination would satisfy each element of the claims, particularly where the combination removes the very elements the Petition relied on to satisfy those elements. Ground 6, thus, fails for these reasons.

With that, the Petition's challenges fail in full. The challenges advanced establish no likelihood of success, and do not warrant institution. They should be denied on the merits.

V. CONCLUSION

For the reasons presented above, the Petition should be denied, and no *inter partes* review should be instituted.

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CERTIFICATE OF WORD COUNT

The undersigned certifies that the foregoing PATENT OWNER'S PRELIMINARY RESPONSE complies with the type-volume limitation in 37 C.F.R. § 42.24(b)(1). According to the word-processing system's word count, the brief contains 4,861 words, excluding the parts of the brief exempted by 37 C.F.R. § 42.24(a).

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