**UNITED STATES DISTRICT COURT**
**FOR THE WESTERN DISTRICT OF TEXAS**
**AUSTIN DIVISION**

| | |
|---|---|
| CARDWARE, INC.<br><br>*Plaintiff,*<br><br>v.<br><br>APPLE INC.,<br><br>*Defendant.* | Civil Action No. 1:25-CV-00446-ADA<br><br>**JURY TRIAL DEMANDED** |

# APPLE'S OPENING CLAIM CONSTRUCTION BRIEF

# TABLE OF CONTENTS


| | | Page |
|---|---|---|
| I. | INTRODUCTION | 1 |
| II. | BACKGROUND | 2 |
| | A. Overview of The Asserted Patents. | 2 |
| | B. Agreed Claim Terms. | 3 |
| | C. Person of Ordinary Skill in the Art | 4 |
| | D. Related Matters Involving CardWare's Patents. | 4 |
| III. | DISPUTED CLAIM TERMS | 5 |
| | A. "the payment information" ('520 patent, claim 10) | 5 |
| | B. Markush Group Claim Terms (All Asserted Patents) | 9 |
| | C. "limited-use" (All Asserted Patents) | 14 |
| | D. Printed Matter Claim Terms ('520, '820, '579, and '286 patents) | 16 |
| | 1. Content disposed or not disposed on the claimed device ('820 and '286 patents) | 17 |
| | 2. Content displayed on the claimed device ('520, '579, and 286 patents). | 20 |
| | E. "the system of claim 15 . . . comprising . . . a user input providing for at least one user action . . ." ('820 patent, claim 20) | 22 |
| | F. "the method of claim 1 wherein a payment processing authority verifies a limited-user number . . . And rejecting a limited use number" ('579 patent, claim 6) | 24 |
| | G. "said secrets" ('538 patent, claim 27) | 26 |
| | H. "its valid limitations of use" ('286 patent, claims 1 and15) | 29 |
| IV. | CONCLUSION | 31 |




CARDWARE EXHIBIT 2016
APPLE v. CARDWARE IPR2025-01150
Page 2 of 39

# TABLE OF AUTHORITIES

**Page(s)**

**Cases**

*Abbott Labs. v. Baxter Pharm. Prods.*,
334 F.3d 1274 (Fed. Cir. 2003).....10, 13

*Apple Comp., Inc. v. Articulate Sys., Inc.*,
234 F.3d 14 (Fed. Cir. 2000).....14

*Biosig Instruments, Inc. v. Nautilus, Inc.*,
783 F.3d 1374 (Fed. Cir. 2015).....10, 25

*Blue Spike, LLC v. Verimatrix, Inc.*,
No. 2:16-CV-00329-RWS, 2017 U.S. Dist. LEXIS 164687 (E.D. Tex. July 6, 2017) .....13

*Bose Corp. v. JBL, Inc.*,
274 F.3d 1354 (Fed. Cir. 2001).....5

*CardWare Inc. v. Google LLC*,
No. 7:24-cv-00278 (W.D. Tex.) (Nov. 4, 2024).....5

*CardWare Inc. v. Samsung Elec. Co. Ltd. et al.*,
2:22-cv-00141-JRG-RSP (E.D. Tex.) (May 11, 2022).....4, 5, 7

*CardWare Inc. v. Samsung Elec. Co. Ltd. et al.*,
2:23-cv-00187-JRG-RSP (E.D. Tex.) (Apr. 24, 2023).....4

*CR Bard Inc. v. AngioDynamics, Inc.*,
979 F.3d 1372 (Fed. Cir. 2020).....16, 19, 21

*Digital Retail Apps, Inc. v. H-E-B*,
2020 WL 376664 (W.D. Tex. Jan. 23, 2020) .....21

*In re DiStefano*,
808 F.3d 845 (Fed. Cir. 2015)..... *passim*

*Eon Corp. IP Holdings LLC v. Silver Spring Networks, Inc.*,
815 F.3d 1314 (Fed. Cir. 2016).....16

*Gillette Co. v. Energizer Holdings, Inc.*,
405 F.3d 1367 (Fed. Cir. 2005).....10

*In re Gulack*,
703 F. 2d 1381 (Fed. Cir. 1983).....16



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 3 of 39**

*Halliburton Energy Servs., Inc. v. M-I LLC*,
514 F.3d 1244 (Fed. Cir. 2008).....9, 29, 31

*IOENGINE, LLC v. Ingenico Inc.*,
100 F.4th 1395 (Fed. Cir. 2024) .....21

*IPXL Holdings, L.L.C. v. Amazon.com, Inc.*,
430 F.3d 1377 (Fed. Cir. 2005).....22, 24

*In re Katz*,
639 F.3d 1303 (Fed. Cir. 2011).....22, 24

*In re Kiely*,
No. 2022-1076, 2022 U.S. App. LEXIS 15693 (Fed. Cir. June 8, 2022).....10, 13

*Multilayer Stretch Cling Film Holdings, Inc. v. Berry Plastics Corp.*,
831 F.3d 1350 (Fed. Cir. 2016).....10

*Nautilus, Inc. v. Biosig Instruments, Inc.*,
572 U.S. 898 (2014).....29

*In re Packard*,
751 F.3d 1307 (Fed. Cir. 2014).....5, 27

*Phillips v. AWH Corp.*,
415 F.3d 1303 (Fed. Cir. 2005).....14

*Rembrandt Data Techs., LP v. AOL, LLC*,
641 F.3d 1331 (Fed. Cir. 2011).....22, 24

*Samsung Elecs. Am., Inc. v. Prisua Eng'g Corp.*,
948 F.3d 1342 (Fed. Cir. 2020).....22

*Samsung Electronics Co., Ltd. et al. v. CardWare Inc.*,
IPR2023-00196 (PTAB Nov. 21, 2022) .....4

*Samsung Electronics Co., Ltd. et al. v. CardWare Inc.*,
IPR2023-00210 (PTAB, Nov. 15, 2022) .....4

*Samsung Electronics Co., Ltd. et al. v. CardWare Inc.*,
IPR2023-00211 (PTAB Nov. 15, 2022) .....4

*Samsung Electronics Co., Ltd. et al. v. CardWare Inc.*,
IPR2023-00219 (PTAB Nov. 28, 2022) .....4

*Samsung Electronics Co., Ltd. et al. v. CardWare Inc.*,
IPR2023-00314 (PTAB Dec. 23, 2022).....4, 19



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 4 of 39**

*Samsung Electronics Co., Ltd. et al. v. CardWare Inc.*,
PGR2023-00012 (PTAB Jan 20, 2023) .....4, 19

*Samsung Electronics Co., Ltd. et al. v. CardWare Inc.*,
PGR2023-00013 (PTAB Jan. 20, 2023) .....4, 19

**Statutes**

35 U.S.C. § 112.....10, 22

**Other Authorities**

Manual of Patent Examining Procedure § 2117 .....10

Manual of Patent Examining Procedure § 2173.05(h).....10



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 5 of 39**

Apple submits this opening claim construction brief regarding the proper construction of certain disputed claim terms of U.S. Patent Nos. 10,339,520 (Ex. 2, "the '520 patent"); 10,628,820 (Ex. 3, "the '820 Patent"); 10,810,579 (Ex. 4, "the '579 Patent"); 11,176,538 (Ex. 5, "the '538 patent"); 11,328,286 (Ex. 6, "the '286 patent"); and 11,620,634 (Ex. 7, "the '634 patent") (collectively the "asserted patents") from which Plaintiff CardWare, Inc. ("CardWare") asserts roughly 180 claims against Apple.

