IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

PAYGEO, LLC, *Plaintiff*, v. SAMSUNG ELECTRONICS CO., LTD, AND SAMSUNG ELECTRONICS AMERICA, INC., *Defendants*.	Case No. 2:25-CV-00334-RWS-RSP **JURY TRIAL DEMANDED**

DEFENDANTS' INVALIDITY CONTENTIONS

Pursuant to Local Patent Rules 3-3 and 3-4 and the Court's Second Amended Docket Control Order (Dkt. 52), Defendants Samsung Electronics Co., Ltd. ("SEC") and Samsung Electronics America, Inc. ("SEA") (collectively, "Samsung" or "Defendants") provide these Invalidity Contentions and accompanying document production to Plaintiff PayGeo, LLC ("PayGeo").

I. Overview

In this action, Plaintiff asserted in its P.R. 3-1 and 3-2 Disclosures of August 25, 2025 ("Infringement Contentions") that Defendants allegedly infringe claims 1-3, 22, and 24 of U.S. Patent No. 8,554,671 (the "'671 patent"), claims 1-2, 4, 6-9, 11, and 13-14 of U.S. Patent No. 10,796,296 (the "'296 patent"), claims 1-2, 4, 6-9, 11, and 13-14 of U.S. Patent No. 10,937,018 (the "'018 patent"), claims 1-2, 4, 6-9, 11, and 13-14 of U.S. Patent No. 11,087,307 (the "'307 patent"), claims 1-3, 5-8, and 10 of U.S. Patent No. 12,014,347 (the "'347 patent") (collectively, the "Patents-in-Suit" and the "Asserted Claims").

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This Court has not yet construed any of the terms in the Patents-in-Suit. Defendants' Invalidity Contentions are based on Defendants' present understanding of Plaintiff's apparent interpretation of the Asserted Claims, as advanced by Plaintiff in its Complaint and Infringement Contentions, and Defendants' own understanding of the scope of the Asserted Claims. Defendants take no position on any matter of claim construction or interpretation in these contentions. Defendants' contentions herein are not, and should in no way be seen as, admissions about or adoptions of any particular claim scope or construction, or any admission that any particular element is met in any particular way. Defendants object to any attempt to imply claim constructions from any identification or application of potential prior art. Any statement herein describing or tending to describe any claim element is provided solely for the purpose of understanding the relevant prior art. By including prior art that anticipates or renders obvious claims based on Plaintiff's apparent claim construction, Defendants do not thereby adopt Plaintiff's apparent claim construction.

Moreover, nothing herein should be construed as an admission that Defendants agree with Plaintiff's claim interpretations or that Plaintiff has a plausible basis to allege infringement. Similarly, nothing herein shall be construed as an admission regarding the application of the Asserted Claims to any of Defendants' accused products. Defendants do not agree with Plaintiff's application of the claims to the accused products, and Defendants deny infringement. Furthermore, these contentions do not represent an agreement with Plaintiff's views as to the meaning, definiteness, written description support for, or enablement of any of the Asserted Claims. In fact, Defendants provide grounds for invalidity under § 112 below. Pursuant to the Court's Second Amended Docket Control Order (Dkt. 52), Defendants reserve the right to include arguments directed to indefiniteness in their *Markman* briefing. Nothing stated herein shall be construed as a

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waiver of any argument available under 35 U.S.C. §§ 101, 102, 103, and/or 112. Defendants expressly reserve the right to propose alternative interpretations to those advocated by Plaintiff and to rebut Plaintiff's actual claim interpretation and infringement positions. Defendants reserve the right to modify or supplement these contentions in response to the Court's construction of the claim terms at issue.

Prior art not included in this disclosure may also become relevant. Defendants are currently unaware of the extent, if any, to which Plaintiff may contend that certain limitations of the Asserted Claims are not disclosed in the prior art identified by Defendants. Defendants reserve the right to identify other relevant prior art with respect to such allegedly missing limitation(s).

Defendants' invalidity claim charts attached hereto cite to exemplary portions, teachings, and disclosures of the prior art as applied to limitations of the Asserted Claims. Persons skilled in the art, however, would recognize these as exemplary and may view an item of prior art in the context of other publications, literature, products, and understanding. Again, this is because the cited portions of prior art identified herein are exemplary only. The citations and discussion in the charts are organized by claim (and claim limitation) for convenience, but each limitation or claim section applies to the larger context of each claim, to any related dependent or independent claims, as well as all claims containing similar limitations or elements in the particularly asserted patent or other related patents also being asserted by Plaintiff. For example, citations as to any recited limitation, step, or component in the claims apply wherever each such limitation, step, or component is repeated elsewhere in the claim of that patent or other related patent also being asserted by Plaintiff. Any and all citations to particular figures in the attached charts or elsewhere in these contentions shall be deemed to wholly incorporate the figure by reference, and include the figure as if it had been inserted into the chart itself, as well as any text discussing the figure.

Similarly, where Defendants cite particular text in a prior art reference concerning a drawing or figure, the citation encompasses that drawing or figure as well as any other associated information in the prior art reference. Defendants may therefore rely on the entirety of the prior art references listed herein, including uncited portions of those prior art references, as well as additional information including products, documents, materials, and expert testimony.

The references cited herein disclose the limitations of the Asserted Claims explicitly or inherently, and/or they may be relied upon to demonstrate how the state of the art in the relevant time frame invalidates each asserted patent claim. In the context of the knowledge of a person of ordinary skill in the art, each reference's disclosure applies in the context of both anticipation and obviousness. Therefore, any suggested single reference obviousness positions and obviousness combinations are provided in the alternative to Defendants' anticipation contentions and are not to be construed to suggest that any reference included in the combinations is somehow deficient or is not by itself anticipatory. Further, the combinations listed herein are exemplary and not exhaustive. There are many possible invalidating combinations of the references listed herein, and it is not practical, at this early stage, to identify and list all potentially relevant combinations without the benefit of further factual investigation and the Court's claim construction.

In addition to the positions and prior art identified below, and the accompanying invalidity claim charts, Defendants also incorporate by reference all invalidity contentions, prior art, invalidity claim charts, and expert declarations (including, without limitation, all anticipation positions, obviousness positions (including all prior art combinations and motivations to combine), indefiniteness positions, written description positions, and enablement positions) that have been or will be disclosed in any other action involving any of the Patents-in-Suit, as well as any U.S. Patent and Trademark Office (USPTO) proceeding involving any of the Patents-in-Suit (e.g.,

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IPR2025-01551, IPR2025-01552, IPR2025-01553, IPR2025-01554, and IPR2025-01555) and that have or will be disclosed in any pending USPTO proceeding involving related patents. Such art and positions would have been obvious to combine with the prior art and combinations identified in these Invalidity Contentions. To the extent Plaintiff or the Board puts forth an argument in any USPTO proceedings contrary to the positions in the litigation, Defendants reserve the right to raise and/or address such argument or position in this litigation.

Defendants expect to rely on testimony of one or more expert witnesses and materials referenced by those expert witnesses in support of these contentions and incorporate those forthcoming expert reports as if fully set forth herein. Subsequent expert statements—including deposition and trial testimony, declarations, and reports—related to invalidity, interrogatory responses, and other discovery or pleadings may expand and elaborate upon the positions contained in these Invalidity Contentions as originally prepared or subsequently amended, and Defendants reserve the right to incorporate such by reference. Defendants may further rely on any inventor admissions concerning the scope of the prior art relevant to the Patents-in-Suit found in, *inter alia*: the patent prosecution histories for the Patents-in-Suit and related patents, patent applications, and/or re-examinations; deposition testimony of the named inventors listed on the Patents-in-Suit; and the papers and any evidence submitted by Plaintiff in these actions.

Discovery has only just begun, and Defendants' investigation into prior art—including third-party prior art, and related evidence, documents, and knowledgeable witnesses—remains ongoing. Moreover, prior art may become relevant depending on the claim interpretations and/or validity positions Plaintiff or its expert witness(es) may assert, Defendants' further understanding of Plaintiff's Infringement Contentions, and any findings as to the priority date of the Asserted Claims. Accordingly, Defendants reserve the right to supplement or modify these Invalidity

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Contentions based on further discovery and in a manner consistent with the Federal Rules of Civil Procedure and the Court's rules and schedule. To the extent Plaintiff contends that any prior art presented in these contentions does not qualify as prior art to one or more Patents-in-Suit, the prior art remains relevant as evidence of simultaneous development as an indicia of obviousness. *See George M. Martin Co. v. Alliance Mach. Sys. Int'l LLC,* 618 F.3d 1294, 1305 (Fed. Cir. 2010) ("Independently made, simultaneous inventions … are persuasive evidence that the claimed apparatus was the product only of ordinary mechanical or engineering skill.").

As set forth in detail below, and in the claim charts which accompany these Invalidity Contentions as exhibits A1-A7, B1-B7, C1-C7, D1-D7, and E1-E7, and in IPR2025-01551, IPR2025-01552, IPR2025-01553, IPR2025-01554, and IPR2025-01555 (herein, incorporated by reference), the Asserted Claims of the Patents-in-Suit are invalid over the cited prior art listed below under pre-AIA 35 U.S.C. §§ 102 and/or 103 and their post-AIA counterparts. Regarding the obviousness of certain claims under 35 U.S.C. § 103, one or more of the principles enumerated by the United States Supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007) apply to the Asserted Claims of the Patents-in-Suit, including, for example:

(a) combining various claimed elements known in the prior art according to known methods to yield a predictable result;

(b) making a simple substitution of one or more known elements for another to obtain a predictable result;

(c) using a known technique to improve a similar device or method in the same way;

(d) applying a known technique, known device or method ready for improvement to yield a predictable result;

(e) choosing from a finite number of identified, predictable solutions with a reasonable expectation of success or, in other words, the solution was one which was "obvious to try;

(f) a known work in one field of endeavor prompting variations of it for use either in the same field or a different based on given design incentives or other market forces in which the variations were predictable to one of ordinary skill in the art; and/or

(g) a teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill in the art to modify the prior art reference or to combine the teachings of various prior art references to arrive at the claimed invention.

The above criteria may be collectively referred to herein as the "*KSR* Criteria."

Based on these considerations, as further detailed below and/or in the attached exhibits, one of ordinary skill in the art could and would have readily combined the teachings of the prior art references discussed and charted in those exhibits. The combinations of these references would have rendered obvious to one of ordinary skill in the art the subject matter of the Asserted Claims. The references identified in the attached exhibits for the respective Asserted Claims are analogous prior art to the subject matter of the Asserted Claims and, for at least the reasons set forth below and/or in the claim chart exhibits, are properly combinable. Because many, if not all, of these prior art references exist within a single field of art, particularly one in which individuals in the field often shared and/or collaborated on their work, it would have been obvious for one of ordinary skill in the art to look from one piece of prior art to another in order to find any missing functionality they desired to implement. The art is replete with instances of skilled artisans looking to the same field or related fields for purposes of implementing signal processing techniques for health monitoring. Therefore, these references provide interrelated teachings and one of ordinary

skill would have looked to the concepts in any of these references when seeking to solve the problems purportedly addressed by the Patents-in-Suit.

Numerous prior art references and/or systems, including in the attached exhibits, reflect common knowledge and the state of the prior art before the earliest effective priority date of the Patents-in-Suit. As it would be unduly burdensome to create detailed claim charts for all of the invalidating combinations, for at least the reasons described in these Invalidity Contentions, it would have been obvious to one of ordinary skill in the art to combine any of a number of prior art references, including any admitted prior art or any combination of those identified in the attached exhibits, to meet the limitations of the Asserted Claims. Defendants' inclusion of exemplary combinations, in view of the factors and motivations identified here, does not preclude Defendants from identifying other invalidating combinations and/or motivations as appropriate.

