

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

WACOM CO., LTD.,

Plaintiff,

v.

**SHENZHEN QIANFENYI
INTELLIGENT TECHNOLOGY CO.,
LTD.,**

Defendant.

Civil Action No.: 2:24-cv-00702-JRG

DEFENDANT'S PRELIMINARY INVALIDITY CONTENTIONS

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I. INTRODUCTION

Pursuant to the Docket Control Order (Dkt. 24) and the Patent Local Rules for the Eastern District of Texas (“Patent Rules” or “P.R.”), Defendant Shenzhen Qianfenyi Intelligent Technology Co., Ltd. (“Maxeye” or “Defendant”) serves these Preliminary Invalidity Contentions (“Invalidity Contentions”) on Plaintiff Wacom Co., Ltd. (“Wacom” or “Plaintiff”), along with the document productions required by Patent Rule 3-4(b).¹

These Invalidity Contentions are based on Defendant’s current understanding of the patents-in-suit, Plaintiff’s January 7, 2025 Preliminary Infringement Contentions (“Infringement Contentions”), and the prior art identified as a result of Defendant’s investigation to date. Defendant continues to investigate and analyze the prior art, and to pursue discovery from Plaintiff and other sources, and may seek leave to supplement, modify, or otherwise amend these Invalidity Contentions accordingly. For example, Defendant may seek leave to supplement, modify, or otherwise amend these Invalidity Contentions after Plaintiff completes its production of invalidity-related documents, including but not limited to its production of documents regarding Plaintiff’s sales of electronic pens and/or styluses that predated at least one of the Asserted Claims. As another example, Defendant may seek leave to supplement, modify, or otherwise amend these Invalidity Contentions after the production of invalidity-related documents from third parties, including but not limited to the production of documents regarding third-party sales of electronic pens and/or styluses that predated at least one of the Asserted Claims, in response to third party subpoenas. As another example, Defendant may seek leave to

¹ Defendant will make available for inspection and copying any item of prior art identified in these Invalidity Contentions that does not appear in the accompanying document production.

supplement, modify, or otherwise amend these Invalidity Contentions after Plaintiff addresses deficiencies in its Infringement Contentions.

To the extent that these Invalidity Contentions rely on or otherwise embody particular constructions of terms or phrases in the Asserted Claims, Defendant is not proposing any such constructions as proper constructions of those terms or phrases at this time. The Court has established separate deadlines for the parties' proposed claim constructions, and Defendant will disclose its proposed constructions according to those deadlines. For purposes of these Invalidity Contentions, Defendant may adopt alternative claim construction positions. In particular, certain of these Invalidity Contentions may be based on proposed constructions that appear to underlie or rebut Plaintiff's Infringement Contentions.² Defendant, however, does not concede that Plaintiff's apparent constructions are proper, and reserves the right to contest any such constructions. Moreover, nothing herein admits in any way that any Accused Instrumentality, or any of Defendant's products, infringes any of the Asserted Claims or meets any element or limitation thereof. Defendant reserves the right to supplement, modify, or otherwise amend these Invalidity Contentions based on the Court's claim construction ruling or any change in Plaintiff's apparent constructions prior to such ruling, and/or based on the discovery of additional prior art.

Throughout the attached Exhibits, Defendant provides examples of where the prior art discloses subject matter recited in claim preambles, without regard to whether the preambles are properly considered to be limitations of the Asserted Claims. Defendant reserves the right to

² Plaintiff's Infringement Contentions appear to be based on an improperly broad interpretation of the Asserted Claims. Thus, certain of these Invalidity Contentions may likewise be based on Plaintiff's overbroad interpretations. Further, Plaintiff's Infringement Contentions are deficient at least because they fail to comply with P.R. 3-1(b) and (c). Defendant reserves the right to supplement, modify, or otherwise amend these Invalidity Contentions should Plaintiff amend its Infringement Contentions and/or modify its positions regarding the scope of the Asserted Claims.

argue that the preambles are or are not limitations. Moreover, Defendant reserves the right to argue that any claim elements or steps recited in the Asserted Claims do not in fact limit the scope of the Asserted Claims.

II. PRIORITY OF THE ASSERTED CLAIMS

In its Infringement Contentions, Plaintiff asserted the following patent claims (collectively, the “Asserted Claims” of the “Asserted Patents”):

- Claims 1, 3, 4, 5, 7, 9, 10, 11, 13, 15, 16, and 17 of U.S. Patent No. 9,280,220 (the “’220 patent”);
- Claims 20, 21, 22, and 23 of U.S. Patent No. 9,977,519 (the “’519 patent”);
- Claims 1, 2, 5, 8, 14, 15, 18, and 21 of U.S. Patent No. 10,108,277 (the “’277 patent”);
- Claims 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 18, 19, 20, 21, and 22 of U.S. Patent No. 10,437,356 (the “’356 patent”);
- Claims 1, 2, 3, 4, 5, 6, 7, 8, and 9 of U.S. Patent No. 9,690,399 (the “’399 patent”);
- Claims 1, 3, 4, 5, 6, 7, and 15 of U.S. Patent No. 9,933,866 (the “’866 patent”); and
- Claims 1, 2, 3, 4, 5, 7, 10, 13, 14, 19, and 20 of U.S. Patent No. 10,768,720 (the “’720 patent”).

Defendant will object to any attempt by Plaintiff to establish that any Asserted Claim is entitled to a priority date earlier than the dates identified in Plaintiff’s Infringement Contentions. Defendant also reserves the right to supplement, modify, or otherwise amend these Invalidity Contentions should Plaintiff allege that any Asserted Claim is entitled to an earlier priority date.

III. STATE OF THE ART

At the time of the alleged invention of the subject matter of the ’220 patent, including sensors in a stylus and transmitting sensor data, among other claimed features, were already

widely known, understood, and implemented by those of skill in the art, as evidenced by, for example, the documents produced at MAXEYE00000880-4634.

At the time of the alleged invention of the subject matter of the '356 patent, synchronizing a stylus and a touchscreen device and the use of correlators, among other claimed features, were already widely known, understood, and implemented by those of skill in the art, as evidenced by, for example, the documents produced at MAXEYE00000880-4634.

At the time of the alleged invention of the subject matter of the '866 patent, including in a stylus a component to convert a voltage to a high voltage used to generate a high-voltage signal, among other claimed features, were already widely known, understood, and implemented by those of skill in the art, as evidenced by, for example, the documents produced at MAXEYE-00000880-4634.

At the time of the alleged invention of the subject matter of the '519 patent, active pens receiving identification, frequency, and timeslot information, pairing of devices during beacon periods, collision handling, and unpairing based on loss of signal, among other claimed features, were already widely known, understood, and implemented by those of skill in the art, as evidenced by, for example, the documents produced at MAXEYE00000880-4634.

At the time of the alleged invention of the subject matter of the '277 patent, capacitive stylus systems with multiple electrodes for position detection, structured capacitive signal processing for tilt and angle detection, and time-differentiated signal analysis for stylus tracking, among other claimed features, were already widely known, understood, and implemented by those of skill in the art, as evidenced by, for example, the documents produced at MAXEYE-00000880-4634.

At the time of the alleged invention of the subject matter of the '399 patent, signal decoding and modulation processing systems and styluses configured to decode input signals

from a touch panel, among other claimed features, were already widely known, understood, and implemented by those of skill in the art, as evidenced by, for example, the documents produced at MAXEYE00000880-4634.