## I. INTRODUCTION

The asserted patents are continuations stemming from a priority patent that purportedly discloses a smart credit card device. The majority of the disputed claim terms are consequences of CardWare's decision to overreach and attempt to claim subject matter that was never originally disclosed or contemplated by CardWare in its original priority patent. In fact, most of the roughly 180 claims asserted in this case were prosecuted well after Apple released the products now accused of infringement.

The asserted claims are plagued with problems, including indefiniteness issues based on lack of antecedent basis, improperly claimed Markush groups, and printed subject matter that is not entitled to patentable weight. Apple addresses the most egregious examples in this brief but reserves the right to address the numerous remaining indefiniteness issues across these 180 claims as the case progresses and CardWare narrows the asserted claims to something more manageable.

CardWare's election to offer "not indefinite" and "plain and ordinary meaning" as proposed constructions for every term provides no clarity to the Court about what CardWare contends is the plain and ordinary meaning for the disputed terms. Typo corrections aside (as reflected in the parties' agreed constructions), the Court should decline to correct CardWare's improper claim drafting through the claim construction process.



CARDWARE EXHIBIT 2016
APPLE v. CARDWARE IPR2025-01150
Page 6 of 39

## II. BACKGROUND

### A. Overview of The Asserted Patents.

The six asserted patents are related and share the same specification. *See* Exs. 2-7. The asserted patents are directed to "multi-function" payment devices and relate generally to "electronic or smart" payment devices. Ex. 2 at 1:26-28; Ex. 3 at 1:27-31; Ex. 4 at 1:23-27; Ex. 5 at 1:24-27; Ex. 6 at 1:31-36; and Ex. 7 at 1:27-31. The '538, '579 and '634 patents are continuations of the '520 patent, and the '286 patent is a continuation of the '820 patent. All six patents claims priority to U.S. Patent Application No. 14/217,261, now U.S. Patent No. 9,022,286 ("the '286 Priority Patent"), which is not asserted. The '286 Priority Patent, filed on March 17, 2014, is directed to "a credit card device capable of generating a programmed magnetic field of alternating polarity based on a speed of a card swipe" and "generating a limited-duration credit card number when performing a transaction for the purpose of creating a limited-use credit card number…." Ex. 9, '286 Priority Patent at Abstract.

Over time, CardWare filed several continuation applications that attempt to expand its claimed invention beyond the originally claimed smart credit card invention, going so far as to amend its application for the '820 and '286 patents to include figures that bear a striking resemblance to Apple's products, including fruit-shaped logos similar to Apple's logo and references to Apple's trademarks, such as Touch ID®. *See* Ex. 3, '820 patent at Figs. 8A and 9:



CARDWARE EXHIBIT 2016
APPLE v. CARDWARE IPR2025-01150
Page 7 of 39

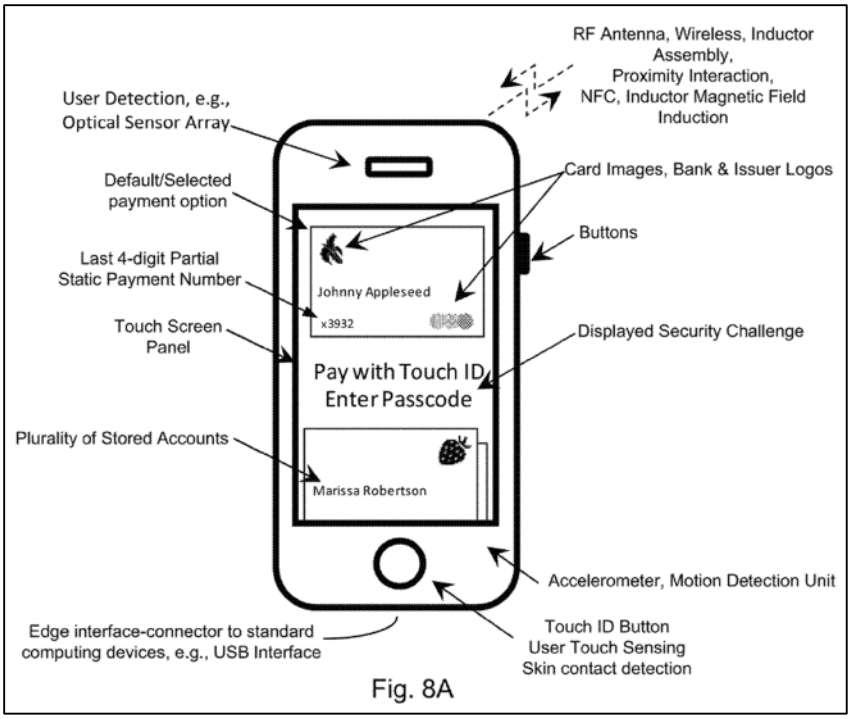

Fig. 8A

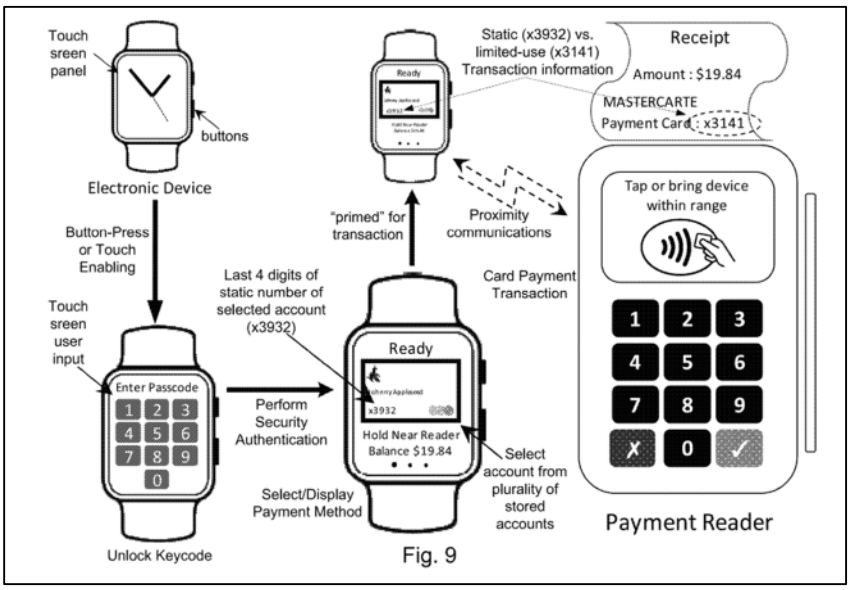

Fig. 9

## B. Agreed Claim Terms.

The parties have agreed to constructions for several claim terms. Attached as Exhibit 1 is a chart listing the parties' agreed constructions.