No showing of a specific motivation to combine prior art is required to combine the references disclosed above and in the attached charts, because each combination of art would have no unexpected results, and at most would simply represent a known alternative to one of ordinary skill in the art. *See KSR*, 550 U.S. at 415 (rejecting the Federal Circuit's "rigid" application of the teaching, suggestion, or motivation to combine test, instead espousing an "expansive and flexible" approach). That said, the Supreme Court's rationale, that a person of ordinary skill in the art is "a person of ordinary creativity, not an automaton" and "in many cases a person of ordinary skill in the art will be able to fit the teachings of multiple patents together like pieces of a puzzle," applies equally here. *Id.* at 420-421.

Additional evidence that there would have been a motivation or reason to combine the prior art references identified herein includes but is not limited to the interrelated teachings of multiple prior art references; the effects of demands known to the design community or present in the

marketplace; the existence of a known problem for which there was an obvious solution; the existence of a known need or problem in the field of endeavor at the time of the alleged inventions; and the background knowledge that would have been possessed by one of ordinary skill in the art. For example, the prior art references are generally directed to the same problems. Thus, a skilled artisan seeking to solve these problems would look to these cited references in combination.

Defendants contend there are no secondary considerations of non-obviousness evidencing the validity of any of the Asserted Claims. If Plaintiff presents any alleged evidence of secondary considerations of non-obviousness, Defendants reserve their right to respond to any such alleged evidence. Further, to the extent Plaintiff identifies any product as allegedly practicing the claims and having been successful, there is no nexus between the claimed invention and the products' success and Defendants reserve their right to respond to any such alleged evidence.

II. P.R. 3-3(a): Identification of Prior Art

Pursuant to Patent Rule 3-3 and subject to Defendants' reservations of rights in these Invalidity Contentions, Defendants identify the following prior art that anticipates and/or renders obvious one or more Asserted Claims of the Patents-in-Suit as detailed in the claim chart exhibits and elsewhere in these Invalidity Contentions. Below are tables identifying individual items of prior art. The prior art references, systems, and products listed below and in the accompanying claim chart exhibits may be relied upon for certain limitations, state of the art, and background of the art; indicia of obviousness; as evidence of the level of skill in the art at the time of the filing of the Patents-in-Suit; and/or in support of assertions that it is proper to combine certain prior art references in certain ways.

Defendants also incorporate by reference each and every prior art reference of record in the prosecution of the Patents-in-Suit and patents or patent applications related to the Patents-in-Suit, the prior art referred to in the specifications of the Patents-in-Suit, as well as the prior art

identified in the USPTO proceeding involving any of the Patents-in-Suit (e.g., IPR2025-01551, IPR2025-01552, IPR2025-01553, IPR2025-01554, and IPR2025-01555). In these Invalidity Contentions, Defendants have identified each item of prior art, based on currently available information, including:

(a) each patent, constituting prior art under pre-AIA 35 U.S.C. §§ 102(a), (b), and/or (e) or under AIA 35 U.S.C. §§ 102(a)(1) and/or (a)(2), by its patent number, country of origin, and date of issue;

(b) each non-patent publication, constituting prior art under pre-AIA 35 U.S.C. §§ 102(a) and/or (b) or under AIA 35 U.S.C. § 102(a)(1), by its title, date of publication, and, where feasible, author and publisher;

(c) sales or public disclosures, constituting prior art under pre-AIA 35 U.S.C. § 102(a) and/or (b) or under AIA 35 U.S.C. § 102(a)(1), by the item offered for sale or publicly used or known, the date the offer or use took place or the information became known, and the identity of the person or entity which made the use or which made and received the offer, or the person or entity which made the information known or to whom it was made known;

(d) prior art under pre-AIA 35 U.S.C. § 102(f), by the name of the person(s) from whom and the circumstances under which the invention or any part of it was derived; and

(e) prior art under pre-AIA 35 U.S.C. § 102(g), by the identities of the person(s) or entities involved in and the circumstances surrounding the making of the invention before the patent applicant(s).

Defendants' identification of patents and publications as prior art herein and in the attached invalidity claim charts includes the publications themselves as well as the use of the products and

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systems described therein. Defendants' investigation continues, but information available to date indicates that such products and systems were (1) known or used in the country before the alleged invention(s) of the claimed subject matter of the Asserted Claims, (2) were in public use and/or on sale in this country more than one year before the filing date of the Patents-in-Suit, and/or (3) were invented by another who did not abandon, suppress, or conceal, before the alleged invention(s) of the claimed subject matter of the Asserted Claims. Upon information and belief, these prior art products and systems and their associated references anticipate and/or render obvious one or more of the Asserted Claims of the Patents-in-Suit.

A. Prior Art Patents, Patent Applications, and Publications

Table 1: Prior Art Patents and Patent Applications

Country	Patent/ Application/ Publication No.	Date of Filing	Date of Issue/ Publication	Inventor(s)	Bates Range
US	2002/0016749	May 25, 2001	February 7, 2002	Borecki et al.	SamPay_00055865 – SamPay_00055890
US	2004/0267664	June 22, 2004	December 30, 2004	Nam et al.	SamPay_00056404 – SamPay_00056421
US	2006/0069642	February 14, 2003	March 30, 2006	Doran et al.	SamPay_00056061 – SamPay_00056085
US	2008/0010192	July 6, 2006	January 10, 2008	Rackley III et al.	SamPay_00056727 – SamPay_00056825
US	2008/0201769	February 12, 2008	August 21, 2008	Finn	SamPay_00056107 – SamPay_00056115
US	2011/0320345	June 21, 2011	December 29, 2011	Taveau et al.	SamPay_00056840 – SamPay_00056856
US	2007/0255652	March 30, 2007	November 1, 2007	Tumminaro et al.	SamPay_00056857 – SamPay_00057006
US	2001/0037451	March 2, 2001	November 1, 2001	Bhagavatula et al.	SamPay_00057047 – SamPay_00057061

US	2003/0105710	September 4, 2002	June 5, 2003	Barbara et al.	SamPay_00057062 – SamPay_00057114
US	2003/0200184	February 19, 2003	October 23, 2003	Dominguez et al.	SamPay_00057115 – SamPay_00057157
US	2004/0015451	May 16, 2003	January 22, 2004	Sahota et al.	SamPay_00057158 – SamPay_00057171
US	2004/0088562	October 31, 2002	May 6, 2004	Vassilev et al.	SamPay_00057172 – SamPay_00057186
US	2004/0122768	December 19, 2002	June 24, 2004	Creamer et al.	SamPay_00057187 – SamPay_00057195
US	2005/0006461	April 16, 2004	January 13, 2005	Shenker et al.	SamPay_00057196 – SamPay_00057228
US	2007/0033136	August 5, 2005	February 8, 2007	Hu	SamPay_00057229 – SamPay_00057245
US	2007/0156436	August 25, 2006	July 5, 2007	Fisher et al.	SamPay_00057246 – SamPay_00057259
US	2007/0162369	January 9, 2006	July 12, 2007	Hardison, III	SamPay_00057260 – SamPay_00057398
US	2007/0255620	March 30, 2007	November 1, 2007	Tumminaro et al.	SamPay_00057399 – SamPay_00057549
US	2007/0257103	March 2, 2007	November 8, 2007	Fisher et al.	SamPay_00057550 – SamPay_00057560
US	2007/0257104	April 23, 2007	November 8, 2007	Owen et al.	SamPay_00057561 – SamPay_00057594
US	2007/0259716	July 6, 2007	November 8, 2007	Mattice et al.	SamPay_00057595 – SamPay_00057652
US	2007/0260558	April 16, 2007	November 8, 2007	Look	SamPay_00057653 – SamPay_00057661
US	2007/0260620	April 26, 2007	November 8, 2007	Smolen et al.	SamPay_00057662 – SamPay_00057701
US	2007/0265984	April 24, 2006	November 15, 2007	Santhana	SamPay_00057702 – SamPay_00057711

US	2008/0177668	January 24, 2007	July 24, 2008	Delean	SamPay_00057712 – SamPay_00057724
US	2008/0257952	April 18, 2007	October 23, 2008	Zandonadi	SamPay_00057725 – SamPay_00057746
US	2008/0288400	April 24, 2008	November 20, 2008	Panthaki et al.	SamPay_00057747 – SamPay_00057763
US	2009/0048967	September 30, 2008	February 19, 2009	Baig et al.	SamPay_00057764 – SamPay_00057784
US	2009/0070263	September 12, 2007	March 12, 2009	Davis et al.	SamPay_00057785 – SamPay_00057806
US	2009/0083847	September 9, 2008	March 26, 2009	Fadell et al.	SamPay_00057807 – SamPay_00057828
US	2009/0096610	October 12, 2007	April 16, 2009	Thorn	SamPay_00057829 – SamPay_00057843
US	2009/0152343	July 15, 2008	June 18 2009	Carter et al.	SamPay_00057844 – SamPay_00057869
US	2009/0191811	September 30, 2008	July 30, 2009	Griffin et al.	SamPay_00057870 – SamPay_00057884
US	2009/0192937	September 30, 2008	July 30, 2009	Griffin et al.	SamPay_00057885 – SamPay_00057900
US	2009/0254479	March 26, 2009	October 8, 2009	Pharris	SamPay_00057901 – SamPay_00057922
US	2009/0281904	March 26, 2009	November 12, 2009	Pharris	SamPay_00057923 – SamPay_00057943
US	2009/0288012	May 18, 2009	November 19, 2009	Hertel et al.	SamPay_00057944 – SamPay_00058031
US	2009/0319425	May 21, 2009	December 24, 2009	Tumminaro et al	SamPay_00058032 – SamPay_00058078
US	2009/0254440	March 26, 2009	October 8, 2009	Pharris	SamPay_00058079 – SamPay_00058099
US	2010/0042539	August 18, 2009	February 18, 2010	Dheer et al.	SamPay_00058100 – SamPay_00058129

US	2010/0078472	September 30, 2008	April 1, 2010	Lin et al.	SamPay_00058130 – SamPay_00058257
US	2010/0138344	March 30, 2009	June 3, 2010	Wong et al.	SamPay_00058258 – SamPay_00058270
US	2010/0156812	December 22, 2008	June 24, 2010	Stallings et al.	SamPay_00058271 – SamPay_00058295
US	2010/0235283	September 19, 2008	September 16, 2010	Gerson	SamPay_00058296 – SamPay_00058317
US	2010/0260388	December 30, 2009	October 14, 2010	Garrett et al.	SamPay_00058318 – SamPay_00058343
US	2010/0293065	August 14, 2009	November 18, 2010	Brody et al.	SamPay_00058344 – SamPay_00058368
US	2011/0076941	September 30, 2009	March 31, 2011	Taveau et al	SamPay_00058369 – SamPay_00058382
US	2011/0082791	March 31, 2010	April 7, 2011	Baghdasaryan et al.	SamPay_00058383 – SamPay_00058408
US	2011/0196783	January 11, 2011	August 11, 2011	Liwerant	SamPay_00058409 – SamPay_00058422
US	2011/0204140	November 24, 2010	August 25, 2011	Hart et al.	SamPay_00058423 – SamPay_00058438
US	2011/0213711	March 1, 2010	September 1, 2011	Skinner et al.	SamPay_00058439 – SamPay_00058448
US	2011/0320343	June 29, 2010	December 29, 2011	Koh et al.	SamPay_00058449 – SamPay_00058460
US	2012/0030047	June 3, 2011	February 2, 2012	Fuentes et al.	SamPay_00058461 – SamPay_00058510
US	2012/0078751	September 23, 2011	March 29, 2012	MacPhail et al.	SamPay_00058511 – SamPay_00058542
US	2012/0078788	September 28, 2010	March 29, 2012	Gandhi	SamPay_00058543 – SamPay_00058561
US	2012/0127100	December 28, 2011	May 24, 2012	Forte et al.	SamPay_00058562 – SamPay_00058572