At the time of the alleged invention of the subject matter of the '720 patent, a writing pressure detector, a holder, and a flexible substrate, among other claimed features, were already widely known, understood, and implemented by those of skill in the art, as evidenced by, for example, the documents produced at MAXEYE00000880-4634.

Because these prior art solutions all share the common objectives of making a stylus more productive at working with a device wirelessly, it was widely recognized by those skilled in the art that advances in this technology with respect to a particular prior art solution were equally applicable to other prior art solutions in the same field.

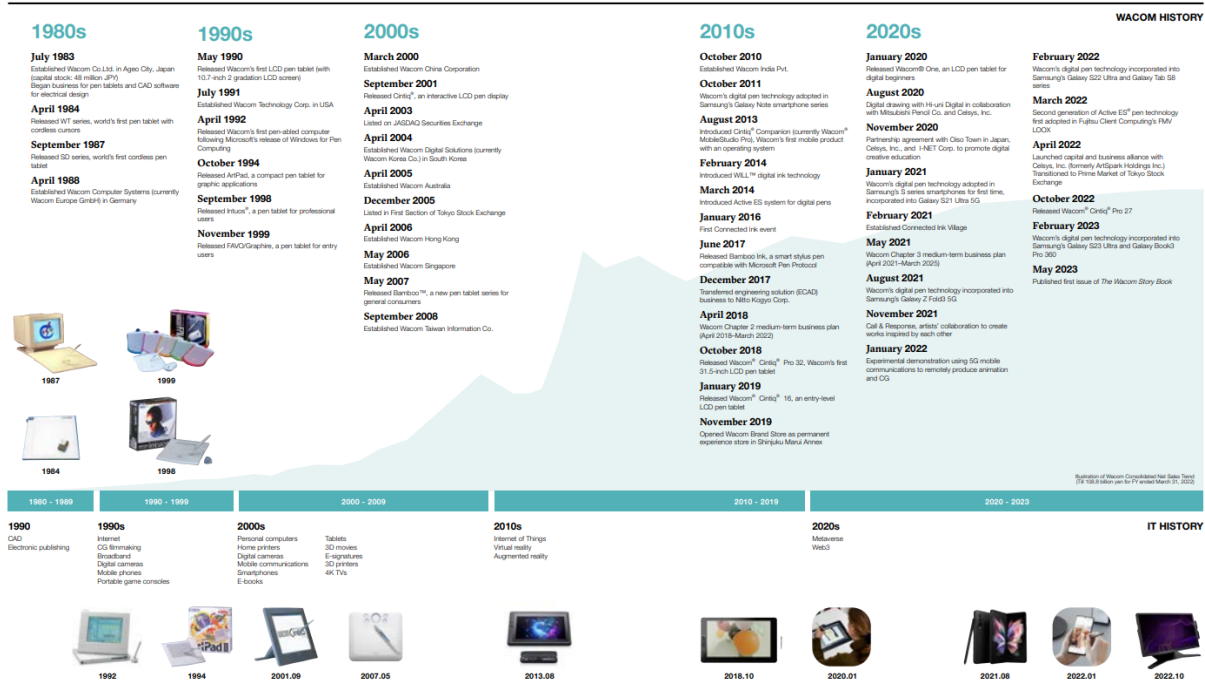
IV. PRODUCT PRIOR ART REFERENCES

For the product prior art and third parties who may have sold product prior art listed below, Defendant has made a good faith effort to identify and provide notice of the products, product lines, and third parties Defendant believes may be, or may have sold, relevant prior art products to one or more of the Asserted Claims. This identification includes producing the documents of which Defendant is currently aware that describe such prior art products. As detailed information regarding the design of these prior art products, including source code, technical specifications, and/or schematics, is likely in the possession of Plaintiff or the third-parties who sold such products, Defendant is pursuing such information through discovery from Plaintiff and third party discovery and will promptly produce such third party information and update these Preliminary Invalidity Contentions as such information is produced and reviewed.

Plaintiff has been selling “pen tablets” since at least as early as 1984 and has purportedly introduced new digital pen technology since that time through the present. *See, e.g.:*

THEN TILL NOW

This timeline presents a look back through the history of Wacom from the company's founding in 1983 to the present day, alongside major trends in the IT industry.



<https://contents.xj-storage.jp/xcontents/AS95168/d2e74296/ecd2/4359/a08a/446aa776f2d6/2021030730180546242s.pdf>

(last visited March 2, 2025).

The earliest priority date claimed by Plaintiff for any of the Asserted Patents is February 5, 2010, and the earliest claimed priority date for the '720 patent is March 24, 2017.

Accordingly, certain of Plaintiff's tablet pens and digital pens are prior art to one or more of the Asserted Claims under 35 U.S.C. §§ 102(a) or 102(b) (pre-AIA patents) or §102(a) (post-AIA patents). These potential prior art products or product lines include:

- Cintiq products (certain models available at least as early as September 2001)
- Inking products (certain models available at least as early as 2010)
- Bamboo stylus products (certain models available at least as early as May 2007)
- Intuos pen tablets (certain models available at least as early as September 1998)

Third parties have also sold active stylus products that predate at least one of the

Asserted Claims. For example, the HTC Scribe was an active pressure-sensitive pen that was available at least as early as May 2011 and is therefore prior art to one or more of the Asserted Claims.

V. INVALIDITY UNDER 35 U.S.C. §§ 102, 103 [P.R. 3-3(A)-(C)]

Defendant contends that the Asserted Claims are invalid as anticipated by the prior art under 35 U.S.C. § 102 and/or as obvious in view of the prior art under 35 U.S.C. § 103. The charts attached as Exhibits A-1 through G-2 provide examples of where specific items of prior art disclose either expressly or inherently, and/or render obvious, each element or limitation of the Asserted Claims. Defendant has endeavored to cite the most relevant portions of the identified prior art. However, other portions of the identified prior art may additionally disclose, either expressly or inherently, and/or render obvious, one or more elements or limitations of the Asserted Claims. Although Defendant has endeavored to identify at least one citation per element for each item of prior art, each and every disclosure of the same element in an item of prior art is not necessarily identified. The lack of a citation for an element or limitation is not an admission that the element or limitation is not disclosed expressly or inherently in, and/or is not rendered obvious by, the item of prior art. In an effort to focus the issues, Defendant has identified only example portions or aspects of cited prior art. Defendant reserves the right to rely on uncited portions or aspects of the identified prior art to establish the invalidity of the Asserted Claims. Moreover, Defendant reserves the right to rely on uncited portions or aspects of the identified prior art, other prior art, other references that show the state of the art (irrespective of whether such references themselves qualify as prior art), and/or expert testimony to provide context to or aid in understanding the cited portions or aspects of the identified prior art.

Where Defendant cites to a particular drawing or figure in the accompanying charts, the citation encompasses the description of the drawing or figure, as well as any text associated with

the drawing or figure. Similarly, where Defendant cites to particular text concerning a drawing or figure, the citation encompasses that drawing or figure as well.

Although certain references are listed as evidence for particular prior art solutions, certain of those references describe, relate to, and are evidence of multiple prior art solutions that render the Asserted Claims invalid. Defendant reserves the right to rely on any identified reference as evidence supporting any of those relevant prior art solutions. Defendant also reserves the right to rely on any identified item of prior art individually to anticipate any or all of the Asserted Claims and/or to render obvious any or all of the Asserted Claims in view of the knowledge of one of skill in the art and/or in combination with other identified references.