CARDWARE EXHIBIT 2016
APPLE v. CARDWARE IPR2025-01150
Page 8 of 39

### C. Person of Ordinary Skill in the Art

A person of ordinary skill in the art with respect to the asserted patents would have had at least a Bachelor's degree in computer science, computer or electrical engineering, or an equivalent engineering discipline, and at least three years of experience in the field of credit card processing, encryption and security, or the equivalent. Additional education could substitute for professional experience, and significant work experience could substitute for formal education. Ex. 8, Declaration of Dr. Nathaniel Polish ("Polish Decl.") at ¶ 31.

### D. Related Matters Involving CardWare's Patents.

CardWare previously litigated the same six asserted patents against Samsung Electronics Co. Ltd. ("Samsung"). *CardWare Inc. v. Samsung Elec. Co. Ltd. et al.*, 2:22-cv-00141-JRG-RSP (E.D. Tex.) (May 11, 2022) and *CardWare Inc. v. Samsung Elec. Co. Ltd. et al.*, 2:23-cv-00187-JRG-RSP (E.D. Tex.) (Apr. 24, 2023) (collectively, the "*Samsung* matter"). Several of the same claim terms at issue in this case were addressed in the *Samsung* matter; claim construction was fully briefed, argued, and the Magistrate Judge issued a claim construction ruling. *CardWare*, 2:22-cv-141-JRG-RSP, Dkt. 138 (August 23, 2023). The *Samsung* matter was dismissed with prejudice in October 2023 following settlement. *Id*. at Dkt. No. 160; *CardWare Inc. v. Samsung Elec. Co. Ltd. et al.*, 2:23-cv-00187-JRG-RSP (E.D. Tex.) (Apr. 24, 2023) at Dkt. No. 23.

Many of the asserted patents have been the subject of *inter partes* review ("IPR") and/or post grant review ("PGR") proceedings. Subsequent to CardWare and Samsung settling in the district court, the following IPR and PGR matters were dismissed: *Samsung Electronics Co., Ltd. et al. v. CardWare Inc.*, IPR2023-00211 (PTAB Nov. 15, 2022); IPR2023-00219 (PTAB Nov. 28, 2022); IPR2023-00314 (PTAB Dec. 23, 2022); IPR2023-00196 (PTAB Nov. 21, 2022); PGR2023-00012 (PTAB Jan 20, 2023); and PGR2023-00013 (PTAB Jan. 20, 2023). The '520 patent was also subject to additional IPR in *Samsung Electronics Co., Ltd. et al. v. CardWare*



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 9 of 39**

*Inc.*, IPR2023-00210 (PTAB, Nov. 15, 2022) (institution denied). CardWare also sued Google on the same day it sued Apple, asserting four of the six asserted patents (the '520, '538, '579 and '634 patents) against Google. *CardWare Inc. v. Google LLC*, No. 7:24-cv-00278 (W.D. Tex.) (Nov. 4, 2024). The Google case is assigned to Judge Counts and Magistrate Judge Gilliland.

## III. DISPUTED CLAIM TERMS

### A. "the payment information" ('520 patent, claim 10)

| Apple's Construction | CardWare's Construction |
|---|---|
| Indefinite | Not indefinite. Plain and ordinary meaning. |

The term "the payment information" in claim 10 of the '520 patent is indefinite because it lacks an antecedent basis, and neither the context of the claims nor the intrinsic record provide the needed clarity to understand which of several types of "payment information" in claim 10 is "the payment information" recited in the claim. A person of ordinary skill in the art cannot reasonably ascertain the meaning of the term. Ex. 8, Polish Decl. at ¶¶ 35-48; *see also In re Packard*, 751 F.3d 1307, 1310, 1314 (Fed. Cir. 2014); *Bose Corp. v. JBL, Inc.*, 274 F.3d 1354, 1359 (Fed. Cir. 2001) (lack of antecedent basis can render a claim indefinite unless "the scope of a claim would be reasonably ascertainable by those skilled in the art").

The same term appears in claim 1 of the '520 patent and was previously litigated in the *Samsung* matter. *Samsung*, 2:22-cv-141-JRG-RSP (E.D. Tex.). There, the Magistrate Judge found that "the payment information" was indefinite in claim 1[1], but not indefinite in claim 10. *See Samsung*, 2:22-cv-141-JRG-RSP, Dkt. 138 at 18-23 (E.D. Tex.) (August 23, 2023). Despite

[1] CardWare previously asserted independent claim 1 and dependent claims 2-9 of the '520 patent against Apple. But on the day revised claim constructions were due, CardWare informed Apple that "CardWare will drop its assertion of claim 1 (and dependent claims 2-9)" to "moot" the indefiniteness dispute. Ex. 10. However, dropping these claims to avoid a second indefiniteness finding does not moot the dispute for the same term in claim 10.



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 10 of 39**

this, Apple respectfully contends that claim 10 is indefinite for largely the same reasons as claim 1. The entirety of claim 10 recites:

> 10. A method of storing and generating payment information in an electronic device, the method comprising:
>
> accepting a user input of issued payment information input at a touch screen display of the electronic device, wherein the information comprises an issuer provided payment information;
>
> wherein the electronic device comprises device-specific and user-specific information; and,
>
> wherein the issuer provided payment information is communicated wirelessly; and,
>
> receiving wirelessly a static device account number payment information for storage on the electronic device; and wherein
>
> at least a portion of the payment information is a limited-use number for limited use by the device, in place of a issuer provided payment information; and,
>
> dynamically generating a one-time limited-use number based on at least one of a set of information including: user-identifying information; user secrets; device information; device secrets; time; merchant; facility location; sequence count; payment information; account information; amount; and transaction information; and
>
> using said static device account number and said dynamically generated one-time limited-use number together in the place of issuer provided payment information for making a payment transaction.

Ex. 2, '520 patent at claim 10 (highlighting added).

Claim 10 recites "payment information" five times before reciting "the payment information": (1) the preamble recites "generating payment information" (highlighted blue); (2-4) the first and third limitations recite "issued/issuer provided payment information" three times (green); and (5) the fourth limitation recites "static device account number payment information" (magenta). *Id.* Claim 10 also recites that "issuer provided payment information" is obtained from "a user input of issued payment information," and the "static device account number payment information" is to be "receive[d] wirelessly." *Id.* None of these disclosures, however,



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 11 of 39**

allow a person of ordinary skill in the art to determine with reasonable certainty which "payment information" the term "the payment information" refers to. Ex. 8, Polish Decl. ¶¶ 37-41. As a result, the claim is indefinite.