US	2012/0130889	November 18, 2011	May 24, 2012	Lyons et al.	SamPay_00058573 – SamPay_00058626
US	2012/0143759	December 2, 2010	June 7, 2012	Ritorto, Jr. et al.	SamPay_00058627 – SamPay_00058659
US	2012/0166810	October 27, 2011	June 28, 2012	Tao et al.	SamPay_00058660 – SamPay_00058679
US	2012/0173348	April 26, 2011	July 5, 2012	Yoo et al.	SamPay_00058680 – SamPay_00058736
US	2012/0179558	November 1, 2011	July 12, 2012	Fischer	SamPay_00058737 – SamPay_00058762
US	2012/0208455	February 15, 2011	August 16, 2012	Hill	SamPay_00058763 – SamPay_00058777
US	2012/0252359	March 29, 2011	October 4, 2012	Adams et al.	SamPay_00058778 – SamPay_00058809
US	2012/0259717	April 8, 2011	October 11, 2012	Griffin et al.	SamPay_00058810 – SamPay_00058824
US	2012/0259778	April 8, 2011	October 11, 2012	Banerjee et al.	SamPay_00058825 – SamPay_00058844
US	2012/0267432	June 26, 2012	October 25, 2012	Kuttuva	SamPay_00058845 – SamPay_00058967
US	2012/0290376	May 9, 2011	November 15, 2012	Dryer et al.	SamPay_00058968 – SamPay_00058994
US	2012/0310839	May 12, 2010	December 6, 2012	Chen et al.	SamPay_00058995 – SamPay_00059005
US	2013/0006848	June 22, 2012	January 3, 2013	Kuttuva	SamPay_00059006 – SamPay_00059252
US	2014/0025580	September 24, 2013	January 23, 2014	Bacastow	SamPay_00059253 – SamPay_00059283
US	2014/0067509	May 16, 2012	March 6, 2014	Weiner	SamPay_00059284 – SamPay_00059306
US	2016/0275483	May 31, 2016	September 22, 2016	Zhou	SamPay_00059307 – SamPay_00059321

US	2017/0140367	January 30, 2017	May 18, 2017	Zhou et al.	SamPay_00059322 – SamPay_00059353
US	2017/0323285	May 19, 2017	November 9, 2017	Xing	SamPay_00059354 – SamPay_00059394
US	2004/0117302	December 16, 2002	June 17, 2004	Weichert et al.	SamPay_00060046 – SamPay_00060076
US	2008/0046366	December 5, 2006	February 21, 2008	Bemmel et al.	SamPay_00061350 – SamPay_00061372
US	2008/0114699	October 29, 2007	May 15, 2008	Yuan et al.	SamPay_00061373 – SamPay_00061383
US	2009/0192912	September 30, 2008	July 30, 2009	Griffen et al.	SamPay_00061384 – SamPay_00061399
US	2008/0046366	December 5, 2006	February 21, 2008	Bemmel et al.	SamPay_00061435 – SamPay_00061457
US	2008/0167017	January 9, 2008	July 10, 2008	Wentker et al.	SamPay_00061612 – SamPay_00061634
US	2008/0167961	January 9, 2008	July 10, 2008	Wentker et al.	SamPay_00061635 – SamPay_00061657
US	2008/0172317	January 9, 2008	July 17, 2008	Deibert et al.	SamPay_00061658 – SamPay_00061670
US	2009/0192935	September 30, 2008	July 30, 2009	Griffen et al.	SamPay_00061671 – SamPay_00061686
US	2008/0114699	October 29, 2007	May 15, 2008	Yuan et al.	SamPay_00061687 – SamPay_00061697
US	8,001,045	October 31, 2008	August 16, 2011	McClinton	SamPay_00056350 – SamPay_00056364
US	8,955,741	May 18, 2009	February 17, 2015	Hansen et al.	SamPay_00056162 – SamPay_00056190
US	10,127,537	September 28, 2009	November 13, 2018	Ellis et al.	SamPay_00057007 – SamPay_00057031
US	10,839,384	March 30, 2009	November 17, 2020	Wong et al.	SamPay_00057032 – SamPay_00057046

US	3,466,394	May 2, 1966	September 9, 1969	French	SamPay_00059395 – SamPay_00059404
US	7,523,067	August 2, 2000	April 21, 2009	Nakajima	SamPay_00059405 – SamPay_00059476
US	7,707,113	September 28, 2007	April 27, 2010	DiMartino et al.	SamPay_00059477 – SamPay_00059493
US	7,810,720	March 22, 2008	October 12, 2010	Lovett	SamPay_00059494 – SamPay_00059524
US	8,126,806	December 3, 2007	February 28, 2012	DiMartino et al.	SamPay_00059525 – SamPay_00059541
US	8,127,999	August 13, 2009	March 6, 2012	Diamond	SamPay_00059542 – SamPay_00059571
US	8,195,576	January 31, 2011	June 5, 2012	Grigg et al.	SamPay_00059572 – SamPay_00059593
US	8,196,131	September 26, 2011	June 5, 2012	von Behren et al.	SamPay_00059594 – SamPay_00059620
US	8,255,323	January 9, 2009	August 28, 2012	Casey et al.	SamPay_00059621 – SamPay_00059643
US	8,458,088	April 8, 2010	June 4, 2013	Dunwoody	SamPay_00059644 – SamPay_00059657
US	8,555,334	July 12, 2006	October 8, 2013	Asano	SamPay_00059658 – SamPay_00059692
US	8,793,184	February 7, 2008	July 29, 2014	Lakshminarayan an	SamPay_00059693 – SamPay_00059724
US	9,076,008	June 27, 2011	July 7, 2015	Moy	SamPay_00059725 – SamPay_00059749
US	3,466,394	May 2, 1966	September 9, 1969	French	SamPay_00061183 – SamPay_00061192
US	8,543,496	April 27, 2007	September 24, 2013	Beenau et al.	SamPay_00061260 – SamPay_00061279
US	10,057,085	January 9, 2008	August 21, 2018	Wentker et al.	SamPay_00061321 – SamPay_00061349

US	7,784,684	July 18, 2006	August 31, 2010	Labrou et al.	SamPay_00061400 – SamPay_00061434
US	8,332,323	November 30, 2010	December 11, 2012	Stals et al.	SamPay_00061458 – SamPay_00061490
US	8,543,496	April 27, 2007	September 24, 2013	Beenau et al.	SamPay_00061491 – SamPay_00061510
US	8,620,260	April 27, 2007	December 31, 2013	Beenau et al.	SamPay_00061511 – SamPay_00061523
US	8,880,434	January 27, 2009	November 4, 2014	Bemmel et al.	SamPay_00061524 – SamPay_00061545
US	8,923,827	January 9, 2008	December 30, 2014	Wentker et al.	SamPay_00061546 – SamPay_00061571
US	9,558,485	September 30, 2008	January 31, 2017	Griffen et al.	SamPay_00061572 – SamPay_00061588
US	8,332,323	November 30, 2010	December 11, 2012	Stals et al.	SamPay_00061698 – SamPay_00061730
US	61/386,429	September 24, 2010	N/A	MacPhail et al.	SamPay_00056593 – SamPay_00056660
US	61/409,264	November 1, 2010	N/A	Fischer et al.	SamPay_00056661 – SamPay_00056726
US	61/415,529	November 19, 2010	N/A	Lyons et al.	SamPay_00060586 – SamPay_00060666
US	61/479,134	April 26, 2011	N/A	Lyons et al.	SamPay_00060667 – SamPay_00060752
US	61/534,829	September 14, 2011	N/A	Cooke et al.	SamPay_00060753 – SamPay_00060797
US	61/534,963	September 15, 2011	N/A	Cooke et al.	SamPay_00060798 – SamPay_00060842
EP	2332092B1	September 22, 2009	June 15, 2011	Aabye et al.	SamPay_00056086 – SamPay_00056106

CN	101676943A	September 16, 2008	March 24, 2010	Zhang et al.	SamPay_00055891 – SamPay_00055912; SamPay_00055913 – SamPay_00055921
CN	1510623A	April 25, 2001	July 7, 2004	Katashi et al.	SamPay_00055922 – SamPay_00056007; SamPay_00056008 – SamPay_00056033
JP	2004-240687A	February 5, 2003	August 26, 2004	Yoshiaki	SamPay_00056217 – SamPay_00056224; SamPay_00056251 – SamPay_00056268
JP	2011-518377A	April 2, 2009	June 23, 2011	Pharris	SamPay_00056225 – SamPay_00056250; SamPay_00056269 – SamPay_00056294
KR	1020000072676	September 19, 2000	December 5, 2000	Hyeon	SamPay_00056295 – SamPay_00056306
KR	20100071955	June 7, 2010	June 29, 2010	Hyung	SamPay_00056307 – SamPay_00056338
WO	2004/023353	September 3, 2003	March 18, 2004	Reeves et al.	SamPay_00059765 – SamPay_00059834
WO	2006/035421	July 14, 2005	April 6, 2006	Segev et al.	SamPay_00059835 – SamPay_00059882
WO	2009/108779	February 26, 2009	September 3, 2009	Weiss	SamPay_00059883 – SamPay_00059988
WO	2012/109486	February 9, 2012	August 16, 2012	Pfitzenmaier et al.	SamPay_00059989 – SamPay_00060045
WO	02/28067	September 20, 2001	April 4, 2002	Mathiassen	SamPay_00061223 – SamPay_00061259

Table 2: Non-Patent Publications

Title	Publication Date	Author(s)	Publisher	Bates Range
Square's Keith Rabois talks about the mobile payments start-up's new funding	January 10, 2011	Jessica Guynn	LA Time	SamPay_00055530 – SamPay_00055534
ADDING MULTIMEDIA PayPal Launches Mobile Payments; PayPal Mobile Enables Anytime, Any Payments, Purchases and Donations	April 6, 2006	PayPal	PayPal Newsroom	SamPay_00055535 – SamPay_00055537
PayPal Application Available on Apple App Store at Launch	July 10, 2008	PayPal	PayPal Newsroom	SamPay_00055538 – SamPay_00055539; SamPay_00056584 – SamPay_00056585
PayPal Opens Its Global Payments Platform	November 3, 2009	PayPal	PayPal Newsroom	SamPay_00055540 – SamPay_00055542
PayPal™ and Developers Push Mobile into Mainstream	October 26, 2010	PayPal	PayPal Newsroom	SamPay_00055543 – SamPay_00055546;
eBay Inc. Form 10-K	February 17, 2010	eBay Inc.	U.S. Securities and Exchange Commission	SamPay_00055547 – SamPay_00055687
Chapter One: Introduction 1.1 How M-PESA Works	August 9, 2010	M-PESA	Scribd	SamPay_00055688 – SamPay_00055717
A Digital Financial Services Revolution in Kenya: The M-PESA Case Study	2021	Ndung'u, Njuguna	African Economic Research Consortium (AERC)	SamPay_00055718 – SamPay_00055815
Analysis of Financial Institutions Riding the M-PESA Rails	March 2011	Sadana et al.	MicroSave	SamPay_00055827 – SamPay_00055848