To the extent these Invalidity Contentions identify any prior art patents and/or printed publications under 35 U.S.C. §§ 102(a) or (b), Defendant may also rely on those patents and/or printed publications as evidence that the described invention was known or used by others under 35 U.S.C. §§ 102(a) or (g)(2), or in public use or on sale under 35 U.S.C. § 102(b).

Certain items of identified prior art inherently disclose features of the Asserted Claims. Defendant reserves the right to rely on inherency to demonstrate the invalidity of the Asserted Claims. Moreover, certain prior art references and solutions may inherently disclose certain features of the Asserted Claims as apparently construed by Plaintiff. Defendant may rely on cited or uncited portions of the prior art, other documents, and expert testimony to establish the inherency of certain features of the prior art to invalidate the Asserted Claims.

Defendant also reserves the right to rely on any reference identified in these Invalidity Contentions or any other reference to prove that an item of prior art identified herein is enabled or enabling, or to explain the meaning of a term or phrase used in or other disclosure found in the item of prior art.

In addition to the prior art identified below and the accompanying invalidity claim charts, Defendant also relies on the “Background of the Invention” and other relevant portions of the Asserted Patents and their related patents; the file histories of the Asserted Patents and their related patents, including the references cited during prosecution; and other evidence, including fact and expert testimony about that evidence, to prove that the Asserted Claims are anticipated and/or rendered obvious under 35 U.S.C. §§ 102 and 103.

Defendant reserves the right to supplement, modify, or otherwise amend these Invalidity Contentions in response to any allegation by Plaintiff that any of the identified prior art, or any combination of that prior art, does not disclose one or more elements or limitations of the Asserted Claims.

A. Obvious Combinations Under 35 U.S.C. § 103

To the extent that Plaintiff argues that an item of prior art does not disclose an element or limitation, Defendant reserves the right to rely on any combination of the prior art disclosed in these Invalidity Contentions, including the charts attached as Exhibits A-1 through G-2, the knowledge of those skilled in the art, the Applicants’ admitted prior art, and/or other prior art or information to show that it would have been obvious to include the allegedly missing element, step, or limitation. As further discussed within Exhibits A-1 through G-2, the reasons or motivation to combine the prior art would include, for example, the fact that the prior art is all in the field of electronic pen or stylus technology, and one of ordinary skill in the art implementing an electronic stylus and tablet system would have been motivated to investigate the various existing products, systems, solutions, methods, processes, patents, patent applications, and/or publications in that field to address his particular needs. The combinations and modifications of the prior art to invalidate the Asserted Claims would have arisen from ordinary innovation, ordinary skill, or common sense, or would have been obvious to try or otherwise predictable.

A person of ordinary skill would have been motivated to combine or modify identified prior art based on the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. Design incentives and other market forces would have prompted those combinations and modifications. For example, in the prior art, there were well-recognized design needs and market pressures to efficiently and reliably couple active styli with touchscreens. Moreover, some items of prior art refer to or discuss other items of prior art, illustrating the close technical and other relationships among the prior art and among those of skill in the art. To the extent any item of prior art refers to or discusses other items of prior art, either expressly or inherently, it would have been obvious to combine those items of prior art for at least that reason.

Defendant contends that the Asserted Claims are obvious because they merely arrange old elements, with each performing the same function that had been known, to perform and yield no more than what one of ordinary skill would expect from such an arrangement. Because there were a finite number of predictable solutions in the art of efficiently and reliably coupling active styli with touchscreens, it would have been obvious to a person of ordinary skill in the art to pursue the known options. A person skilled in the art of this technology would have been familiar with all of the claim elements and/or limitations that the patentee used to distinguish the prior art during prosecution. The identified prior art uses those familiar elements for their primary or well-known purposes and in a manner within the ordinary level of skill in the art. Accordingly, common sense and the knowledge of the prior art attributed to those skilled in the art render the Asserted Claims invalid as well.

B. Applicants' Admitted Prior Art

Statements made by the Applicants in the specification and/or during prosecution of the Asserted Patents and their related patents and/or applications, such as in the "Background of the

Invention” section that describes the prior art known to the Applicants, are admissions that can be relied upon for both anticipation and obviousness determinations, regardless of whether the admitted prior art would otherwise qualify as prior art under the statutory categories set forth in 35 U.S.C. § 102. *See* MPEP §§ 608.01(c), 2129. To the extent Plaintiff contends that the Asserted Claims are not invalid as anticipated by and/or obvious in view of the prior art under 35 U.S.C. §§ 102 and 103, Defendant reserves the right to rely on such “Admitted Prior Art” to demonstrate the invalidity of the Asserted Claims.

For example, in the specifications and prosecution histories of the Asserted Patents, Applicants admit that at least the following were known in the art at the time of the relevant filing:

- Touch sensors or touch screens such as resistive touch screens, surface acoustic touch screens, or capacitive touch screens. *See, e.g.*, ’220 patent, 1:31-35; ’866 patent, 1:32-36; ’356 patent, 1:27-31.
- Touch sensor controllers that process the change in capacitance when an object touches or comes within proximity of the surface of the capacitive touch screen to determine the object’s position on the touch screen. *See, e.g.*, ’220 patent, 1:35-40; ’866 patent, 1:36-41; ’356 patent, 1:31-36.
- Capacitive touch input technology utilizing touch panels and capacitive styluses. *See, e.g.*, ’399 patent, 1:23-25.
- Proximity sensor devices that determine the presence, location and/or motion of one or more input objects, such as styli or pens. *See, e.g.*, ’519 patent, 1:25-30, 1:38-39.
- A position detection apparatus (*i.e.* tablet) of the electrostatic coupling type including, as principal components thereof, a pointer (*i.e.* a pen) including an integrated circuit (IC) and a position detector including a sensor section having a group of conductors arrayed in a predetermined pattern. A predetermined signal is transmitted from the pointer, which is placed on the sensor section, to the conductor group, and the position pointed to by the pointer is detected by specifying the reception position of the transmission signal by the position detector. *See, e.g.*, ’277 patent, 1:29-40.
- An electronic pen configured to have a function for detecting a pressure (writing pressure) applied to the tip part (pen tip) of a core body and transmitting the pressure to a position detecting device. *See, e.g.*, ’720 patent, 1:14-17.

- A configuration of a writing pressure detecting unit using a mechanism that changes the capacitance of a capacitor according to the writing pressure. *See, e.g., '720 patent, 1:17-21.*

Additional admissions regarding the prior art are found in the specifications and prosecution histories of the Asserted Patents, in their related patents and/or applications, and in the Infringement Contentions.

C. Knowledge of One of Ordinary Skill in the Art

To the extent that Plaintiff contends that any particular feature of the Asserted Claims is a novel aspect of the Asserted Claims, Defendant reserves the right to illustrate that the particular feature was widely known, understood, and implemented by those of ordinary skill in the art at the time of the alleged invention, and that it would have been obvious to combine and/or modify the prior art identified throughout these Invalidity Contentions with the knowledge of one of ordinary skill in the art. For example, to the extent Plaintiff contends that capacitive touch screens and capacitive styli or pens are a novel aspect of any of the Asserted Claims, various prior art systems and references, including those discussed throughout these Invalidity Contentions, demonstrate that capacitive touch screen and stylus or pen technology was widely known, understood, and implemented in the prior art. One of ordinary skill in the art would have known this at the time of the alleged invention.