Claim 10 requires that "at least a portion of the payment information is a limited-use number for limited use by the device, in place of a issuer provided payment information," suggesting that perhaps "the payment information" cannot be referring to the "issuer provided payment information" (highlighted green), since the claim requires "the payment information" to be a substitute for "issuer provided payment information." Ex. 2, '520 patent at claim 10; Ex. 8, Polish Decl. ¶ 40. Nonetheless, it is ambiguous whether "the payment information" refers to the "generat[ed] payment information" (highlighted blue) or the "static device account number payment information" (highlighted magenta). *Id*. A person of ordinary skill cannot be reasonably certain which "payment information" the term "the payment information" refers to, so the claim is indefinite. Ex. 8, Polish Decl. ¶ 41.

It is possible that "the payment information" refers to "generating payment information" in the preamble, as the Magistrate Judge concluded in the *Samsung* matter. *See Samsung*, 2:22-cv-141-JRG-RSP, Dkt. 138 at 21-23 (E.D. Tex.) (August 23, 2023). The claim is directed to "generating payment information" (highlighted magenta), and the claim further requires "dynamically generating a one-time limited-use number" (highlighted gray), perhaps linking the preamble's "generating payment information" with the "dynamically generat[ed] one-time limited use number" limitation. Ex. 8, Polish Decl. ¶ 42. The claim further requires "using … said dynamically generated one-time limited-use number … <u>in the place of issuer provided payment information</u>." Ex. 2, '520 patent at claim 10 (emphasis added). Because "the payment information" also is "a limited-use number for limited use by the device, <u>in place of a issuer</u>



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 12 of 39**

provided payment information," a person of ordinary skill might conclude that "the payment information" refers to "generating payment information" in the preamble. Ex. 2, '520 patent at claim 10 (emphasis added); Ex. 8, Polish Decl. ¶ 42.

This conclusion, however, ignores that it is equally possible that "the payment information" refers to "static device account number payment information." Ex. 8, Polish Decl. ¶ 43. A "static device account number" can be used in place of an "issuer provided payment information." *Id*. For example, a person of ordinary skill would understand that instead of using a credit card number stamped on the card (*i.e.*, issuer provided payment information), a user's device might receive a "static device account number" for use in a transaction in lieu of the issuer provided payment information. *Id*. Thus, the claimed "static device account number" could be used "in place of a issuer provided payment information," as claimed. *Id*. Furthermore, the asserted patents teach that the "static device account number" can be "a limited scope of valid use to a specific device," teaching that the "static device account number" can be "a limited-use number for limited use by the device, in place of a issuer provided payment information." Ex. 5, '538 patent at claim 21; Ex. 8, Polish Decl. ¶ 45. Thus, a person of ordinary skill might also conclude that "the payment information" finds antecedent basis in "static device account number payment information." *Id*.

The ordering of the claim limitations also suggests that "the payment information" might find antecedent basis in the "static device account number," which is in a preceding limitation, rather than finding antecedent basis via the "dynamically generated…limited-use number" limitation (highlighted gray) which comes after "the payment information" term. Ex. 8, Polish Decl. ¶ 46. Because it is ambiguous which "payment information" limitation provides antecedent basis for "the payment information," a person of ordinary skill would not be



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 13 of 39**

reasonably certain about the meaning of the term. *Id.*; *see also Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1249 (Fed. Cir. 2008) ("[A] claim could be indefinite if a term does not have proper antecedent basis where such basis is not otherwise present by implication or the meaning is not reasonably ascertainable.").

Finally, the intrinsic record does not explain which "payment information" is "the payment information" in the context of claim 10. The specification does not discuss the "device account number" in detail; in fact, the term "device account number" appears only in the claims and nowhere in the specification—a recurring theme across the asserted patents. Ex. 2, '520 patent; Ex. 8, Polish Decl. ¶ 47. Furthermore, for the reasons explained above, the generic claim limitation containing "the payment information" leaves ambiguity about which disclosures in the specification might apply, if any. *Id.* The meaning of the term is ambiguous and therefore indefinite. *Halliburton Energy Servs., Inc.*, 514 F.3d at 1249.

CardWare has not explained what it thinks is the plain and ordinary meaning of "the payment information." Regardless, there is no plain and ordinary meaning to be ascertained for the term for the reasons set forth above. The term lacks antecedent basis, is ambiguous, and is therefore indefinite.

**B. Markush Group Claim Terms (All Asserted Patents)**

| **Apple's Construction** | **CardWare's Construction** |
|---|---|
| Indefinite | Not indefinite. Plain and ordinary meaning. |

Many of the asserted claims recite improper open-ended Markush groups. *See, e.g.*, Ex. 2, '520 patent, claims 10-14, 17-20; Ex. 3, '820 patent, claims 1, 10-11, 13-15, 19-20; Ex. 4, '579 patent, claims 2-3, 5-9, 11-12, 14-18, 20, 23; Ex. 5, '538 patent, claims 1, 3, 7, 11, 19, 22, 23, 26, 30; Ex. 6, '286 patent, claim 12; Ex. 7, '634 patent, claim 10; *see also* Ex. 11, Markush group terms. "A Markush group is a listing of specified alternatives of a group in a patent claim,



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 14 of 39**

typically expressed in the form: a member selected from the group consisting of A, B, and C." *Abbott Labs. v. Baxter Pharm. Prods.*, 334 F.3d 1274, 1280 (Fed. Cir. 2003). "[T]he phrase 'Markush claim' means any claim that recites a list of alternatively useable species regardless of format." *Multilayer Stretch Cling Film Holdings, Inc. v. Berry Plastics Corp.*, 831 F.3d 1350, 1357 (Fed. Cir. 2016) (citing Manual of Patent Examining Procedure ("MPEP") § 2173.05(h)).

A proper Markush claim incorporates a closed list of specified alternative limitations, *i.e.*, "it must be characterized with the transition phrase 'consisting of,' rather than 'comprising' or 'including.'" *Abbott Labs.*, 334 F.3d at 1280-81 (citations omitted). "A Markush claim that recites a selection from an open list of alternatives—by using, for example, an open-ended transition word like 'comprising'—generally violates 35 U.S.C. § 112(b) because such a claim fails to make clear what unlisted alternatives, if any, are intended to be encompassed by the claim." *In re Kiely*, No. 2022-1076, 2022 U.S. App. LEXIS 15693, at *4 (Fed. Cir. June 8, 2022) (citing *Abbott Labs.*, 334 F.3d at 1280-81; MPEP §§ 2117, 2173.05(H)); *Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1372 (Fed. Cir. 2005) ("Without the word 'consisting' the simple phrase 'group of' is presumptively open."). "A claim is invalid for indefiniteness if its language, when read in light of the specification and the prosecution history, 'fail[s] to inform with reasonable certainty, those skilled in the art about the scope of the invention.'" *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1377 (Fed. Cir. 2015).

The asserted claims include many improperly claimed Markush groups with open-ended transition phrases, such as: "based on at least one of a set…including"; "comprises one or more of"; "at least one of…comprising"; "at least one of a set including"; "at least one of"; "is any one of"; "at least one…of a set…comprising"; "at least one, of a set…including"; "at least a portion…comprising"; "at least one…from a set…including"; "at least one…from a



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 15 of 39**

set…comprising"; "at least one"; "selected from a set comprising"; "at least one … [of/from] [a/the] set comprising: …"; "with any of." *See* Ex. 11, Markush group terms. In each of these formulations, the claims recite open-ended lists of alternatives that fail to inform a person of ordinary skill with reasonable certainty of the scope of the claimed invention, rendering the claims indefinite. *See* Ex. 8, Polish Decl. at ¶¶ 49-58.