Title	Publication Date	Author(s)	Publisher	Bates Range
Apple iPhone 4 review: Love it or hate it	June 2010	GSMArena	GSMArena.com	SamPay_00055849 – SamPay_00055851
Friends Make Venmo Better	October 11, 2010	PayPal	PayPal Newsroom	SamPay_00055852 – SamPay_00055854
Venmo Android App v1.15 Now Available	August 3, 2010	PayPal	PayPal Newsroom	SamPay_00055855 – SamPay_00055856
Venmo User Meetup in San Francisco	October 1, 2010	PayPal	PayPal Newsroom	SamPay_00055857 – SamPay_00055859
Venmo on CNN	January 25, 2011	PayPal	PayPal Newsroom	SamPay_00055860 – SamPay_00055861
We're at SXSW	March 11, 2011	PayPal	PayPal Newsroom	SamPay_00055862 – SamPay_00055864
Mobile Payments go Viral: M-PESA in Kenya	March 2010	Mas et al.	Worldbank	SamPay_00056034 – SamPay_00056060
PayPal Logout Marketing: PayPal's 20-Word "Bill Me Later" Sales Pitch	May 14, 2010	Bruene, Jim	Finovate Blog	SamPay_00056116 – SamPay_00056155
Advanced sign-in security for your Google account	February 10, 2011	Google	Google Blog	SamPay_00056156 – SamPay_00056157; SamPay_00060843 – SamPay_00060844
2-Step verification now available to Google Apps (free) edition	February 11, 2011	Google	G Suite	SamPay_00056158 – SamPay_00056161
IN SAFE HANDS: A review of mobile phone anti-theft designs	March 2008	Mailley et al.	European Journal on Criminal Policy and Research	SamPay_00056191 – SamPay_00056213
Is Near-Field Communication Close to Success?	March 2006	Ortiz Jr., Sixto	IEEE Computer Society	SamPay_00056214 – SamPay_00056216
How PayPal Works	2011	PayPal	PayPal	SamPay_00056339 – SamPay_00056340

Title	Publication Date	Author(s)	Publisher	Bates Range
Mobile Money: The Economics of M-PESA	January 2011	Jack, William et al.	National Bureau of Economic Research	SamPay_00056365 – SamPay_00056395
Mobile-Money: Benefits and Usage: The Case of M-PESA	May/June 2014	Mugambi, Allan et al.	IEEE Computer Society	SamPay_00056396 – SamPay_00056401
MobilePayUSA announces private beta for its mobile wallet	June 29, 2011	PaymentsDive	PaymentsDive	SamPay_00056402 – SamPay_00056403
Advanced sign-in security for your Google account	February 10, 2011	Shah, Nishit	Google Blog	SamPay_00056422 – SamPay_00056426; SamPay_00056427 – SamPay_00056431
Official Venmo Blog	August 19, 2010	Venmo	Venmo	SamPay_00056432 – SamPay_00056437
An Introduction to Near-Field Communication and the Contactless Communication API	June 2008	Ortiz, C. Enrique	Oracle	SamPay_00056449 – SamPay_00056461
PayPal Sandbox User Guide	October 2007	PayPal	PayPal	SamPay_00056462 – SamPay_00056503
Mobile Express Checkout Library Developer Guide and Reference – Android Edition	January 2011	PayPal	PayPal	SamPay_00056504 – SamPay_00056520
PayPal Cashless Utopia	November 4, 2010	PayPal	PayPal Newsroom	SamPay_00056524 – SamPay_00056526
PayPal Launches Revamped iPhone App, Teams With Bump For Phone-Tapping Money Transfes	March 15, 2010	Kincaid, Jason	Tech Crunch	SamPay_00056527 – SamPay_00056532
PayPal Website	October 18, 2010	PayPal	PayPal	SamPay_00056533 – SamPay_00056537

Title	Publication Date	Author(s)	Publisher	Bates Range
PayPal Send Money	April 20, 2011	PayPal	PayPal	SamPay_00056538 – SamPay_00056539
PayPal and Developers Push Mobile into Mainstream	October 26, 2010	PayPal	PayPal Ventures	SamPay_00056540 – SamPay_00056541
Interface Guide Adaptive Payments Edition 1.0	November 2, 2009	PayPal	PayPal	SamPay_00056542 – SamPay_00056580
New PayPal Mobile iPhone App Tops One Million Downloads	April 7, 2010	PayPal	PayPal Newsroom	SamPay_00056581 – SamPay_00056583
PayPal Introduces Mobile Access for the PayPal Security Key	November 24, 2008	PayPal	PayPal Newsroom	SamPay_00056586 – SamPay_00056588
PayPal Mobile Checkout Opens for Business	July 7, 2007	PayPal	PayPal Newsroom	SamPay_00056589 – SamPay_00056592
Easily Accept Payments Online	April 20, 2011	PayPal	PayPal	SamPay_00056826 – SamPay_00056827
Safaricom's M-PESA Service Wins Key Global Award	November 9, 2021	Safaricom	Safaricom	SamPay_00056828 – SamPay_00056831
How PayPal Works	June 30, 2010	PayPal	PayPal	SamPay_00056832 – SamPay_00056833
How PayPal Works	April 20, 2011	PayPal	PayPal	SamPay_00056834 – SamPay_00056835
Stick ‘em up. A Pantech GI100? Then gimme your phone and your thumbs!	August 3, 2004	Block, Ryan	engadget	SamPay_00056836 – SamPay_00056839
Get to Know PayPal	July 9, 2011	PayPal	PayPal	SamPay_00059750 – SamPay_00059750
Get to Know PayPal	July 9, 2011	PayPal	PayPal	SamPay_00059751 – SamPay_00059752
Get to Know PayPal	July 9, 2011	PayPal	PayPal	SamPay_00059753 – SamPay_00059754

Title	Publication Date	Author(s)	Publisher	Bates Range
The Venmo API	January 10, 2011	Venmo	Venmo	SamPay_00059755 – SamPay_00059757
Venmo Frequently Asked Questions	January 10, 2011	Venmo	Venmo	SamPay_00059758 – SamPay_00059759
Venmo Frequently Asked Questions	January 10, 2011	Venmo	Venmo	SamPay_00059760 – SamPay_00059761
Venmo Website Home	October 17, 2010	Venmo	Venmo	SamPay_00059762 – SamPay_00059762
Security at Venmo	January 10, 2011	Venmo	Venmo	SamPay_00059763 – SamPay_00059763
Venmo for Android	January 10, 2011	Venmo	Venmo	SamPay_00059764 – SamPay_00059764
What is M-Pesa? Definition, How the Service Works, and Example	April 28, 2025	Kagan, Julia	Investopedia	SamPay_00060077 – SamPay_00060088
Visa Best Practices for Tokenization Version 1.0	July 14, 2010	Visa	Visa	SamPay_00060089 – SamPay_00060092
An Emerging Platform: From Money Transfer System to Mobile Money Ecosystem	2012	Kendal et al.	Innovations, Vol. 6, No. 4	SamPay_00060093 – SamPay_00060108
Designing Mobile Money Services Lessons from M-PESA	Spring 2009	Mas et al.	Innovations, Vol. 4, Issue 2	SamPay_00060109 – SamPay_00060126
Innovation and Adaptation on the M-PESA Rails	May 2011	Sadana et al.	MicroSave	SamPay_00060127 – SamPay_00060128
Cash In, Cash Out Kenya: The Role of M-PESA in the Lives of Low-Income People	September 2011	Stuart et al.	Financial Services Assessment	SamPay_00060129 – SamPay_00060215
Invoicing User's Guid	September 2010	PayPal	PayPal	SamPay_00060216 – SamPay_00060353

Title	Publication Date	Author(s)	Publisher	Bates Range
Payflow Pro Developer's Guide	October 2009	PayPal	PayPal	SamPay_00060354 – SamPay_00060529
Not all tokenization solutions are created equal	2010	Chase	Chase	SamPay_00060530 – SamPay_00060532
Virtual Terminal User's Guide	August 2009	Paypal	Paypal	SamPay_00060533 – SamPay_00060580
Bump from Bump Technologies – Here is How you Bump	July 15, 2010	Bump Technologies	Youtube	SamPay_00055527 – SamPay_00055527
AppJudgment, PayPal with Bump Integration?	Mar. 17, 2010	App Judgment	Youttube	SamPay_00055528 – SamPay_00055528
Tapped-In: PayPal Aces Mobile Payments	Mar. 29, 2010	FOX Tappedin	Youtube	SamPay_00055529 – SamPay_00055529
Your Phone is Becoming Your Wallet	January 21, 2011	CNN	CNN	SamPay_00060581 – SamPay_00060581
Google 2-Step Verification	May 27, 2011	Google	Youtube	SamPay_00060582 – SamPay_00060582
How to Change Your PayPal Notification Preferences	Dec. 2, 2010	Kvc hosting	Youtube	SamPay_00060583 – SamPay_00060583
Paypal Merchant – How to Access Your Funds	May 18, 2010	Paypal Merchant	Youtube	SamPay_00060584 – SamPay_00060584
Startup Battlefield Day 2 Mobile Pay USA's Pitch	June 22, 2011	TechCrunch	TechCrunch	SamPay_00060585 – SamPay_00060585
In Safe Hands: A review of mobile phone anti-theft designs	March 2008	Whitehead et al.	European Journal on Criminal Policy and Research	SamPay_00060845 – SamPay_00060867
Newton 2.0 User Interface Guidelines	1996	Poole, Lon	Addison-Wesley Publishing Company	SamPay_00060868 – SamPay_00061174
PayPal Introduces Mobile Access for the PayPal Security Key	November 24, 2008	PayPal	PayPal Newsroom	SamPay_00061175 – SamPay_00061177

Title	Publication Date	Author(s)	Publisher	Bates Range
Obopay set to Launch: More Mobile Payments	March 29, 2006	Arrington, Michael	TechCruch	SamPay_00061178 – SamPay_00061182
Don't Waste the Marketing & Communication Benefits of an iPhone App Update	August 31, 2009	Bruene, Jim	USAA Finovate Blog	SamPay_00061193 – SamPay_00061215
Verizon Wireless releases banking on the go	July 22, 2008	RCR Wireless News	RCR Wireless News	SamPay_00061221 – SamPay_00061222
Past, present and future of mobile payments research: A literature review	February 9, 2007	Dahlbert, Tomi et al.	Elsevier	SamPay_00061280 – SamPay_00061296
The economics of mobile payments: Understanding stakeholder issues for an emerging financial technology application	January 27, 2007	Au, Yoris et al.	Elsevier	SamPay_00061297 – SamPay_00061320
Mobile Payment: A Journey Through Existing Procedures and Standardization Initiatives	December 31, 2004	Karnouskos, Stamatis et al.	IEEE	SamPay_00061589 – SamPay_00061611
Security - Alipay, Create a secure account for you, Alipay.com (Security Alipay)	July 4, 2011	Alipay	Alipay	SamPay_00055816 – SamPay_00055821
Multiple payment methods, Alipay.com (Multiple Payment Methods)	December 4, 2010	Alipay	Alipay	SamPay_00055825 – SamPay_00055826
Payment Tutorial – Payment Methods, Alipay.com (Payment Tutorial)	December 7, 2010	Alipay	Alipay	SamPay_00055822 – SamPay_00055824

Title	Publication Date	Author(s)	Publisher	Bates Range
Venmo – Your Stats This Week	April 7, 2011	Venmo	The Official Venmo Blog	SamPay_00056438 – SamPay_00056448
PayPal Goes Mobile	April 11, 2006	PayPal	PayPal	SamPay_00056521 – SamPay_00056521
Paypal Welcome Screen	April 8, 2006	PayPal	PayPal	SamPay_00056522 – SamPay_00056523
Venmo Home Page	March 31, 2011	Venmo	Venmo	SamPay_00068037 – SamPay_00068038

Defendants further incorporate by reference all "U.S. Patent Documents" and "Other Publications" cited on the face of the Patents-in-Suit. Any citation to one or more of the above prior art references, or other prior art references regarding any method or system, should be construed to constitute not only a citation to the prior art reference itself, but also a reference to the system itself. Discovery has only just begun in this case, and Defendants will supplement if and when more information becomes available from Plaintiff or third parties.