Defendant reserves the right to illustrate this knowledge using any of the prior art references included as part of Defendant's document production accompanying these Invalidity Contentions. Defendant also reserves the right to contend that it would have been obvious to modify any of the prior art identified in these Invalidity Contentions to render the Asserted Claims invalid in view of the knowledge of one of ordinary skill in the art.

D. The '220 Patent's Asserted Claims Are Invalid Based on the Prior Art

The claim charts attached hereto as Exhibits A-1, A-2, and A-3 are examples specifically identifying where in the cited prior art references each element of each Asserted Claim of the '220 patent is found. Defendant has endeavored to identify exemplary disclosures in the prior art references that satisfy the associated claim elements. The references, however, may contain additional supporting disclosure. Defendant reserves the right to rely on any and all portions of the references, other documents, and expert testimony to provide context, or to aid in understanding, the references' relevant disclosures. The citations and quotations in the charts are representative and should not be construed as limiting. For each reference, Defendant intends to rely on the reference in its entirety, rather than only on the identified excerpts thereof. Each reference must be read in light of the knowledge of a person of ordinary skill in the art. Defendant will therefore rely on the knowledge of a person of ordinary skill in the art in addition to the disclosures of each of the references. In addition, to the extent that a reference does not expressly disclose a particular claim limitation, that limitation may be inherently or implicitly disclosed or otherwise suggested by one or more of the references listed herein.

U.S. Pub. No. 20040056849 to Lohbihler (“Lohbihler”) (MAXEYE 00001216 - MAXEYE 00001227)

Published on March 25, 2004, and as a continuation-in-part of an application filed on July 25, 2002, Lohbihler discloses technology related to powering, detecting, and tracking multiple touch screen input devices, including a stylus. The technology uses an electromagnetic (EM) standing wave to transmit power and signals to the input devices. The disclosed methods provide for synchronization signals between a stylus and a device based on the timing of signals transmitted between device and stylus.

U.S. Patent No. 5,528,002 to Katabami (“Katabami”) (MAXEYE 00001847 - MAXEYE 00001870)

Issued on June 18, 1996 and filed on July 12, 1994, KATABAMI discloses a cordless pen with a conductive end that, when in contact with a device, can transmit an electrical signal that provides the position of the pen on the device. The device has an active circuit that transmits the signal, which changes in frequency depending on the status of two switches on the device. The disclosed methods provide for the capacitive coupling between a stylus and a device and for the use of varying frequencies to convey information about the stylus.

U.S. Patent No. 8,988,398 to Cao et al. (“Cao”) (MAXEYE 00002278 - MAXEYE 00002307)

Issued on March 24, 2015, and filed on February 11, 2011, Cao discloses a multi-touch input device for electronics that can perform multiple tasks depending on the orientation of the device and the way it is gripped by the user. The disclosed methods provide for sensing and capturing more detailed sensor data in a stylus that can enable the stylus to perform different functions and communicate additional data to a device.

U.S. Pub. No. 20120105362 to Kremin et al. (“Kremin ’5362”) (MAXEYE 00001544 - MAXEYE 00001580)

Published on May 3, 2012 and filed on August 19, 2011, Kremin ’5362 discloses a system and method for tracking and synchronizing a stylus or other touch input on a host device with a capacitive sense array using a synchronization signal, which can be sent, modulated, and demodulated by the device or the stylus. The signal can encode additional data from sensors with digital modulation techniques and be boosted to a high voltage for stylus detection while hovering. The disclosed methods provide for generating, modulating, and boosting complex analog and digital signals between and within a stylus and host device.

Japanese Patent Application No. 2008-152640 to Kaneko (“Kaneko”) (MAXEYE-00001017- MAXEYE-00001066)

Published on July 3, 2008 and filed on December 19, 2006, Kaneko discloses a system enabling finger and pen inputs to be located on a sensor matrix using varying voltages. The pen

receives, generates, modulates, and demodulates electric currents and encodes additional digital information sensed by the device using data modulation techniques. The disclosed methods provide for generating, modulating, and boosting complex analog and digital signals between and within a stylus and host device.

U.S. Pub. No. 2010085325 to King-Smith et al. (“King-Smith”)
(MAXEYE 00001359 - MAXEYE 00001389)

Published on April 8, 2010 and filed on September 28, 2009, King-Smith discloses a system that allows for stylus or finger touch inputs to a device using an array of electrodes. The stylus generates an electric field to transmit a signal within which additional digital data can be encoded, either in multiple frequencies or via another digital modulation technique. The disclosed methods provide for a stylus that can send digital data, like pen pressure and the status of additional switches, to a host device.

The chart attached as Exhibit A-1 provides examples of where Lohbihler discloses, either expressly or inherently, each element of the Asserted Claims of the '220 patent, thereby anticipating those claims. To the extent Plaintiff asserts that Lohbihler does not anticipate the asserted claims, it would have been obvious to combine or modify Lohbihler with concepts from other prior art as detailed in Exhibit A-1, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

The chart attached as Exhibit A-2 provides examples of where Kremlin discloses, either expressly or inherently, each element of the Asserted Claims of the '220 patent, thereby anticipating those claims. To the extent Plaintiff asserts that Kremlin does not anticipate the asserted claims, it would have been obvious to combine or modify Kremlin with concepts from other prior art as detailed in Exhibit A-2, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

The chart attached as Exhibit A-3 provides examples of where Kaneko discloses, either expressly or inherently, each element of the Asserted Claims of the '220 patent, thereby anticipating those claims. To the extent Plaintiff asserts that Kaneko does not anticipate the asserted claims, it would have been obvious to combine or modify Kaneko with concepts from other prior art as detailed in Exhibit A-3, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

E. The '356 Patent's Asserted Claims Are Invalid Based on the Prior Art

The claim charts attached hereto as Exhibits B-1, B-2, and B-3 are examples specifically identifying where in the cited prior art references each element of each Asserted Claim of the '356 patent is found. Defendant has endeavored to identify exemplary disclosures in the prior art references that satisfy the associated claim elements. The references, however, may contain additional supporting disclosure. Defendant reserves the right to rely on any and all portions of the references, other documents, and expert testimony to provide context, or to aid in understanding, the references' relevant disclosures. The citations and quotations in the charts are representative and should not be construed as limiting. For each reference, Defendant intends to rely on the reference in its entirety, rather than only on the identified excerpts thereof. Each reference must be read in light of the knowledge of a person of ordinary skill in the art. Defendant will therefore rely on the knowledge of a person of ordinary skill in the art in addition to the disclosures of each of the references. In addition, to the extent that a reference does not expressly disclose a particular claim limitation, that limitation may be inherently or implicitly disclosed or otherwise suggested by one or more of the references listed herein.

U.S. Pub. No. 20040056849 to Lohbihler ("Lohbihler") (MAXEYE 00001216 - MAXEYE 00001227)

Published on March 25, 2004, and as a continuation-in-part of an application filed on July 25, 2002, Lohbihler discloses technology related to powering, detecting, and tracking multiple

touch screen input devices, including a stylus. The technology uses an electromagnetic (EM) standing wave to transmit power and signals to the input devices. The disclosed methods provide for synchronization signals between a stylus and a device based on the timing of signals transmitted between device and stylus.