For example, in claim 10 of the '520 patent, the claim recites "dynamically-generating a one-time limited-use number based on at least one of a set of information including: user-identifying information; user secrets; device information; device secrets; time; merchant; facility location; sequence count; payment information; account information; amount; and transaction information." Ex. 2, '520 patent claim 10 (emphasis added). Such a limitation, requiring only that "at least one of a set" of listed types of information must be used, leaves uncertainty as to whether using other forms of information not expressly listed in this set—for example, the category of product or service being purchased—would fall inside or outside of the scope of the claim. Ex. 8, Polish Decl. ¶ 54. The specification provides no further certainty as to the scope of the claim. Indeed, the specification leaves open the possibility that the dynamically-generated limited-use number can be generated according to "other information associated with the transaction" without explaining what information falls within the scope of "other information." *See* Ex. 2, '520 patent at 7:12-18. Thus, when viewed in light of the specification, the Markush group in claim 10 fails to inform a person of ordinary skill what information would fall inside or outside the scope of the claim. Ex. 8, Polish Decl. ¶ 55. Other asserted claims also improperly claim open-ended Markush groups pertaining to types of information and are indefinite for the same reasons. *See, e.g.*, Ex. 2, '520 patent, claims 12, 13, 14,17, 19; Ex. 3, '820 patent, claims



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 16 of 39**

10, 13, 19, 20; Ex. 4, '579 patent, claims 2, 3, 5, 6, 9, 12, 15, 16, 17, 23; Ex. 5, '538 patent, claims 7, 11, 22, 30; Ex. 7, '634 patent, claim 10; *see also* Ex. 8, Polish Decl. at ¶ 56.

The asserted claims are replete with such examples. *See* Ex. 11. Claim 15 of the '579 patent presents a particularly egregious example, listing three different open-ended Markush groups in the lengthy claim. Ex. 4, '579 patent, claim 15. The claim recites: (1) "obtaining a user payment approval through at least one user-interface of the electronic device, of a set of user-interfaces comprising…"; (2) "displaying on said display at least one of a set of information comprising…"; and (3) "receiving a user input providing for at least one transaction action, from a set of actions comprising…." *Id.* In each instance, the patentee chose to draft the claim in the improper form of "at least one… [of/from] a set… comprising." All three instances in this claim leave open the possibility that a user interface, or information, or transaction action that was not expressly enumerated in the claim might fall within the scope of the claim. And, as evidenced by CardWare's efforts to expand its patents to cover later-released products through continuation applications, the specification appears to have been left purposely broad and ambiguous, placing no meaningful boundaries on these claims that would reasonably allow a person of ordinary skill to determine the scope of the claims. Ex. 8, Polish Decl. at ¶ 57.

Each asserted Markush claim limitations listed in Ex. 11 suffers from the same open-ended drafting problem and is indefinite for the same reasons. This includes open-ended Markush groups pertaining to different user inputs (*see, e.g.*, Ex. 2, '520 patent, claims 11, 18, 20; Ex. 3, '820 patent, claim 14; Ex. 4, '579 patent, claims 9, 14, 15, 18, 20; Ex. 5, '538 patent, claims 1, 19, 23, 26), different types of interfaces (*see, e.g.*, Ex. 3, '820 patent, claims 1, 11, 20; Ex. 4, '579 patent, claims 7, 9, 15; Ex. 5, '538 patent, claim 3), different types of devices (*see,*



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 17 of 39**

*e.g.*, Ex. 3, '820 patent, claim 15), and different types of operations (*see, e.g.*, Ex. 4, '579 patent, claim 8); *see also* Ex. 8, Polish Decl. at ¶ 58.

Other district courts have found invalid Markush group claims like those at issue here. In *Blue Spike, LLC v. Verimatrix, Inc.*, the court found invalid as indefinite a claim that recited "wherein said separate keys are selected from a group comprising…" and then enumerated several types of digital keys. *Blue Spike, LLC v. Verimatrix, Inc.*, No. 2:16-CV-00329-RWS, 2017 U.S. Dist. LEXIS 164687, at *7-8 (E.D. Tex. July 6, 2017). The court explained that the claim was "a Markush-type limitation because it recites a list of alternatively useable species," and that "[u]nlike in other types of claim limitations, the use of the transition 'comprising' instead of 'consisting of' is improper in Markush type limitations." *Id.* The court held that the use of "comprising" rendered the claim indefinite. *Id.* The *Blue Spike* court's reasoning applies here, where the asserted Markush group claims recite sets of information, signals, or inputs, among other things. Like *Blue Spike*, the open-ended Markush groups here recite sets of information, signals, or inputs with "alternatively usable species" and no bounds on the sets.

Finally, the asserted patents demonstrate that the patentee was capable of properly claiming Markush groups but chose not to for most claims. For example, claim 22 of the '520 patent demonstrates a proper Markush group claim. Unlike claim 10, claim 22 recites "wherein the limited-use number dynamically generated in the device is based on cryptographically combining data selected from the group consisting of…" Ex. 2, '520 patent, claim 22 (emphasis added). Thus, unlike claim 10, which claims "a set of information including…" (an open-ended set), claim 22 recites a closed set as "the group consisting of." *Abbott Labs.*, 334 F.3d at 1280-81. CardWare's election to use open-ended claim drafting renders the Markush group claims indefinite. *In re Kiely*, 2022 U.S. App. LEXIS 15693, at *4.



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 18 of 39**

### C. "limited-use" (All Asserted Patents)

| Apple's Construction | CardWare's Construction |
|---|---|
| "limited to a finite number of transactions or specified period of time—e.g., 2 minutes, 10 minutes, 3 hours" | Not indefinite. Plain and ordinary meaning. |

The term "limited-use" appears in every independent claim of the asserted patents to refer to a "limited-use number," "limited-use payment information" or "limited-use card payment information." Ex. 2, '520 patent, claims 1, 10, 18; Ex. 3, '820 patent, claims 1, 11, 15; Ex. 4, '579 patent, claims 1, 15, 19; Ex. 5, '538 patent, claims 1, 19, 25; Ex. 6, '286 patent, claims 1, 15, 20; Ex. 7, '634 patent, claims 1, 29, 39, 56. The parties dispute whether the claimed "limited-use" number or payment (card) information must be limited in duration or number of transactions (Apple's construction) or not (CardWare's apparent position). Only Apple's construction is consistent with the teachings of the asserted patents' shared specification and the stated goals of the purported inventions. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (specification "is the single best guide to the meaning of a disputed term;" "[u]sually it is dispositive."); *Apple Comp., Inc. v. Articulate Sys., Inc.*, 234 F.3d 14, 25 (Fed. Cir. 2000) (claims "must be interpreted in light of the teachings of the written description and purpose of the invention described therein.").