B. Prior Art Disclosures—Known/Use/Sales/Offers for Sale

Defendants believe that there were prior art disclosures in the form of sales, offers for sale, and/or uses by others of products that qualify as prior art under pre-AIA 35 U.S.C. § 102(a) and/or (b) or under AIA 35 U.S.C. § 102(a)(1) against one or more of the Asserted Claims of the Patents-in-Suit. The below-identified prior art products include products Defendants are currently aware of through an on-going diligent and reasonable investigation at this early stage of discovery and/or based on publicly available information. Details regarding such offers for sale and public uses may be within the possession of third parties. As discovery progresses, Defendants intend and reserve the right to promptly supplement and/or amend the lists below to include additional prior art products that anticipate and/or render obvious the asserted claims. To the extent Plaintiff contends that any systems presented below do not qualify as prior art to one or more Patents-in-Suit,

Defendants reserve the right to rely on any of such systems as evidence of simultaneous development as an indicia of obviousness.

Table 3: Prior Art Products

System	Sale or Use Date
PayPal's PayPal Mobile Application	At least as early as April 6, 2006
Venmo's Mobile Application	At least as early as October 11, 2010
Obopay	At least as early as March 30, 2006
Verizon's Mobile Banking Application	As early as July 22, 2008
USAA Mobile	As early as July 28, 2009
Chase Mobile	As early as August 25, 2009
Wells Fargo Mobile	As early as May 18, 2009
Google's two-step verification	As early as February 10, 2011
Alipay mobile payment system	As early as December 4, 2010
M-PESA system	As early as March, 2007
MobilePayUSA	As early as June 29, 2011

For the public uses identified herein, Defendants are investigating the identities of the individuals who knew about and/or were involved in the making, first public use, offer for sale and/or sale of these products and systems. Defendants are also investigating the exact date that these products and systems were first made, first publicly used, offered for sale and/or sold. In addition, Defendants are currently investigating the dates of conception and reduction to practice of these products and systems and when these products and systems were first known or used by others.

In the course of their investigation, Defendants may identify additional prior art documents describing these products, systems, and/or disclosures that may also anticipate and/or render obvious as invalidating printed publications. Any citation to one or more of prior art references regarding these products, systems, and/or disclosures should be construed to constitute not only a citation to the prior art reference itself, but also a reference to the associated products, systems, and/or disclosures.

C. Prior art under 35 U.S.C §§ 101, 116, pre-AIA 102(f)-(g)

Discovery has only just recently begun, and inventor discovery is forthcoming. Based on limited discovery received to date, Defendants contend that the Asserted Claims are invalid under pre-AIA 35 U.S.C. § 102(f)-(g), post-AIA § 101 and/or for failing to satisfy § 116 on the grounds that the named inventor of the Patents-in-Suit did not invent the subject matter claimed therein and/or improperly omitted an inventor. A patent is invalid if more or fewer than the true inventors are named. Should Defendants obtain additional evidence, they will provide the name of the person(s) from whom and the circumstances under which the alleged invention or any part of it was derived.

For example, Defendants believe that one or more other people may have invented or contributed to the subject matter claimed in the Patents-in-Suit, whose subject matter qualifies as prior art under pre-AIA 35 U.S.C. § 102(f)-(g) or post-AIA § 101 against one or more of the Patents-in-Suit. Defendants may identify additional information describing additional persons, facts, and circumstances that may also demonstrate that the named inventor is not entitled to the Patents-in-Suit under pre-AIA 35 U.S.C. § 102(f)-(g) or post-AIA § 101 and/or failed to satisfy the requirements under § 116 such that the Asserted Claims of the Patents-in-Suit are invalid.

Additionally, Plaintiff may have in its possession, custody, or control information related to or pertaining to information concerning the failure to satisfy §§ 101, 102(f)-(g), and/or 116.

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Defendants will supplement these Invalidity Contentions if and when Plaintiff produces such information and Defendants have had the opportunity to obtain and analyze that information. Defendants contend that the Patents-in-Suit are invalid under 35 U.S.C. §§ 101, 102(f)-(g), and/or 116 in the event Defendants obtain evidence that the named inventor of any of the Patents-in-Suit did not invent (either together or in conjunction with other parties) the subject matter claimed therein and/or omitted a true inventor.

D. Invalidity by Anticipation or Obviousness

Subject to the Defendants' reservation of rights stated in these Invalidity Contentions and based on Defendants' present understanding of the Asserted Claims and the apparent interpretations that Plaintiff is asserting based on Plaintiff's Complaint and its Infringement Contentions, Defendants provide below exemplary references and combinations of references that anticipate and/or render obvious the Asserted Claims of the '671 patent in Table 4, exemplary references and combinations of references that anticipate and/or render obvious the Asserted Claims of the '296 patent in Table 5, exemplary references and combinations of references that anticipate and/or render obvious the Asserted Claims of the '018 patent in Table 6, exemplary references and combinations of references that anticipate and/or render obvious the Asserted Claims of the '307 patent in Table 7, and exemplary references and combinations of references that anticipate and/or render obvious the Asserted Claims of the '347 patent in Table 8.

Aspects of these Invalidity Contentions are based, in whole or in part, on Defendants' present understanding of Plaintiff's apparent interpretations of the Asserted Claims based on Plaintiff's Complaint and its Infringement Contentions. Given Plaintiff's apparent interpretations of the Asserted Claims, Defendants have attempted to apply those interpretations, but this application of Plaintiff's interpretations is not an agreement or admission that any of Plaintiff's

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interpretations are correct. To be clear, Defendants do not agree with Plaintiff's Infringement Contentions but are merely offering Invalidity Contentions based on those interpretations.

The references identified in the exhibits attached to these Invalidity Contentions may disclose the elements of the Asserted Claims explicitly and/or inherently, and/or they may be relied upon to show how the state of the art in the relevant time frame invalidates the asserted patent claims. In some instances, multiple prior art publications discuss the same underlying system, software, or other project. For example, some patents and published patent applications reflect commercial products or services offered in the market. It would have been obvious to consider and combine the teachings of a patent or patent application that relate to a certain product or service with the features of that product or service as provided commercially. Similarly, where multiple publications discuss the same underlying product, service, project, or system, it would have been obvious to combine the discussions and disclosures of the publications as they would have been understood to describe features or potential features of the underlying subject matter. Likewise, where one publication discusses another publication, it would have been obvious to consider and combine the teachings of each publication in combination with each other.

Defendants' contentions that the references in this section, in various combinations, render the Asserted Claims of the Patents-in-Suit obvious under pre-AIA 35 U.S.C. § 103 or AIA 35 U.S.C. § 103 are in no way an admission or suggestion that each reference does not independently anticipate the Asserted Claims under pre-AIA 35 U.S.C. § 102 or AIA 35 U.S.C. § 102. Any of these references may be combined with other disclosed references, the disclosed products and systems, and/or with the knowledge of one of ordinary skill in the art during the relevant time period to render obvious, and, therefore, invalidate, the Asserted Claims of the Patents-in-Suit.

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Although Defendants have identified at least one disclosure of a limitation for each prior art reference, each and every disclosure of the same limitation in the same reference is not necessarily identified. To focus on the issues, Defendants cite only exemplary and representative portions of an identified reference, even where a reference may contain additional support for a particular claim limitation. Persons of ordinary skill in the art read an item of prior art as a whole and in the context of other publications and literature. Thus, to understand and interpret any specific statement or disclosure within a prior art reference that Defendants identify as exemplary and representative, such persons of ordinary skill in the art would rely on other information within the reference, along with other publications and their general scientific or engineering knowledge. As such, Defendants may rely upon uncited portions of the prior art references and on other publications and expert testimony to provide context, and as aids to understanding and interpreting the exemplary portions that are cited.

No showing of a specific motivation to combine prior art is required to combine the references disclosed above and in the attached charts, as each combination of art would have no unexpected results, and at most would simply represent a known alternative to one of ordinary skill in the art. *See KSR*, 550 U.S. at 415 (rejecting the Federal Circuit's "rigid" application of the teaching, suggestion, or motivation to combine test, instead espousing an "expansive and flexible" approach). That said, the Supreme Court's rationale, that a person of ordinary skill in the art is "a person of ordinary creativity, not an automaton" and "in many cases a person of ordinary skill in the art will be able to fit the teachings of multiple patents together like pieces of a puzzle," applies equally here. *Id.* at 420-421. Nevertheless, in addition to the information contained in the section(s) above and elsewhere in these contentions, Defendants hereby identify additional motivations and reasons to combine the cited art. Further motivations are provided in the attached charts.

One or more combinations of the prior art references identified herein would have been obvious because these references would have been combined using: known methods to yield predictable results; known techniques in the same way; a simple substitution of one known, equivalent element for another to obtain predictable results; and/or a teaching, suggestion, or motivation in the prior art generally. In addition, it would have been obvious to try combining the prior art references identified above because there were only a finite number of predictable solutions and/or because known work in one field of endeavor prompts variations based on predictable design incentives and/or market forces either in the same field or a different one. In addition, the combinations of the prior art references identified above would have been obvious because the combinations represent the known potential options with a reasonable expectation of success.

Motivation to combine any two or more of the identified references, systems, and/or products comes from the fact that one would have been motivated by considerations of miniaturizing components, increasing performance, lowering power consumption, improving noise immunity, reducing manufacturing costs, and improving manufacturing processes, to combine the various teachings. Additional evidence that there would have been a motivation or reason to combine the prior art references identified above includes the interrelated teachings of multiple prior art references; the effects of demands known to the design community or present in the marketplace; the existence of a known problem for which there was an obvious solution; the existence of a known need or problem in the field of endeavor at the time of the invention; and the background knowledge that would have been possessed by a person having ordinary skill in the art. For example, the prior art references, systems, and/or products are generally directed to the same or similar problems. Some references expressly incorporate others by reference or are

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authored by the same inventor. Thus, a skilled artisan seeking to solve these problems would have looked to these cited references in combination.

Thus, the motivation or reason to combine the teachings of the prior art references disclosed herein is found in the references themselves and in: (1) the nature of the problem being solved; (2) the express, implied, and inherent teachings of the prior art; (3) the knowledge of persons of ordinary skill in the art; (4) the fact that the prior art is generally directed towards the same problem; (5) the predictable results obtained in combining the different elements of the prior art; (6) the use of a known technique to improve similar devices, methods, or products in the same way; (7) the predictable results obtained in applying a known technique to a known device, method, or product ready for improvement; (8) the finite number of identified predictable solutions having a reasonable expectation of success; and/or (9) known work in various technological fields that could be applied to the same or different technological fields based on design incentives or other market forces.

1. '671 Patent

Table 4: Exemplary Anticipatory and Combinations for the Asserted Claims of the '671 Patent

Chart	Prior Art References
A1	Look either alone or in combination with one or more of Stallings, Tumminaro, Lin, Lyons, Griffin, Delean, Gandhi, and/or Taveau
A2	Lin either alone or in combination with one or more of Stallings, Tumminaro, Look, Lyons, Gandhi, Griffin, Delean, and/or Taveau
A3	Tumminaro either alone or in combination with one or more of Stallings, Look, Lin, Lyons, Gandhi, Griffin, Delean, and/or Taveau
A4	Pharris either alone or in combination with one or more of Lin, Stallings, Tumminaro, Look, Lyons, Gandhi, Griffin, Delean, and/or Taveau

Chart	Prior Art References
A5	PayPal Mobile alone or in combination with one or more of Look, Stallings, Tumminaro, Lin, Lyons, Gandhi, Griffin, Delean, and/or Taveau
A6	Venmo alone or in combination with one or more of Look, Stallings, Tumminaro, Lin, Lyons, Gandhi, Griffin, Delean, and/or Taveau
A7	Taveau alone or in combination with one or more of Look, Stallings, Tumminaro, Lin, Lyons, Gandhi, Griffin, Delean, and/or Taveau

The prior art identified above, and in the attached ’671 charts, individually anticipate and/or can properly be combined in multiple ways to demonstrate the obviousness of the Asserted Claims of the ’671 patent. Various combinations of the references would have naturally been considered as part of the exercise of ordinary skill by one skilled in the art. The references disclosed in the attached charts and herein are also directed to the same or similar features as the purported invention claimed in the Asserted Claims of the ’671 patent. To the extent Plaintiff contends that any of these features solved a problem in the art, the references cited herein show that that problem was known to those of ordinary skill and had already been solved using obvious solutions.