U.S. Pub. No. 20120105362 to Kremin et al. (“Kremin ’5362”) (MAXEYE 00001544 - MAXEYE 00001580)

Published on May 3, 2012 and filed on August 19, 2011, Kremin ’5362 discloses a system and method for tracking and synchronizing a stylus or other touch input on a host device with a capacitive sense array using a synchronization signal, which can be sent, modulated, and demodulated by the device or the stylus. The signal can encode additional data from sensors with digital modulation techniques and be boosted to a high voltage for stylus detection while hovering. The disclosed methods provide for generating, modulating, and boosting complex analog and digital signals between and within a stylus and host device.

U.S. Patent No. 5,440,228 to Schmidt (“Schmidt”) (MAXEYE 00001834 - MAXEYE 00001846)

Issued on August 8, 1995 and filed on March 9, 1994, Schmidt discloses a receiver for measuring frequencies of multiple signals arriving simultaneously, based on assigning a digitized sample of delay line correlators to each signal. The disclosed methods embody ways for a receiving device to receive and distinguish multiple signals simultaneously in a range of frequencies across a wide bandwidth.

U.S. Patent No. 7,451,282 to Meier et al. (“Meier”) (MAXEYE 00002199 - MAXEYE 00002217)

Issued on November 11, 2008 and filed on March 9, 2005, Meier discloses a method to receive and store high-speed sequences of data using a series of memory elements to bank received data as a potential improvement over other methodologies. The disclosed methods embody improvements over current methods of storing sequences of data, including using first-

in, first-out processes that maintain the elements and order of received data but discard the oldest in the sequence as new data arrives.

U.S. Patent No. 8,671,252 to Kim et al. (“Kim”) (MAXEYE 00002218 - MAXEYE 00002257)

Issued on March 11, 2014 and filed on February 26, 2013, Kim discloses a memory system architecture capable of issuing commands and communicating between other memory devices. The system allows for an electric circuit with two stable states capable of storing binary data to be connected to other similar circuits. The disclosed methods provide for serial connections between memory devices to store mass amounts of data in chains.

The chart attached as Exhibit B-1 provides examples of where Lohbihler discloses, either expressly or inherently, each element of the Asserted Claims of the '356 patent, thereby anticipating those claims. To the extent Plaintiff asserts that Lohbihler does not anticipate the asserted claims, it would have been obvious to combine or modify Lohbihler with concepts from other prior art as detailed in Exhibit B-1, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

The chart attached as Exhibit B-2 provides examples of where Cheong discloses, either expressly or inherently, each element of the Asserted Claims of the '356 patent, thereby anticipating those claims. To the extent Plaintiff asserts that Cheong does not anticipate the asserted claims, it would have been obvious to combine or modify Cheong with concepts from other prior art as detailed in Exhibit B-2, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

The chart attached as Exhibit B-3 provides examples of where Kremin discloses, either expressly or inherently, each element of the Asserted Claims of the '356 patent, thereby anticipating those claims. To the extent Plaintiff asserts that Kremin does not anticipate the asserted claims, it would have been obvious to combine or modify Kremin with concepts from

other prior art as detailed in Exhibit B-3 to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

F. The '866 Patent's Asserted Claims Are Invalid Based on the Prior Art

The claim charts attached hereto as Exhibits C-1 and C-2 are examples specifically identifying where in the cited prior art references each element of each Asserted Claim of the '866 patent is found. Defendant has endeavored to identify exemplary disclosures in the prior art references that satisfy the associated claim elements. The references, however, may contain additional supporting disclosure. Defendant reserves the right to rely on any and all portions of the references, other documents, and expert testimony to provide context, or to aid in understanding, the references' relevant disclosures. The citations and quotations in the charts are representative and should not be construed as limiting. For each reference, Defendant intends to rely on the reference in its entirety, rather than only on the identified excerpts thereof. Each reference must be read in light of the knowledge of a person of ordinary skill in the art. Defendant will therefore rely on the knowledge of a person of ordinary skill in the art in addition to the disclosures of each of the references. In addition, to the extent that a reference does not expressly disclose a particular claim limitation, that limitation may be inherently or implicitly disclosed or otherwise suggested by one or more of the references listed herein.

U.S. Pub. No. 20120105362 to Kremin et al. ("Kremin '5362") (MAXEYE 00001544 - MAXEYE 00001580)

Published on May 3, 2012 and filed on August 19, 2011, Kremin '5362 discloses a system and method for tracking and synchronizing a stylus or other touch input on a host device with a capacitive sense array using a synchronization signal, which can be sent, modulated, and demodulated by the device or the stylus. The signal can encode additional data from sensors with digital modulation techniques and be boosted to a high voltage for stylus detection while

hovering. The disclosed methods provide for generating, modulating, and boosting complex analog and digital signals between and within a stylus and host device.

U.S. Patent No. 6,377,248 to Partow et al. (“Partow”) (MAXEYE 00002085 - MAXEYE 00002100)

Issued on April 23, 2002, and filed on September 30, 1999, Partow discloses a stylus for use with a digitizing pad, which may comprise a transparent overlay on a display of a portable computer. The stylus can generate a larger signal to differentiate it from noise. The disclosed methods provide for a high-voltage output via amplifiers that enable for better detection of a stylus.

U.S. Pub. No. 20100170726 to Yeh et al. (“Yeh”) (MAXEYE 00001421 - MAXEYE 00001451)

Published on July 8, 2010, and claiming priority to a provisional application filed on January 6, 2009, YEH discloses technology related to an electronic stylus that emits an excitation signal to change a charging/discharging waveform in a trace of a capacitive touchpad module. The disclosed methods provide for an effect similar to a “finger down” to the capacitive touchpad module and allow for distinguishing between a stylus and another touch object.

The chart attached as Exhibit C-1 provides examples of where Yeh discloses, either expressly or inherently, each element of the Asserted Claims of the '356 patent, thereby anticipating those claims. To the extent Plaintiff asserts that Yeh does not anticipate the asserted claims, it would have been obvious to combine or modify Yeh with concepts from other prior art as detailed in Exhibit C-1 to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

The chart attached as Exhibit C-2 provides examples of where Kremlin discloses, either expressly or inherently, each element of the Asserted Claims of the '356 patent, thereby anticipating those claims. To the extent Plaintiff asserts that Kremlin does not anticipate the

asserted claims, it would have been obvious to combine or modify Kremlin with concepts from other prior art as detailed in Exhibit C-2 to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

G. The '519 Patent's Asserted Claims Are Invalid Based on the Prior Art

The claim charts attached hereto as Exhibits D-1, D-2, and D-3 are examples specifically identifying where in the cited prior art references each element of each Asserted Claim of the '519 patent is found. Defendant has endeavored to identify exemplary disclosures in the prior art references that satisfy the associated claim elements. The references, however, may contain additional supporting disclosure. Defendant reserves the right to rely on any and all portions of the references, other documents, and expert testimony to provide context, or to aid in understanding, the references' relevant disclosures. The citations and quotations in the charts are representative and should not be construed as limiting. For each reference, Defendant intends to rely on the reference in its entirety, rather than only on the identified excerpts thereof. Each reference must be read in light of the knowledge of a person of ordinary skill in the art. Defendant will therefore rely on the knowledge of a person of ordinary skill in the art in addition to the disclosures of each of the references. In addition, to the extent that a reference does not expressly disclose a particular claim limitation, that limitation may be inherently or implicitly disclosed or otherwise suggested by one or more of the references listed herein.