The shared specification discloses that the patents are directed to solving a perceived problem with the security of conventional card-based financial transactions. The specification explains that conventional credit cards "have security limitations" and "can all be, in various ways, susceptible to theft and/or compromise." Ex. 3, '820 patent at 1:66-2:3. The specification further notes that "[s]ecurity is an area of concern for credit card holders, as the small form factor makes theft quite easy, and additionally there are many ways for a malicious third-party to record



CARDWARE EXHIBIT 2016
APPLE v. CARDWARE IPR2025-01150
Page 19 of 39

the account number of a credit card in order to later make fraudulent transactions on the account." *Id.* at 9:56-61.

The proposed solution to these perceived security concerns involves the use of a "limited-duration" number, limited in scope to a predetermined number of transactions or specified period of time. For example, the patents describe the purported invention as including methods for "generating a limited-duration credit card number when performing a transaction for the purpose of creating a limited-use credit card number, which is limited in scope of use to a predetermined number of authorized transactions." *Id.* at 2:27-32 (emphasis added). The specification explains that "[t]he limited-duration credit card number is able to be limited to only one transaction, a finite number of transactions, or may be limited to a specified period of time—e.g., 2 minutes, 10 minutes, 3 hours—after which time that particular limited-duration number would become invalid." *Id.* at 11:4-9. According to the patents, "to a great extent security concerns are addressed by the usage of limited-duration credit card numbers and other security features provided for by the credit card of the present disclosure." *Id.* at 15:21-27.

The term "limited-use" appears three times in the specification, and in each instance it is used interchangeably with the term "limited-duration" to refer to a predetermined number of transactions or specified period of time. For example, the patents describe the purported invention as including methods for "generating a limited-duration credit card number when performing a transaction for the purpose of creating a limited-use credit card number, which is limited in scope of use to a predetermined number of authorized transactions." *Id.* at 2:27-32 (emphasis added); *see also* Abstract (same disclosure). Similarly, the specification states that "[t]he limited-duration credit card number is able to be displayed on the front display of the multi-function electronic device 501.… This enables a per-transaction, limited-use credit card



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 20 of 39**

number, enhancing the security of the credit account…." *Id.* at 13:1-11 (emphasis added). Apple's construction therefore comes directly from the specification's description of a "limited-duration" number, *i.e.*, "limited to… a finite number of transactions… or specified period of time—e.g., 2 minutes, 10 minutes, 3 hours." *Id.* at 11:4-9.

Interpreting the claims to require "limited-use" payment information to be "limited to a finite number of transactions or specified period of time—e.g., 2 minutes, 10 minutes, 3 hours" thus holds true to and corresponds directly to what the applicants described as their invention in the intrinsic record, and therefore is the "correct construction." *Eon Corp. IP Holdings LLC v. Silver Spring Networks, Inc.*, 815 F.3d 1314, 1321 (Fed. Cir. 2016) ("construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction") (citation omitted).

**D. Printed Matter Claim Terms ('520, '820, '579, and '286 patents)**

| Apple's Construction | CardWare's Construction |
|---|---|
| Not entitled to patentable weight. | Plain and ordinary meaning. |

Many limitations of the asserted claims are subject to the printed matter doctrine and therefore are not entitled to patentable weight. As the Federal Circuit explained, "printed matter encompasses any information claimed for its communicative content, and the doctrine prohibits patenting such printed matter unless it is 'functionally related' to its 'substrate,' which encompasses the structural elements of the claimed invention." *CR Bard Inc. v. AngioDynamics, Inc.*, 979 F.3d 1372, 1381 (Fed. Cir. 2020); *see also In re DiStefano*, 808 F.3d 845, 848 (Fed. Cir. 2015) ("[I]f a limitation claims (a) printed matter that (b) is not functionally or structurally related to the physical substrate holding the printed matter, it does not lend any patentable weight to the patentability analysis."). Printed matter claim limitations thus do "not distinguish the invention from the prior art in terms of patentability." *In re Gulack*, 703 F. 2d 1381, 1385 (Fed.



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 21 of 39**

Cir. 1983). In other words, when performing an invalidity analysis, printed matter that does not carry any patentable weight "may not be a basis for distinguishing prior art." *In re DiStefano*, 808 F.3d at 848.

The printed matter doctrine involves a two-step analysis. First, a court must determine whether the limitation is directed to printed matter; that is, whether the limitation is "matter claimed for what it communicates." *In re DiStefano*, 808 F.3d at 848-50. Second, a court must analyze whether "the claimed informational content has a functional or structural relation to the substrate." *Id.* Printed matter with no functional or structural relationship to the substrate on which it is disposed is not entitled to patentable weight.

The printed matter limitations in the asserted claims fall into two general categories: (1) content disposed or not disposed on a device and (2) content displayed on a device. Both categories are subject to the printed matter doctrine and thus are not entitled to patentable weight.

**1. Content disposed or not disposed on the claimed device ('820 and '286 patents).**

The following limitations of the asserted claims of the '820 and '286 patent are each directed to communicative content "disposed," or not "disposed" on the claimed device:

- "having no fixed payment numbers disposed thereon" ('820 patent, claim 1)
- "wherein the fixed payment information includes only: a card-holder name; a payment issuing logo; and a card payment network logo, and wherein further, the body is free of any account numbers, expiration dates, card security codes, or other fixed payment numbers, disposed thereon" ('820, claim 2).
- "comprising no fixed payment numbers visible thereon" ('820 patent, claim 11)
- "bears no fixed payment numbers, and bears only: the cardholders name; a brand logo; and the card payment network logo" ('820 patent, claim 12, 16)
- "bears no fixed payment numbers on the card device" ('820 patent, claim 15)
- "free of any fixed payment numbers visible thereon" ('286 patent, claim 1)
- "payment information not visible on the payment card device" ('286 patent, claim 1)
- "absent a payment number information" ('286 patent, claim 5)

- "free of any fixed payment numbers disposed thereon" ('286 patent, claim 15)
- "fixed payment information disposed thereon, and wherein the fixed payment information comprises only: a card-holder name; a payment issuing logo; a card payment network logo and a card reader interface icon, and wherein the payment card device is free of any account numbers, expiration dates, card security codes, or other fixed payment numbers, disposed thereon" ('286 patent, claim 19)
- "free of any depictions of fixed payment numbers thereon" ('286 patent, claim 20)
- "issuer-provided payment information, associated with, but not depicted on, the payment card device" ('286 patent, claim 20)

CardWare stipulated that the underlined portions of the above limitations are subject to the printed matter doctrine and not entitled to patentable weight. Ex. 1. Indeed, each underlined portion of the limitations affirmatively recites communicative content printed on the body of the claimed device. However, CardWare incorrectly claims that the remainder of the above limitations, phrased as negative limitations, are not subject to the printed matter doctrine. Applying the two-step analysis, each of these negative limitations also constitute printed matter and are not entitled to patentable weight. *In re DiStefano,* 808 F.3d at 848-50.