To that end, the Asserted Claims of the ’671 patent simply combine elements already disclosed and well known in the art and yield no more than what one skilled in the art would have expected from such a combination. For example, with respect to the ’671 patent, when confronted with the alleged problems described in the ’671 patent, one of ordinary skill in the art at the time of the alleged invention would have been motivated to consider the techniques taught by the prior art cited in these Invalidity Contentions. Consideration of the teachings of this prior art, both individually and in combination, would necessarily lead to the alleged invention claimed in the ’671 patent. This is demonstrated by the cited prior art, which disclose all of the elements of the Asserted Claims of the ’671 patent, as well as motivations to modify or combine their individual teachings. One of skill in the art would have been motivated to either modify the prior art identified

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in the claim charts or to combine that prior art in the manner indicated by, for example, their background knowledge, design incentives, effects of demands known to the design community, or other market forces. Moreover, the cited prior art share commonalities. To the extent it is argued that any cited prior art does not expressly disclose a particular claim or element, it would have been inherent in the disclosure and/or obvious to a person of ordinary skill in the art to include the claimed element to perform the invention as claimed in the ’671 patent.

As described in the attached charts, all the elements of the Asserted Claims of the ’671 patent were commonplace before the alleged date of inventions. For each element, there exists evidence from the cited prior art that it was well known in the art prior to the date of invention. To the extent it is argued that any of the cited prior art references, systems, and/or products do not anticipate the Asserted Claims, it would have been obvious to a person of ordinary skill in the art that the Asserted Claims are merely combinations of well-known methods and systems resulting in expected results.

Additionally, Defendants hereby incorporate by reference the motivations to combine references set forth during the prosecution of the Asserted Claims of the ’671 patent, including the statements and reasoning set forth by the examiner, as to why it would have been obvious to modify or combine references to arrive at the limitations of the Asserted Claims of the ’671 patent. Defendants also incorporate by reference the admissions made in the ’671 patent and/or during prosecution regarding what was already known in the art.

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2. ’296 Patent

Table 5: Exemplary Anticipatory and Combinations for the Asserted Claims of the ’296 Patent

Chart	Prior Art References
B1	Lin either alone or in combination with one or more of Pharris, Taveau, McClinton, Rackley, Tumminaro, Doran, Weichert, and/or Nam
B2	Rackley either alone or in combination with one or more of Pharris, Taveau, Lin, and/or Tumminaro
B3	Tumminaro either alone or in combination with one or more of Pharris, Taveau, McClinton, Rackley, and/or Lin
B4	Taveau either alone or in combination with one or more of Pharris, Tumminaro, McClinton, Rackley, Lin, Doran, Weichert, and/or Nam
B5	Pharris either alone or in combination with one or more of Taveau, Tumminaro, McClinton, Rackley, Lin, Doran, Weichert, and/or Nam
B6	PayPal Mobile either alone or in combination with one or more of Pharris, Taveau, Rackley, Tumminaro, and/or M-PESA
B7	M-PESA either alone or in combination with one or more of Pharris, Taveau, Tumminaro, McClinton, Rackley, Lin, Doran, Weichert, and/or Nam

The prior art identified above, and in the attached ’296 charts, individually anticipate and/or can properly be combined in multiple ways to demonstrate the obviousness of the Asserted Claims of the ’296 patent. Various combinations of the references would have naturally been considered as part of the exercise of ordinary skill by one skilled in the art. The references disclosed in the attached charts and herein are also directed to the same or similar features as the purported invention claimed in the Asserted Claims of the ’296 patent. To the extent Plaintiff contends that any of these features solved a problem in the art, the references cited herein show that that problem was known to those of ordinary skill and had already been solved using obvious solutions.

To that end, the Asserted Claims of the ’296 patent simply combine elements already disclosed and well known in the art and yield no more than what one skilled in the art would have

expected from such a combination. For example, with respect to the ’296 patent, when confronted with the alleged problems described in the ’296 patent, one of ordinary skill in the art at the time of the alleged invention would have been motivated to consider the techniques taught by the prior art cited in these Invalidity Contentions. Consideration of the teachings of this prior art, both individually and in combination, would necessarily lead to the alleged invention claimed in the ’296 patent. This is demonstrated by the cited prior art, which disclose all of the elements of the Asserted Claims of the ’296 patent, as well as motivations to modify or combine their individual teachings. One of skill in the art would have been motivated to either modify the prior art identified in the claim charts or to combine that prior art in the manner indicated by, for example, their background knowledge, design incentives, effects of demands known to the design community, or other market forces. Moreover, the cited prior art share commonalities. To the extent it is argued that any cited prior art does not expressly disclose a particular claim or element, it would have been inherent in the disclosure and/or obvious to a person of ordinary skill in the art to include the claimed element to perform the invention as claimed in the ’296 patent.

As described in the attached charts, all the elements of the Asserted Claims of the ’296 patent were commonplace before the alleged date of inventions. For each element, there exists evidence from the cited prior art that it was well known in the art prior to the date of invention. To the extent it is argued that any of the cited prior art references, systems, and/or products do not anticipate the Asserted Claims, it would have been obvious to a person of ordinary skill in the art that the Asserted Claims are merely combinations of well-known methods and systems resulting in expected results.

Additionally, Defendants hereby incorporate by reference the motivations to combine references set forth during the prosecution of the Asserted Claims of the ’296 patent, including the

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statements and reasoning set forth by the examiner, as to why it would have been obvious to modify or combine references to arrive at the limitations of the Asserted Claims of the ’296 patent. Defendants also incorporate by reference the admissions made in the ’296 patent and/or during prosecution regarding what was already known in the art.

3. ’018 Patent

Table 6: Exemplary Anticipatory and Combinations for the Asserted Claims of the ’018 Patent

Chart	Prior Art References
C1	Lin either alone or in combination with one or more of Pharris, Taveau, McClinton, Rackley, Tumminaro, Doran, Weichert, and/or Nam
C2	Rackley either alone or in combination with one or more of Pharris, Taveau, Lin, and/or Tumminaro
C3	Tumminaro either alone or in combination with one or more of Pharris, Taveau, McClinton, Rackley, and/or Lin
C4	Taveau either alone or in combination with one or more of Pharris, Tumminaro, McClinton, Rackley, Lin, Doran, Weichert, and/or Nam
C5	Pharris either alone or in combination with one or more of Taveau, Tumminaro, McClinton, Rackley, Lin, Doran, Weichert, and/or Nam
C6	PayPal Mobile either alone or in combination with one or more of Pharris, Taveau, Rackley, Tumminaro, and/or M-PESA
C7	M-PESA either alone or in combination with one or more of Pharris, Taveau, Tumminaro, McClinton, Rackley, Lin, Doran, Weichert, and/or Nam

The prior art identified above, and in the attached ’018 charts, individually anticipate and/or can properly be combined in multiple ways to demonstrate the obviousness of the Asserted Claims of the ’018 patent. Various combinations of the references would have naturally been considered as part of the exercise of ordinary skill by one skilled in the art. The references disclosed in the attached charts and herein are also directed to the same or similar features as the purported

invention claimed in the Asserted Claims of the ’018 patent. To the extent Plaintiff contends that any of these features solved a problem in the art, the references cited herein show that that problem was known to those of ordinary skill and had already been solved using obvious solutions.

To that end, the Asserted Claims of the ’018 patent simply combine elements already disclosed and well known in the art and yield no more than what one skilled in the art would have expected from such a combination. For example, with respect to the ’018 patent, when confronted with the alleged problems described in the ’018 patent, one of ordinary skill in the art at the time of the alleged invention would have been motivated to consider the techniques taught by the prior art cited in these Invalidity Contentions. Consideration of the teachings of this prior art, both individually and in combination, would necessarily lead to the alleged invention claimed in the ’018 patent. This is demonstrated by the cited prior art, which disclose all of the elements of the Asserted Claims of the ’018 patent, as well as motivations to modify or combine their individual teachings. One of skill in the art would have been motivated to either modify the prior art identified in the claim charts or to combine that prior art in the manner indicated by, for example, their background knowledge, design incentives, effects of demands known to the design community, or other market forces. Moreover, the cited prior art share commonalities. To the extent it is argued that any cited prior art does not expressly disclose a particular claim or element, it would have been inherent in the disclosure and/or obvious to a person of ordinary skill in the art to include the claimed element to perform the invention as claimed in the ’018 patent.

As described in the attached charts, all the elements of the Asserted Claims of the ’018 patent were commonplace before the alleged date of inventions. For each element, there exists evidence from the cited prior art that it was well known in the art prior to the date of invention. To the extent it is argued that any of the cited prior art references, systems, and/or products do not

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anticipate the Asserted Claims, it would have been obvious to a person of ordinary skill in the art that the Asserted Claims are merely combinations of well-known methods and systems resulting in expected results.

Additionally, Defendants hereby incorporate by reference the motivations to combine references set forth during the prosecution of the Asserted Claims of the ’018 patent, including the statements and reasoning set forth by the examiner, as to why it would have been obvious to modify or combine references to arrive at the limitations of the Asserted Claims of the ’018 patent. Defendants also incorporate by reference the admissions made in the ’018 patent and/or during prosecution regarding what was already known in the art.

4. ’307 Patent

Table 7: Exemplary Anticipatory and Combinations for the Asserted Claims of the ’307 Patent

Chart	Prior Art References
D1	Lin either alone or in combination with one or more of Pharris, Taveau, McClinton, Rackley, Tumminaro, Doran, Weichert, and/or Nam
D2	Rackley either alone or in combination with one or more of Pharris, Taveau, Lin, and/or Tumminaro
D3	Tumminaro either alone or in combination with one or more of Pharris, Taveau, McClinton, Rackley, and/or Lin
D4	Taveau either alone or in combination with one or more of Pharris, Tumminaro, McClinton, Rackley, Lin, Doran, Weichert, and/or Nam
D5	Pharris either alone or in combination with one or more of Taveau, Tumminaro, McClinton, Rackley, Lin, Doran, Weichert, and/or Nam
D6	PayPal Mobile either alone or in combination with one or more of Pharris, Taveau, Rackley, Tumminaro, and/or M-PESA
D7	M-PESA either alone or in combination with one or more of Pharris, Taveau, Tumminaro, McClinton, Rackley, Lin, Doran, Weichert, and/or Nam

The prior art identified above, and in the attached ’307 charts, individually anticipate and/or can properly be combined in multiple ways to demonstrate the obviousness of the Asserted Claims of the ’307 patent. Various combinations of the references would have naturally been considered as part of the exercise of ordinary skill by one skilled in the art. The references disclosed in the attached charts and herein are also directed to the same or similar features as the purported invention claimed in the Asserted Claims of the ’307 patent. To the extent Plaintiff contends that any of these features solved a problem in the art, the references cited herein show that that problem was known to those of ordinary skill and had already been solved using obvious solutions.