U.S. Patent No. 9,606,680 ("Sundara-Rajan") (MAXEYE 00002354 - MAXEYE 00002386)

Applied for on June 12, 2014, and issued on March 28, 2017, Sundara-Rajan discloses a stylus device that enables a computing device to communicate to the stylus device using a capacitive link. The patent describes an active capacitive stylus that enables a computing device to communicate to the active stylus using the existing capacitive link; is adapted to change its operating frequency to accommodate for changing noise environment; is capable of changing its

output so that it can communicate and function with a multitude of touch controllers; and provides a low power and low latency methodology of detecting touch down. Sundara-Rajan is relevant for its disclosures on stylus-based capacitive interactions.

U.S. Patent Application Publication No. US 2013/0207926 (“Kremin ’926”)
(MAXEYE 00001606 - MAXEYE 00001625)

Applied for on March 27, 2012, application published on August 15, 2013, and later abandoned, Kremin ’926 discloses a system and method for synchronizing a stylus to a capacitive sense array. The application describes transmitting synchronization signals to a stylus through varying methods and the transfer of information between stylus and capacitive sense array. Kremin ’926 is relevant for its disclosures on stylus-based capacitive coupling and information transfer.

U.S. Patent Application Publication No. US 2012/0105361 (“Kremin ’361”)
(MAXEYE 00001507 - MAXEYE 00001543)

Applied for on August 19, 2011, application published on May 3, 2012, and later granted as U.S. Patent No. 9,658,720, Kremin ’361 discloses a capacitive stylus with palm rejection. The application describes a capacitive sense array configured to detect a presence of a passive touch object and a stylus where the capacitive sense array receives a transmit signal from the stylus via capacitive coupling. The system is further able to receive additional data from the stylus, such as the applied force value of the stylus tip, a button status data, a battery status data, or a stylus acceleration data. Kremin ’361 is relevant for its disclosures related to communication between a sense array and a stylus.

U.S. Patent Application Publication No. 2013/0157690 (“Lefevre”)
(MAXEYE 00001581 - MAXEYE 00001605)

Applied for on September 2, 2011, and claiming priority to a French application (FR2964479) filed on September 3, 2010, and published on June 20, 2013, Lefevre discloses a method and devices for interfacing a plurality of mobile elements with a computer system in real

time. The application describes a process that enables a computer system to determine simply, efficiently, and in real time the position of a large number of mobile elements which can be used to interact with the computer system. Lefevre is relevant for its disclosures related to communication between a sense array and multiple moving inputs regarding their location and other data.

U.S. Patent No. 9,703,433 (“Chandran”) (MAXEYE 00002387 - MAXEYE 00002401)

Filed on August 18, 2014, and granted on July 11, 2017, Chandran discloses a system and method of communication between a capacitive touch screen and an active stylus. The patent describes an active stylus that operates in a wait mode to receive initial communications from the panel and synchronizes to a repeating communications frame implementing time division multiplexing. Communications are exchanged between both the stylus and the touch panel. Chandran is relevant for its disclosures related to synchronization between a stylus and a touch panel, as well as communications between the two.

U.S. Patent Application Publication No. 2012/0013555 (“Maeda”) (MAXEYE 00001486 - MAXEYE 00001506)

Applied for on July 7, 2011, and claiming priority to a Japanese application (JP2012022543) filed on July 15, 2010, Maeda discloses a touch screen system that includes a transmitter, a plurality of electronic pens, and a controller. The patent describes signal transmission by both the touch screen and the electronic pens. Chandran is relevant for its disclosures related to communications between a touch screen and styli.

The chart attached as Exhibit D-1 provides examples of where Sundara-Rajan discloses, either expressly or inherently, each element of the Asserted Claims of the '519 patent, thereby anticipating those claims. To the extent Plaintiff asserts that Sundara-Rajan does not anticipate the asserted claims, it would have been obvious to combine or modify Sundara-Rajan with

concepts from other prior art as detailed in Exhibit D-1, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

The chart attached as Exhibit D-2 provides examples of where Lefevre discloses, either expressly or inherently, elements of the asserted claims of the '519 patent. It would have been obvious to combine or modify Lefevre with concepts from other prior art as detailed in Exhibit D-2, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

The chart attached as Exhibit D-3 provides examples of where Kremin '361 discloses, either expressly or inherently, each element of the Asserted Claims of the '519 patent, thereby anticipating those claims. To the extent Plaintiff asserts that Kremin '361 does not anticipate the asserted claims, it would have been obvious to combine or modify Sundara-Rajan with concepts from other prior art as detailed in Exhibit D-3, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

H. The '277 Patent's Asserted Claims Are Invalid Based on the Prior Art

The claim charts attached hereto as Exhibits E-1, E-2, E-3, and E-4 are examples specifically identifying where in the cited prior art references each element of each Asserted Claim of the '277 patent is found. Defendant has endeavored to identify exemplary disclosures in the prior art references that satisfy the associated claim elements. The references, however, may contain additional supporting disclosure. Defendant reserves the right to rely on any and all portions of the references, other documents, and expert testimony to provide context, or to aid in understanding, the references' relevant disclosures. The citations and quotations in the charts are representative and should not be construed as limiting. For each reference, Defendant intends to rely on the reference in its entirety, rather than only on the identified excerpts thereof. Each reference must be read in light of the knowledge of a person of ordinary skill in the art.

Defendant will therefore rely on the knowledge of a person of ordinary skill in the art in addition to the disclosures of each of the references. In addition, to the extent that a reference does not expressly disclose a particular claim limitation, that limitation may be inherently or implicitly disclosed or otherwise suggested by one or more of the references listed herein.

U.S. Patent No. 5,798,756 to YOSHIDA (“YOSHIDA”)

Issued on August 25, 1998, and claiming priority to a Japanese application (6-322126) filed on December 26, 1994, YOSHIDA discloses a capacitive input system for electronic devices. The patent describes a pen-shaped position indicator that generates an electric field, which is detected by a coordinate input device, such as an LCD panel, through capacitive coupling. The system enables precise detection of pen location, movement, and operational signals based on changes in capacitance between electrodes in the pen and the sensor surface. YOSHIDA is relevant for its disclosures of, among other things, stylus-based capacitive interactions and electrode configurations.

U.S. Patent No. 5,736,980 to IGUCHI (“IGUCHI”)

Issued on April 7, 1998, and claiming foreign priority to a Japanese application filed on April 28, 1994 (6-092137), IGUCHI describes a capacitive pen system that improves tilt detection and coordinate tracking. The patent discloses a stylus with a main electrode and an auxiliary electrode, enabling the system to determine pen inclination by analyzing capacitive signals at different locations. By detecting timing differences between capacitive signals, IGUCHI allows for enhanced tilt angle measurement, making it a reference for, among other things, capacitive input technology involving multi-electrode detection systems.

Japanese Patent No. JPH1011206A to IKEDA (“IKEDA”)

Published on January 16, 1998, with a priority date of June 26, 1996, IKEDA discloses a coordinate detection pen that utilizes multiple capacitive detection electrodes for tracking

position and angle. The system employs a detection unit positioned at the pen tip and a second unit along the pen body, allowing for angle and coordinate detection through capacitive coupling with a sensor surface. The disclosed technology enables real-time tracking of stylus inclination and positional changes, making IKEDA a reference for, among other things, capacitive stylus designs integrating multiple detection points.