First, each of the negative limitations is printed matter, because each is "matter claimed for what it communicates." *In re DiStefano,* 808 F.3d at 848-50. For example, claim 1 of the '820 patent recites a payment device with a thin shaped body "having no fixed payment numbers disposed thereon." '820 patent, claim 1. This limitation is a classic example of matter directed solely to the content of information printed on the device; namely, no fixed payment numbers. Ex. 8, Polish Decl. ¶ 67. If this limitation were phrased in the affirmative ("having fixed payment numbers disposed thereon"), it obviously would constitute printed mater, because it is solely directed to the content of information printed on the device. *Id.* Simply phrasing it as a negative limitation (no fixed payment numbers are printed on the device) does not change the result. *In re DiStefano,* 808 F.3d at 848-50. In both cases, information is being claimed for its communicative content. Ex. 8, Polish Decl. ¶¶ 67-68.



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 23 of 39**

Second, these limitations have no functional relationship to the substrate on which they are disposed. "In evaluating the existence of a functional relationship, [Courts] have considered whether the printed matter merely informs people of the claimed information, or whether it instead interacts with the other elements of the claim to create a new functionality in a claimed device…." *CR Bard*, 979 F.3d at 1381. "Fixed payment numbers," "account numbers," "expiration dates," "card security codes," "payment information" and "fixed payment information" simply "inform people of particular information." *Id.*; Ex. 8, Polish Decl. ¶¶ 69-70. Reciting the absence of this information does not change the character of these limitations—they specify particular types of information that people should not be informed of. *Id.* And there is no functional relationship between the recited limitations and any other claim element, because the limitations do not "interact[] with the other elements of the claim to create a new functionality in a claimed device…." *CR Bard*, 979 F.3d at 1381; Ex. 8, Polish Decl. ¶¶ 69-70. Rather, the limitations are solely directed to the content of information which is communicated, or not communicated, by matter printed on the device. *Id.*

These limitations also have no structural relationship to the substrate on which they are disposed. The claims include no requirement that information be printed on the card in any particular manner (*e.g.*, etched or raised, such that information can be imprinted on a carbon copy for manual processing). Ex. 8, Polish Decl. ¶ 71. Rather, each of these limitations merely require that the communicated content be "disposed" (*i.e.*, printed) on the device. *Id.*

Not surprisingly, the PTAB reached the same conclusion in evaluating these limitations. Ex. 12, PGR2023-00012 Institution Decision at 24-27; Ex. 13, PGR2023-00013 Institution Decision at 24-27; Ex. 14, IPR2023-00314 Institution Decision at 17-19. Because the limitations identified above are printed matter with no functional or structural relationship to the substrate



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 24 of 39**

on which they are disposed, they are not entitled to patentable weight. *In re DiStefano*, 808 F.3d at 848-50.

**2. Content displayed on the claimed device ('520, '579, and 286 patents).**

The following limitations of the asserted claims are each directed to communicative content "displayed" by the claimed device:

- "rendering on the display of the electronic device… with images, alphanumeric characters and iconography including at least one of a set comprising: a bank logo; an issuer logo; card network icons; payment network icons; a portion of the account number; and a cardholder name." ('520 patent, claim 14)
- "displaying, on the touch-screen display, images of: a card issuer payment method selection, including a last 4-digit partial number of a card issuer supplied account number of a payment card; a card logo; and other iconography of the payment card." ('579 patent, claim 1)
- "displaying, on the display, at least one information of a set of information comprising: … a payment bank logo; a card image; a payment card issuer icon; a payment card network icon; the last 4-digits of the primary account number; the last 4-digits of the device account number; and other payment iconography" ('579 patent, claim 9)
- "displaying on said display at least one of a set of information comprising: … a payment bank logo; a card issuer icon; a payment card image; an amount" ('579 patent, claim 15)
- "transmit a payment information visually, in alphanumeric, graphical and iconography" ('286 patent, claim 10)

Applying the same two-step analysis, each of these limitations constitutes printed matter and is not entitled to patentable weight. *In re DiStefano*, 808 F.3d at 848-50.

First, each of these limitations constitutes printed matter because each is directed to the content of information. For example, claim 14 of the '520 patent recites displaying specific types of information, such as "a bank logo; an issuer logo; card network icons; payment network icons; a portion of the account number; and a cardholder name." Ex. 2, '520 patent, claim 14. Similarly, the other above-listed limitations recite specific types of information displayed on the device, such as an "account number," "card logo," and "other iconography of the payment card," (Ex. 4, '579 patent, claim 1); a "card image," "payment card issuer icon" and "a payment card



CARDWARE EXHIBIT 2016
APPLE v. CARDWARE IPR2025-01150
Page 25 of 39

network icon" (Ex. 4, '579 patent, claim 9); a "payment bank logo," "card issuer icon," "payment card image" (Ex. 4, '579 patent, claim 15); and "payment information…in alphanumeric, graphical and iconography" (Ex. 6, '286 patent, claim 10). Each of these limitations constitutes printed matter, because each is directed to the content of information communicated by the display.

Although this second category of limitations is not directed to content "printed" on a claimed device, they nonetheless constitute printed matter. As the Federal Circuit explained, "[a]lthough 'printed matter' historically referred to claim elements involving actual 'printed' material, today the doctrine has expanded to include any information claimed for its communicative content, regardless of medium." *IOENGINE, LLC v. Ingenico Inc.*, 100 F.4th 1395, 1401 (Fed. Cir. 2024); *see also CR Bard*, 979 F.3d at 1381 (same); *Digital Retail Apps, Inc. v. H-E-B*, 2020 WL 376664 (W.D. Tex. Jan. 23, 2020) at *11 (finding limitations directed to information displayed on an electronic device to be printed matter). Whether printed or displayed, "printed matter is matter claimed for what it communicates." *IOENGINE*, 100 F.4th at 1404. Because each of the above-listed limitations is matter "claimed for what it communicates," each constitutes printed matter. *Id.*

Second, these limitations have no functional relationship to the substrate on which they are disposed. The recited "logos," "icons," "card images," "account numbers," "cardholder names" and "payment information" displayed on the claimed electronic device simply "inform people of particular information." *CR Bard*, 979 F.3d at 1381; Ex. 8, Polish Decl. ¶ 75. And there is no functional relationship between the recited limitations and any other claim element, because the limitations do not "interact[] with the other elements of the claim to create a new functionality in a claimed device…." *CR Bard*, 979 F.3d at 1381; Ex. 8, Polish Decl. ¶ 75.



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 26 of 39**

Rather, the limitations are solely directed to the content of information which is communicated by being displayed on the device. *Id.* These limitations also have no structural relationship to the substrate (*e.g.*, the display) on which they are disposed. *Id.* Rather, each of these limitations merely require that the communicated content be "disposed" (*i.e.*, displayed) on the device. *Id.* Indeed, CardWare stipulated that similar information (*i.e.*, "a cardholder name; a payment issuing logo; and a card payment network logo") disposed on the body of the payment device recited in claim 2 of the '820 patent constitutes printed matter. Ex. 1. Because the limitations identified above are printed matter with no functional or structural relationship to the substrate on which they are disposed, they are not entitled to patentable weight. *In re DiStefano*, 808 F.3d at 848-50.