To that end, the Asserted Claims of the ’307 patent simply combine elements already disclosed and well known in the art and yield no more than what one skilled in the art would have expected from such a combination. For example, with respect to the ’307 patent, when confronted with the alleged problems described in the ’307 patent, one of ordinary skill in the art at the time of the alleged invention would have been motivated to consider the techniques taught by the prior art cited in these Invalidity Contentions. Consideration of the teachings of this prior art, both individually and in combination, would necessarily lead to the alleged invention claimed in the ’307 patent. This is demonstrated by the cited prior art, which disclose all of the elements of the Asserted Claims of the ’307 patent, as well as motivations to modify or combine their individual teachings. One of skill in the art would have been motivated to either modify the prior art identified in the claim charts or to combine that prior art in the manner indicated by, for example, their background knowledge, design incentives, effects of demands known to the design community, or other market forces. Moreover, the cited prior art share commonalities. To the extent it is argued that any cited prior art does not expressly disclose a particular claim or element, it would have

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been inherent in the disclosure and/or obvious to a person of ordinary skill in the art to include the claimed element to perform the invention as claimed in the ’307 patent.

As described in the attached charts, all the elements of the Asserted Claims of the ’307 patent were commonplace before the alleged date of inventions. For each element, there exists evidence from the cited prior art that it was well known in the art prior to the date of invention. To the extent it is argued that any of the cited prior art references, systems, and/or products do not anticipate the Asserted Claims, it would have been obvious to a person of ordinary skill in the art that the Asserted Claims are merely combinations of well-known methods and systems resulting in expected results.

Additionally, Defendants hereby incorporate by reference the motivations to combine references set forth during the prosecution of the Asserted Claims of the ’307 patent, including the statements and reasoning set forth by the examiner, as to why it would have been obvious to modify or combine references to arrive at the limitations of the Asserted Claims of the ’307 patent. Defendants also incorporate by reference the admissions made in the ’307 patent and/or during prosecution regarding what was already known in the art.

5. ’347 Patent

Table 8: Exemplary Anticipatory and Combinations for the Asserted Claims of the ’347 Patent

Chart	Prior Art References
E1	Grigg either alone or in combination with Carter, Tumminaro, Moy, Shenker, Garrett, and/or Banerjee
E2	Baghdasaryan alone or in combination with Carter, Tumminaro, Moy, Shenker, Garrett, and/or Banerjee
E3	Google alone or in combination with Carter, Moy, Shenker, Garrett, Banerjee, Vassilev, Owen, and/or Bhagavatula

Chart	Prior Art References
E4	Taveau alone or in combination with Carter, Tumminaro, Moy, Shenker, Garrett, and/or Banerjee
E5	Dominguez alone or in combination with Carter, Tumminaro, Moy, Shenker, Garrett, Banerjee, Vassilev, Owen, and/or Bhagavatula
E6	PayPal Mobile alone or in combination with Carter, Moy, Shenker, Garrett, Banerjee, Vassilev, Owen, and/or Bhagavatula
E7	Alipay alone or in combination with Grigg, Carter, Moy, Shenker, Garrett, Banerjee, Vassilev, Owen, and/or Bhagavatula

The prior art identified above, and in the attached ’347 charts, individually anticipate and/or can properly be combined in multiple ways to demonstrate the obviousness of the Asserted Claims of the ’347 patent. Various combinations of the references would have naturally been considered as part of the exercise of ordinary skill by one skilled in the art. The references disclosed in the attached charts and herein are also directed to the same or similar features as the purported invention claimed in the Asserted Claims of the ’347 patent. To the extent Plaintiff contends that any of these features solved a problem in the art, the references cited herein show that that problem was known to those of ordinary skill and had already been solved using obvious solutions.

To that end, the Asserted Claims of the ’347 patent simply combine elements already disclosed and well known in the art and yield no more than what one skilled in the art would have expected from such a combination. For example, with respect to the ’347 patent, when confronted with the alleged problems described in the ’347 patent, one of ordinary skill in the art at the time of the alleged invention would have been motivated to consider the techniques taught by the prior art cited in these Invalidity Contentions. Consideration of the teachings of this prior art, both individually and in combination, would necessarily lead to the alleged invention claimed in the ’347 patent. This is demonstrated by the cited prior art, which disclose all of the elements of the

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Asserted Claims of the ’347 patent, as well as motivations to modify or combine their individual teachings. One of skill in the art would have been motivated to either modify the prior art identified in the claim charts or to combine that prior art in the manner indicated by, for example, their background knowledge, design incentives, effects of demands known to the design community, or other market forces. Moreover, the cited prior art share commonalities. To the extent it is argued that any cited prior art does not expressly disclose a particular claim or element, it would have been inherent in the disclosure and/or obvious to a person of ordinary skill in the art to include the claimed element to perform the invention as claimed in the ’347 patent.

As described in the attached charts, all the elements of the Asserted Claims of the ’347 patent were commonplace before the alleged date of inventions. For each element, there exists evidence from the cited prior art that it was well known in the art prior to the date of invention. To the extent it is argued that any of the cited prior art references, systems, and/or products do not anticipate the Asserted Claims, it would have been obvious to a person of ordinary skill in the art that the Asserted Claims are merely combinations of well-known methods and systems resulting in expected results.

Additionally, Defendants hereby incorporate by reference the motivations to combine references set forth during the prosecution of the Asserted Claims of the ’347 patent, including the statements and reasoning set forth by the examiner, as to why it would have been obvious to modify or combine references to arrive at the limitations of the Asserted Claims of the ’347 patent. Defendants also incorporate by reference the admissions made in the ’347 patent and/or during prosecution regarding what was already known in the art.

III. Invalidity Under 35 U.S.C. § 112

Defendants contend that one or more of the Asserted Claims are invalid under 35 U.S.C. § 112. As explained below, these claims lack priority, are indefinite, and/or fail to satisfy the

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written description and/or enablement requirements.[1]

A. '671 Patent

Defendants contend one or more of the Asserted Claims of the '671 patent may be invalid under 35 U.S.C. § 112. Plaintiff's assertions in this forum and/or in the USPTO Patent Trial and Appeal Board ("PTAB") may lead to several § 112 invalidity positions on indefiniteness, written description, and/or enablement.

For example, Plaintiff's positions in this forum and/or the PTAB may lead to the '671 patent not providing an adequate written description, much less one that enables the full scope of the claims as Plaintiff intends to present that claim scope. These § 112 issues may apply to at least the following claim terms in combination with the other recited limitations of the claim:

- "the first user mobile station transferring the generated code to the second user mobile station by means of a directional movement on the first user mobile station in the direction of the second user mobile station" (claim 1);
- "the second user mobile station automatically recognizing the transferred code;" (claim 1)
- "based on the recognized code, the second user mobile station determines whether to accept or decline the financial transaction" (claim 1)

[1] For each of the asserted patents, there exists a wealth of prior art that leads to conclusions of prior art invalidity under pre-AIA §§ 102 and 103 or AIA §§ 102 and 103. In terms of the teachings provided by this prior art and the motivations to combine different individual prior art references within this wealth of art, these Invalidity Contentions provide numerous examples. Should Plaintiff try to later dispute the teachings provided by this prior art and/or dispute any of the motivations to combine individual references within this wealth of prior art, Plaintiff's later arguments in dispute of what would have been known to person of ordinary skill may well raise additional Section 112 bases for the invalidity of the Asserted Claims, including additional examples of written description deficiencies as well as a lack of an enabling disclosure. Since Plaintiff has not yet shared those positions, should it later choose to do so, Defendants reserve their rights to amend these contentions based on this later provided information.

- "the second user mobile station transmitting a reverse code to the first user mobile station, to confirm whether the financial transaction was either accepted or declined by the second user mobile station" (claim 1).
- "the directional movement on the first user mobile station includes a directional swipe movement towards the second user mobile station" (claim 3)
- "a module embedded in a first user mobile station to enter financial information related to the financial transaction" (claim 24)
- "a module embedded in the first user mobile station to generate a code containing the financial information, wherein the first user mobile station is in proximity to a second user mobile station" (claim 24)
- "a module embedded in the first user mobile station to transfer the generated code to a second user mobile station by means of a directional movement on the first user mobile station in the direction of the second user mobile station" (claim 24)
- "a module embedded in the second user mobile station automatically recognizing the transferred code" (claim 24)
- "based on the recognized code, a module embedded in the second user mobile station determines whether to accept or decline the financial transaction;" (claim 24)
- "a module embedded in the second user mobile station to transmit a reverse code to the first user mobile station, to confirm whether the financial transaction was either accepted or declined by the second user mobile station" (claim 24).

Accordingly, the foregoing claim—and any claim(s) depending directly or indirectly therefrom—may be invalid under 35 U.S.C. § 112, ¶ 1, or 35 U.S.C. § 112(a).

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Defendants contend one or more of the Asserted Claims of the ’671 patent may be invalid as indefinite under 35 U.S.C. § 112, ¶ 2, or 35 U.S.C. § 112(b) based on the manner in which Plaintiff argues infringement and/or validity of the asserted patent claims. Plaintiff’s assertions may lead to the asserted claims failing to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). Accordingly, these claims may be invalid as indefinite. For example, an artisan of ordinary skill may not discern, with reasonable certainty, the scope of the following claim terms of the ’671 patent:

- “the first user mobile station transferring the generated code to the second user mobile station by means of a directional movement on the first user mobile station in the direction of the second user mobile station” (claim 1);
- “the second user mobile station automatically recognizing the transferred code;” (claim 1)
- “based on the recognized code, the second user mobile station determines whether to accept or decline the financial transaction” (claim 1)
- “the second user mobile station transmitting a reverse code to the first user mobile station, to confirm whether the financial transaction was either accepted or declined by the second user mobile station” (claim 1).
- “the directional movement on the first user mobile station includes a directional swipe movement towards the second user mobile station” (claim 3)
- “a module embedded in a first user mobile station to enter financial information related to the financial transaction” (claim 24)

- "a module embedded in the first user mobile station to generate a code containing the financial information" (claim 24)
- "a module embedded in the first user mobile station to transfer the generated code to a second user mobile station by means of a directional movement on the first user mobile station in the direction of the second user mobile station" (claim 24)
- "the first user mobile station further transmitting the generated code to a mobile transaction platform to confirm the executability of the financial transaction;" (claim 24)
- "a module embedded in the second user mobile station automatically recognizing the transferred code" (claim 24)
- "based on the recognized code, a module embedded in the second user mobile station determines whether to accept or decline the financial transaction;" (claim 24)
- "a module embedded in the second user mobile station to transmit a reverse code to the first user mobile station, to confirm whether the financial transaction was either accepted or declined by the second user mobile station" (claim 24).

Claim 24 is also indefinite for reciting both an apparatus and a method of using that apparatus in a single claim. *IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005). Accordingly, these claims—and any claim(s) depending directly or indirectly therefrom—may be invalid under 35 U.S.C. § 112, ¶ 2, or 35 U.S.C. § 112(b) as indefinite.

B. ’296 Patent

Defendants contend one or more of the Asserted Claims of the ’296 patent may be invalid under 35 U.S.C. § 112. Plaintiff’s assertions in this forum and/or in the PTAB may lead to several § 112 invalidity positions on indefiniteness, written description, and/or enablement.