U.S. Patent No. 4,577,057 to BLESSER (“BLESSER”)

Issued on March 18, 1986, and filed on March 2, 1984, BLESSER discloses a system for detecting and processing input signals from a pen or stylus interacting with an electronic surface. The invention introduces signal processing techniques that analyze variations in detected signals to improve coordinate tracking and user input precision. The disclosed methods enhance signal differentiation and processing efficiency, contributing to improved stylus-based input devices through advanced detection algorithms.

U.S. Patent No. 6,184,873 to WARD (“WARD”)

Issued on February 6, 2001, WARD claims priority to an application filed on January 20, 1998, through a continued prosecution application. WARD discloses a pen positioning system utilizing multiple output elements to improve accuracy in detecting pen position and angle relative to a sensor surface. The invention describes a dual-output system where spatially separated output elements generate distinct signals, allowing for precise calculation of stylus tilt and position. WARD’s system refines electronic stylus tracking by incorporating structured geometric relationships between output elements, enhancing accuracy in digitizing input devices.

The chart attached as Exhibit E-1 provides examples of where YOSHIDA discloses, either expressly or inherently, elements of the Asserted Claims of the '277 patent. It would have been obvious to combine or modify YOSHIDA with concepts from other prior art as detailed in

Exhibit E-1, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

The chart attached as Exhibit E-2 provides examples of where YOSHIDA discloses, either expressly or inherently, elements of the Asserted Claims of the '277 patent. It would have been obvious to combine or modify YOSHIDA with concepts from other prior art as detailed in Exhibit E-2, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

The chart attached as Exhibit E-3 provides examples of where YOSHIDA discloses, either expressly or inherently, elements of the Asserted Claims of the '277 patent. It would have been obvious to combine or modify YOSHIDA with concepts from other prior art as detailed in Exhibit E-3, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

The chart attached as Exhibit E-4 provides examples of where IKEDA discloses, either expressly or inherently, elements of the Asserted Claims of the '277 patent. It would have been obvious to combine or modify IKEDA with concepts from other prior art as detailed in Exhibit E-4, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

I. The '399 Patent's Asserted Claims Are Invalid Based on the Prior Art

The claim charts attached hereto as Exhibits F-1 and F-2 are examples specifically identifying where in the cited prior art references each element of each Asserted Claim of the '399 patent is found. Defendant has endeavored to identify exemplary disclosures in the prior art references that satisfy the associated claim elements. The references, however, may contain additional supporting disclosure. Defendant reserves the right to rely on any and all portions of the references, other documents, and expert testimony to provide context, or to aid in

understanding, the references' relevant disclosures. The citations and quotations in the charts are representative and should not be construed as limiting. For each reference, Defendant intends to rely on the reference in its entirety, rather than only on the identified excerpts thereof. Each reference must be read in light of the knowledge of a person of ordinary skill in the art.

Defendant will therefore rely on the knowledge of a person of ordinary skill in the art in addition to the disclosures of each of the references. In addition, to the extent that a reference does not expressly disclose a particular claim limitation, that limitation may be inherently or implicitly disclosed or otherwise suggested by one or more of the references listed herein.

CN104571732A to YE / PCT/CN2014/081899 to YE / WO/2015/055024 to YE/ U.S.

Patent Application No. 15/029,254 to YE (“YE”)

CN104571732A issued on September 21, 2018, claiming priority to US Patent Application 15/029,254 filed on July 9, 2014 and published on August 18, 2016 and PCT/CN2014/081899 (WO/2015/055024) filed on July 9, 2014 and published on April 23, 2015, YE discloses an active stylus with touch detection designed to work with and communicate with a touch screen of an electronic device. YE is relevant for its disclosure of a stylus with sensors to detect input from a user and its electronic circuitry allowing the stylus to respond with particular actions after detecting the input from the user.

U.S. Patent No. 5,687,190 to TSAO

Issued on November 11, 1997 and filed on October 20, 1995, TSAO discloses a method for transmitting and receiving direct sequence spread spectrum signal (DSSS) to encode an information signal. TSAO is relevant for its disclosure of an amplifier and comparator, configured to generate a decoded input content.

Japanese Patent Application Publication No. H6 (1994)-54921 to YOSHISHIGE

Published on July 20, 1994, YOSHISHIGE discloses a modulation or demodulation system a circuit system for data transmission. YOSHISHIGE is relevant for its disclosure related to its shift registers and the operations performed by the shift registers.

U.S. Patent Application Publication No. 2002/0159515 to KENMOCHI

Published on October 31, 2002 and claiming priority to a Japanese Application JP11-357951 filed on December 16, 1999, KENMOCHI discloses a nonrecursive digital filter, the number of times each bit of input data passes through a shift register is reduced to save power. Particularly, spreading data is sent to a first shift register and a second shift register, each having a number of stages obtained by dividing the usual number of stages by two, and both shift registers alternately performing a shift operation at both edges of a shift clock. KENMOCHI is relevant for its disclosure related to its shift registers and the operations performed by the shift registers.

U.S. Patent Application Publication No. 2014/0192030 to RYSHTUN

Published on July 10, 2014 and filed on September 24, 2013, RYSHTUN discloses a stylus configured to sense a capacitance of a sensor to generate a proximity result in response to contact with a human body. RYSHTUN is relevant for its disclosure of a stylus with sensors to detect input from a user and its electronic circuitry including a micro controller.

U.S. Patent Application Publication No. 2010/0085325 to KING-SMITH

Published on April 8, 2010 and filed on September 28, 2009, KING-SMITH discloses a stylus system with a combination touch and transducer input system which facilitates user input into an electronic device with the stylus. KING-SMITH is relevant for its disclosure of the digital modulation technique differential binary phase shift keying (DBPSK) for modulating an output signal.

The chart attached as Exhibit F-1 provides examples of where Ye discloses, either expressly or inherently, elements of the Asserted Claims of the '399 patent. It would have been obvious to combine or modify Ye with concepts from other prior art as detailed in Exhibit F-1, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

The chart attached as Exhibit F-2 provides examples of where Ryshtun discloses, either expressly or inherently, elements of the Asserted Claims of the '399 patent. It would have been obvious to combine or modify Ryshtun with concepts from other prior art as detailed in Exhibit F-2, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

J. The '720 Patent's Asserted Claims Are Invalid Based on the Prior Art

The claim charts attached hereto as Exhibits G-1 and G-2 are examples specifically identifying where in the cited prior art references each element of each Asserted Claim of the '720 patent is found. Defendant has endeavored to identify exemplary disclosures in the prior art references that satisfy the associated claim elements. The references, however, may contain additional supporting disclosure. Defendant reserves the right to rely on any and all portions of the references, other documents, and expert testimony to provide context, or to aid in understanding, the references' relevant disclosures. The citations and quotations in the charts are representative and should not be construed as limiting. For each reference, Defendant intends to rely on the reference in its entirety, rather than only on the identified excerpts thereof. Each reference must be read in light of the knowledge of a person of ordinary skill in the art. Defendant will therefore rely on the knowledge of a person of ordinary skill in the art in addition to the disclosures of each of the references. In addition, to the extent that a reference does not

expressly disclose a particular claim limitation, that limitation may be inherently or implicitly disclosed or otherwise suggested by one or more of the references listed herein.

U.S. Patent No. 10,754,448 to Chiu et al. (“Chiu”)

Issued on August 25, 2020, and claiming priority to a Japanese patent application filed on December 21, 2015 and an application filed on November 21, 2016 (PCT / JP2016 / 084453), CHIU discloses an electronic stylus that carries out a function as a position indicator for a position detecting device. The patent describes a pen-shaped stylus that includes a core body and a pressure-sensitive assembly that is configured to detect a pressure applied to the core body. The pressure-sensitive assembly and a circuit board with a predetermined circuit formed thereon are supported by a holder. CHIU is relevant for its disclosures on the components in the electronic stylus and the arrangement of the components within the electronic stylus.

U.S. Patent Application Publication No. 2017/0108953 to Mao et al. (“Mao”)

Published on April 20, 2017, and claiming priority to a Taiwanese patent application (104133944) filed on October 16, 2015 and a United States Patent Application filed December 10, 2015, MAO discloses a capacitive stylus that has an adjustable pressure sensing structure. The patent publication describes a pen-shaped stylus that includes a core body and a pressure sensing element that is configured to detect a pressure applied to the core body. The pressure sensing element and a circuit board with a predetermined circuit formed thereon are supported by a holder. MAO is relevant for its disclosures on the components in the capacitive stylus and the arrangement of the components within the capacitive stylus.

EP Patent No. 0283250 A2 to Matthews et al. (“Matthews”)

Published on September 21, 1988, and claiming priority to a United States patent application (07/028,494) filed on March 20, 1987, MATTHEWS discloses a pressure-sensitive stylus of a type used with a digitizer tablet. The patent publication describes a stylus that

includes a pen refill and a pressure transducer that is configured to detect a pressure exerted by a tip of the stylus against a digitizer tablet surface. The pressure transducer and a circuit are coupled to a flexible substrate. MATTHEWS is relevant for its disclosures on the flexible substrate, the components in the stylus, and the arrangement of the components within the stylus.

U.S. Patent Application Publication No. 2016/0334894 to Fujitsuka (“Fujitsuka”)

Published on November 17, 2016, and claiming priority to a Japanese patent application (2014-016311) filed on January 31, 2014, FUJITSUKA discloses a pen-type position indicator having a function of detecting the writing pressure and a position detecting device configured to be equipped with the position indicator. The patent publication describes a position indicator that includes a core body and a pressure sensing component that is configured to detect a writing pressure applied to a protruding member of the core body. The pressure sensing component and a circuit board are supported by a board holder. FUJITSUKA is relevant for its disclosures on the components in the position indicator and the arrangement of the components within the position indicator.

The chart attached as Exhibit G-1 provides examples of where Chiu discloses, either expressly or inherently, elements of the Asserted Claims of the '720 patent. It would have been obvious to combine or modify Chiu with concepts from other prior art as detailed in Exhibit G-1, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

The chart attached as Exhibit G-2 provides examples of where Mao discloses, either expressly or inherently, elements of the Asserted Claims of the '720 patent. It would have been obvious to combine or modify Mao with concepts from other prior art as detailed in Exhibit G-2, to render the asserted claims invalid, because all of that prior art relates to electronic stylus technology.

VI. INVALIDITY UNDER 35 U.S.C. § 112 [P.R. 3-3(D)]

Defendant provides the following grounds of invalidity of the Asserted Claims based on indefiniteness under 35 U.S.C. § 112, ¶ 2 (pre-AIA patents) or 35 U.S.C. § 112(b) (post-AIA patents) and for lack of written description and/or enablement under 35 U.S.C. § 112, ¶ 1 (pre-AIA patents) or 35 U.S.C. § 112(b) (post-AIA patents).

Precise identification of all of the bases upon which the Asserted Claims are invalid under 35 U.S.C. § 112 are likely to be revealed only after further developments in the case, including fact and expert discovery. Defendant reserves the right to supplement, modify, or otherwise amend these Invalidity Contentions to include any invalidity arguments under 35 U.S.C. § 112 that become apparent in view of any relevant facts and information revealed during fact or expert discovery. Defendant also reserves the right to supplement, modify, or otherwise amend their Invalidity Contentions under 35 U.S.C. § 112, ¶¶ 1 and 2 or 35 U.S.C. § 112(a), (b) based on a change in Plaintiff's apparent claim constructions, on Plaintiff's claim construction arguments, or on the Court's claim construction ruling when issued.

The Asserted Claims are invalid for failure to comply with the definiteness requirement of 35 U.S.C. § 112, ¶ 2 or 35 U.S.C. § 112(b) as identified below:

Claim 2 of the '277 patent, which depends from claim 1, is indefinite under 35 U.S.C. § 112, ¶ 2 because it is a dependent claim that contradicts, rather than narrows, the claim from which it depends. Independent claim 1 requires "a second electrode arranged at a second position of the pen-tip portion different from the first position, the second position being *off an axis of the penshaped position indicator*." Claim 2, which depends from claim 1, claims "the pen-shaped position indicator according to claim 1, wherein the first and second electrodes are arranged at the first and second positions that are different *along the axis of the pen-shaped position indicator*. The claimed second position of the second electrode cannot be both "*off an*

axis of the penshaped position indicator” as required by claim 1, and at the same time be “*along the axis of the pen-shaped position indicator*” as required by claim 2. Claim 15, which depends from claim 14, is indefinite for the same reason.

The term “wirelessly” as recited in the Asserted Claims of the ‘866 patent, renders the Asserted Claims indefinite under 35 U.S.C. § 112, ¶ 2 because the scope of this term is insolubly ambiguous and the ‘866 specification fails to disclose whether “wirelessly” means without contact or simply without a connecting wire.

The term “high voltage” as recited in claims 1, 3, 4, 5, 7, 8, 9,, 10, 11, 13, 14, 15, 17, 18, 19, 20 of the ‘866 patent is a term of degree without a frame of reference and renders those claims indefinite under 35 U.S.C. § 112, ¶ 2 because the scope of this term is insolubly ambiguous and the ‘866 specification fails to disclose any standard for determining what constitutes a “high voltage” in the context of these claims.

The term “relatively large potential difference” as recited in claims 1, 8, 15 of the ‘866 patent is a term of degree without a frame of reference and renders those claims indefinite under 35 U.S.C. § 112, ¶ 2 because the scope of this term is insolubly ambiguous and the ‘866 specification fails to disclose any standard for determining what constitutes a “relatively large” potential difference.

The term “transmission timing of the stylus” as recited in claim 15 of the ‘356 patent, renders claim 15 indefinite under 35 U.S.C. § 112(b) because the scope of this term is insolubly ambiguous given the disclosure in the ‘356 specification that “the synchronization parameters may be used by controller 32 of active stylus 200 to synchronize receiver timing of active stylus 200 *with transmitter timing of touch-sensor controller 12,*” not “a transmission timing of the stylus” as required by claim 15.

VII. OTHER GROUNDS OF INVALIDITY

Defendant reserves the right to supplement, modify, or otherwise amend these Invalidity Contentions to address any additional invalidity and unenforceability defenses, including without limitation improper inventorship and inequitable conduct, that may become apparent in view of information revealed during discovery, and to otherwise seek to invalidate the Asserted Claims on any basis that is not required to be disclosed under P.R. 3-3.

Dated: March 4, 2025

Respectfully submitted,

/s/Mark Miller

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CERTIFICATE OF SERVICE

I hereby certify that on March 4, 2025 the foregoing document, titled DEFENDANT’S PRELIMINARY INVALIDITY CONTENTIONS, was served via electronic mail to the following:

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