For example, Plaintiff’s positions in this forum and/or the PTAB may lead to the ’296 patent not providing an adequate written description, much less one that enables the full scope of the claims as Plaintiff intends to present that claim scope. These § 112 issues may apply to at least the following claim terms in combination with the other recited limitations of the claim:

- “program code including a first communication interface configured to communicate with a first device associated with a credit card company on behalf of the plurality of members, the program code including a second communication interface configured to communicate with a second device associated with a financial institution on behalf of the plurality of members, the program code including a third communication interface configured to communicate with a third device associated with the third-party entity” (claims 1, 8);
- “selecting the [first/second/third] communication interface as [a/the] particular communication interface and establishing a communication link between the [first/second/third] communication interface and the [first/second/third] device” (claims 1, 8);
- “requesting electronic transfer of the payment amount from the particular payment source to the payee account using the selected particular communication interface” (claims 1, 8);

- "transmitting the notification over a communication network to a computing device associated with the second member in real time, so that the second member has immediate access to up-to-date electronic transfers to the payee account" (claims 1, 8);
- "[t]he system of claim 1, wherein the one or more interfaces configured to assist the first member to register the set of one or more payment sources is configured to assist the first member to register a loan account, an international account or a commodity account" (claim 4);
- "[t]he method of claim 8, wherein the one or more interfaces configured to assist the first member to register the set of one or more payment sources is configured to assist the first member to register a loan account, an international account, or a commodity account" (claim 11).

Accordingly, the foregoing claims—and any claim(s) depending directly or indirectly therefrom—may be invalid under 35 U.S.C. § 112, ¶ 1, or 35 U.S.C. § 112(a).

Defendants contend one or more of the Asserted Claims of the '296 patent may be invalid as indefinite under 35 U.S.C. § 112, ¶ 2, or 35 U.S.C. § 112(b) based on the manner in which Plaintiff argues infringement and/or validity of the asserted patent claims. Plaintiff's assertions may lead to the asserted claims failing to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus,* 572 U.S. 898, 901. Accordingly, these claims may be invalid as indefinite. For example, an artisan of ordinary skill may not discern, with reasonable certainty, the scope of the following claim terms of the '296 patent:

- "[t]he system of claim 1, wherein the one or more interfaces configured to assist the first member to register … an international account" (claim 4);

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- "[t]he method of claim 8, wherein the one or more interfaces configured to assist the first member to register … an international account" (claim 11);

Accordingly, these claims—and any claim(s) depending directly or indirectly therefrom—may be invalid under 35 U.S.C. § 112, ¶ 2, or 35 U.S.C. § 112(b) as indefinite.

C. '018 Patent

Defendants contend one or more of the Asserted Claims of the '018 patent may be invalid under 35 U.S.C. § 112. Plaintiff's assertions in this forum and/or in the PTAB may lead to several § 112 invalidity positions on indefiniteness, written description, and/or enablement.

For example, Plaintiff's positions in this forum and/or the PTAB may lead to the '018 patent not providing an adequate written description, much less one that enables the full scope of the claims as Plaintiff intends to present that claim scope. These § 112 issues may apply to at least the following claim terms in combination with the other recited limitations of the claim:

- "a [first/second/third] communication interface configured to communicate with a [first/second/third] device" (claims 1, 8);
- "notification code configured to generate a notification indicating an electronic transfer to the second member, and configured to transmit the notification over a communication network to a computing device associated with the second member in real time" (claim 1);
- "configured to request electronic transfer of the payment amount from the particular payment source to the payee account using the selected particular communication interface" (claim 1);
- "transmitting the notification over a communication network to a computing device associated with the second member in real time" (claim 8);

- "requesting electronic transfer of the payment amount from the particular payment source to the payee account using the selected particular communication interface" (claim 8);
- "[t]he system of claim 1, wherein the first interface code is further configured to assist the first member to register a loan account, an international account or a commodity account" (claim 4);
- "[t]he method of claim 8, wherein the presenting the first interface includes assisting the first member to register a loan account, an international account, or a commodity account" (claim 11).

Accordingly, the foregoing claims—and any claim(s) depending directly or indirectly therefrom—may be invalid under 35 U.S.C. § 112, ¶ 1, or 35 U.S.C. § 112(a).

Defendants contend one or more of the Asserted Claims of the '018 patent may be invalid as indefinite under 35 U.S.C. § 112, ¶ 2, or 35 U.S.C. § 112(b) based on the manner in which Plaintiff argues infringement and/or validity of the asserted patent claims. Plaintiff's assertions may lead to the asserted claims failing to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus*, 572 U.S. at 901. Accordingly, these claims may be invalid as indefinite. For example, an artisan of ordinary skill may not discern, with reasonable certainty, the scope of the following claim terms of the '018 patent:

- "[t]he system of claim 1, wherein the one or more interfaces configured to assist the first member to register … an international account" (claim 4);
- "[t]he method of claim 8, wherein the one or more interfaces configured to assist the first member to register … an international account" (claim 11).

Accordingly, this claim—and any claim(s) depending directly or indirectly therefrom—

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may be invalid under 35 U.S.C. § 112, ¶ 2, or 35 U.S.C. § 112(b) as indefinite.

D. ’307 Patent

Defendants contend one or more of the Asserted Claims of the ’307 patent may be invalid under 35 U.S.C. § 112. Plaintiff’s assertions in this forum and/or in the PTAB may lead to several § 112 invalidity positions on indefiniteness, written description, and/or enablement.

For example, Plaintiff’s positions in this forum and/or the PTAB may lead to the ’307 patent not providing an adequate written description, much less one that enables the full scope of the claims as Plaintiff intends to present that claim scope. These § 112 issues may apply to at least the following claim terms in combination with the other recited limitations of the claims:

- “a [first/second/third] communication interface configured to communicate with a [first/second/third] device” (claims 1, 8);
- “notification code configured to generate a notification indicating an electronic transfer to the second member, and configured to transmit the notification over a communication network to a computing device in real time” (claim 1);
- “configured to request electronic transfer of the payment amount from the particular payment source to the payee account using the selected particular communication interface” (claim 1);
- “transmitting the notification over a communication network to a computing device in real time” (claim 8);
- “requesting electronic transfer of the payment amount from the particular payment source to the payee account using the selected particular communication interface” (claim 8);

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- "[t]he system of claim 1, wherein the first account includes a credit card account, a debit card account, a bank account, a loan account, an international account, or a commodity account" (claim 4);
- "[t]he method of claim 8, wherein the first account includes a credit card account, a debit card account, a bank account, a loan account, an international account, or a commodity account" (claim 11).

Accordingly, the foregoing claims—and any claim(s) depending directly or indirectly therefrom—may be invalid under 35 U.S.C. § 112, ¶ 1, or 35 U.S.C. § 112(a).

Defendants contend one or more of the Asserted Claims of the '307 patent may be invalid as indefinite under 35 U.S.C. § 112, ¶ 2, or 35 U.S.C. § 112(b) based on the manner in which Plaintiff argues infringement and/or validity of the asserted patent claims. Plaintiff's assertions may lead to the asserted claims failing to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus*, 572 U.S. at 901. Accordingly, these claims may be invalid as indefinite. For example, an artisan of ordinary skill may not discern, with reasonable certainty, the scope of the following claim terms of the '307 patent:

- "the third-party entity being different than the financial institution and different than the first financial institution" (claim 1);
- "[t]he system of claim 1, wherein the first account includes … an international account" (claim 4);
- "[t]he method of claim 8, wherein the first account includes … an international account" (claim 11).

Accordingly, these claims—and any claim(s) depending directly or indirectly therefrom—may be invalid under 35 U.S.C. § 112, ¶ 2, or 35 U.S.C. § 112(b) as indefinite.

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E. ’347 Patent

Defendants contend one or more of the Asserted Claims of the ’347 patent may be invalid under 35 U.S.C. § 112. Plaintiff’s assertions in this forum and/or in the PTAB may lead to several § 112 invalidity positions on indefiniteness, written description, and/or enablement.

For example, Plaintiff’s positions in this forum and/or the PTAB may lead to the ’347 patent not providing an adequate written description, much less one that enables the full scope of the claims as Plaintiff intends to present that claim scope. These § 112 issues may apply to at least the following claim terms in combination with the other recited limitations of the claims:

- “enabling a user to set a desired security level configuration setting in the local application for the mobile device, the desired security level configuration setting establishing whether the local application requires a single security level or a plurality of security levels before allowing access to at least a feature in the local application” (claim 1);
- “requiring, before allowing access to the at least one feature of the local application, the user to perform an authentication process based on the desired security level configuration setting, the authentication process including only a single security level scan when the desired security level configuration setting is set to a single security level, the authentication process including a plurality of security level scans when the desired security level configuration setting is set to a plurality of security levels” (claim 1);
- “a local application on the mobile device and configured to be executed by the hardware processor, the local application including a first interface enabling a user to set a desired security level configuration setting in the local application for

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the mobile device, the desired security level configuration setting establishing whether the local application requires a single security level or a plurality of security levels before allowing access to at least a feature in the local application, the local application including a second interface requiring, before allowing access to the at least one feature of the local application, the user to perform an authentication process based on the desired security level configuration setting, the authentication process including only a single security level scan when the desired security level configuration setting is set to a single security level, the authentication process including a plurality of security level scans when the desired security level configuration setting is set to a plurality of security levels." (claim 6).

Accordingly, the foregoing claims—and any claim(s) depending directly or indirectly therefrom—may be either invalid under 35 U.S.C. § 112, ¶ 1, or 35 U.S.C. § 112(a) or lack priority.

Defendants contend one or more of the Asserted Claims of the '347 patent may be invalid as indefinite under 35 U.S.C. § 112, ¶ 2, or 35 U.S.C. § 112(b) based on the manner in which Plaintiff argues infringement and/or validity of the asserted patent claims. Plaintiff's assertions may lead to the asserted claims failing to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus*, 572 U.S. at 901. Accordingly, these claims may be invalid as indefinite. For example, an artisan of ordinary skill may not discern, with reasonable certainty, the scope of the following claim terms of the '347 patent:

- "plurality of security level scans" (claims 1, 3, 6, 8).
- "enabling a user to set a desired security level configuration setting in the local application for the mobile device, the desired security level configuration setting

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establishing whether the local application requires a single security level or a plurality of security levels before allowing access to at least a feature in the local application" (claim 1);

- "requiring, before allowing access to the at least one feature of the local application, the user to perform an authentication process based on the desired security level configuration setting, the authentication process including only a single security level scan when the desired security level configuration setting is set to a single security level, the authentication process including a plurality of security level scans when the desired security level configuration setting is set to a plurality of security levels" (claim 1);
- "a local application on the mobile device and configured to be executed by the hardware processor, the local application including a first interface enabling a user to set a desired security level configuration setting in the local application for the mobile device, the desired security level configuration setting establishing whether the local application requires a single security level or a plurality of security levels before allowing access to at least a feature in the local application, the local application including a second interface requiring, before allowing access to the at least one feature of the local application, the user to perform an authentication process based on the desired security level configuration setting, the authentication process including only a single security level scan when the desired security level configuration setting is set to a single security level, the authentication process including a plurality of security level scans when the

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desired security level configuration setting is set to a plurality of security levels." (claim 6).

Accordingly, these claims—and any claim(s) depending directly or indirectly therefrom—may be invalid under 35 U.S.C. § 112, ¶ 2, or 35 U.S.C. § 112(b) as indefinite.

IV. P.R. 3-4: Document Production Accompanying Invalidity Contentions

Defendants have produced documents, including SamPay_00061731 – SamPay_00068036, pursuant to P.R. 3-4(a) and P.R. 3-4(b). In addition, pursuant to P.R. 3-4(a) and under the Protective Order in this action, Defendants are making source code available in the Washington, D.C. office of their counsel.

V. Invalidity Under 53 U.S.C. § 101 and Defendants' Subject Matter Eligibility Contentions

The Asserted Claims of the Patents-in-Suit are invalid under 35 U.S.C. § 101 for failing to recite patent-eligible subject matter. Defendants incorporate by reference herein their Subject Matter Eligibility Contentions concurrently served with these Invalidity Contentions.

Dated: November 3, 2025

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that on November 3, 2025, copies of the foregoing Defendants' Invalidity Contentions and Exhibits have been served to Plaintiff through its counsel of record via email.

/s/ Seth D. Katz
Seth D. Katz
Case Manager

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