**E. "the system of claim 15 . . . comprising . . . a user input providing for at least one user action . . ." ('820 patent, claim 20)**

| Apple's Construction | CardWare's Construction |
|---|---|
| Indefinite | Not indefinite. Plain and ordinary meaning. |

Claim 20 of the '820 patent is indefinite under 35 U.S.C. § 112 because it impermissibly recites both a system and a method of use of that system, running afoul of *IPXL* and its progeny. *See IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005) (finding mixed claims indefinite because "it is unclear whether infringement … occurs when one creates a system that allows the user to [use a feature of the system], or whether infringement occurs when the user actually uses [the feature]"); *Rembrandt Data Techs., LP v. AOL, LLC*, 641 F.3d 1331, 1339 (Fed. Cir. 2011) ("reciting both an apparatus and a method of using that apparatus renders a claim indefinite under section 112, paragraph 2") (internal citations and quotations omitted); *In re Katz*, 639 F.3d 1303, 1318 (Fed. Cir. 2011); *see also Samsung Elecs. Am., Inc. v. Prisua Eng'g Corp.*, 948 F.3d 1342, 1355 (Fed. Cir. 2020).



CARDWARE EXHIBIT 2016
APPLE v. CARDWARE IPR2025-01150
Page 27 of 39

Claim 20 depends from independent claim 15. Ex. 3, '820 patent, claim 20. Independent claim 15 is directed to an apparatus, reciting in relevant part "[a]n online payment system" comprised of a "thin card-shaped payment card device" and "a computing device." *Id.*, claim 15. Claim 15 further recites structural elements of the claimed "computing device," including "a display," "a user-interface," "a processor," and "a memory." Ex. 3, '820 patent, claim 15.

Claim 20 likewise is directed to an apparatus, reciting in relevant part:

> 20. The system of claim 15 wherein the computing device is further operable to obtain a user payment approval through at least one user-interface element of the computing device, from a set comprising:
>
> a display interface,
>
> a touch-screen interface,
>
> a touch ID button,
>
> input buttons,
>
> …; and,
>
> wherein the computing device is operable to display at least one of a set comprising: the transaction information, the merchant information, the time, the location of the transaction, the payment bank logo, the card issuer icon, the payment card image, and the amount, on a display of the computing device, and,
>
> a user input providing for at least one user action from a set comprising: an approving of a transaction, a denying of a transaction, and an adjusting of a transaction, via the user-interface.

Ex. 3, '820 patent, claim 20. Claim 20 is directed to an apparatus, *i.e.*, "the system of claim 15," and adds several limitations relating to "the computing device" recited in claim 15, including that "the computing device is further operable to obtain a user payment approval through at least one user-interface element of the computing device" and that "the computing device is operable to display" certain information. *Id.* Like claim 15, claim 20 also recites structural elements of the claimed "computing device," including "a display interface," "a touch-screen interface," "a touch ID button," "input buttons," etc. *Id.*



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 28 of 39**

However, claim 20 impermissibly also recites the method step "a user input providing for at least one user action." Ex. 3, '820 patent, claim 20; Ex. 8, Polish Decl. ¶¶ 81-82. Unlike the preceding limitation, which requires that "the computing device [be] operable to display," claim 20 does not recite that the computing device be "operable to" receive or recognize "a user input providing for at least one user action." *Id.* Rather, claim 20 expressly requires that the user use the system, by providing "a user input providing for at least one user action." *Id.*

The structure of claim 20 is directly analogous to the claim the Federal Circuit concluded was indefinite in *IPXL*:

> The *system of claim 2* [including an input means] wherein the predicted transaction information comprises both a transaction type and transaction parameters associated with that transaction type, and *the user uses the input means* to either change the predicted transaction information or accept the displayed transaction type and transaction parameters.

*IPXL*, 430 F.3d at 1384 (quoting U.S. Patent No. 6,149,055, claim 25) (emphasis in original). Claim 20 is indefinite for the same reason, *i.e.*, because "it is unclear whether infringement … occurs when one creates a system that allows the user to [use the claimed "accessing" feature], or whether infringement occurs when the user actually uses [the "accessing" feature]"). *IPXL*, 430 F.3d at 1384; *Rembrandt*, 641 F.3d at 1339; *In re Katz*, 639 F.3d at 1318.

**F. "the method of claim 1 wherein a payment processing authority verifies a limited-user number . . . And rejecting a limited use number" ('579 patent, claim 6)**

| Apple's Construction | CardWare's Construction |
|---|---|
| Indefinite | Not indefinite. Plain and ordinary meaning. |

Claim 6 is indefinite for an uncurable lack of antecedent basis at least because the plain language of the claim provides for multiple reasonable interpretations—each of which alters the scope of the claimed invention—without any guidance or instruction to provide reasonable



CARDWARE EXHIBIT 2016
APPLE v. CARDWARE IPR2025-01150
Page 29 of 39

certainty as to the correct interpretation or the scope of what is claimed. *Biosig Instruments*, 783 F.3d at 1377. CardWare argues that the term should be given its "plain and ordinary meaning," but fails to address the lack of antecedent basis or which competing interpretation would fall under the plain and ordinary meaning.

The "limited use number" terms of claim 6 lack antecedent basis. Claim 6, which depends on the "method of performing a transaction" of claim 1, requires a "payment process authority" to perform three steps: (1) of verifying "a limited-use number" (Ex. 4, '579 patent at 20:33-34), (2) authorizing the transaction of claim 1 in response to verifying a valid limited-use number, (*id.* at 20:44-47) and (3) "rejecting a limited-use number" based on "at least one unverifiable condition." (*id.* at 20:48-49). Notably, each of the three steps refers to "a [] limited-use number," implying that each term could potentially refer to a separate limited-use number.

The claim fails to provide sufficient clarity for a person of ordinary skill to determine with reasonable certainty whether the scope of the claim requires one, two, or three different "limited use numbers." The claims fail to specify whether the authorizing step occurs in response to the previous verifying step or a separate verification of a second, different limited-use number. Likewise, the claim as written is ambiguous as to whether the rejecting step applies to the same or a different limited use number used in either the verifying or authorizing steps. The lack of clarity requires a person of ordinary skill to guess as to the proper scope and meaning of the claim. *See* Ex. 8 (Polish Decl.) ¶¶ 86-87.

The specification and file history fail to clarify the inherent ambiguity. The claimed "payment processing authority" responsible for performing the three claimed steps appears only in the language of claim 6, and the specification fails to disclose how a payment processing authority would complete the claimed steps. With regard to the "authorizing" step, the



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 30 of 39**

specification does not describe a payment processing authority "authorizing" a transaction or any similar action "responsive to verifying" the limited-use number. The plain language of the claim requires both the authorizing and rejecting step to be performed, but when the specification describes an authorized use or transaction, it teaches that these steps operate in the alternative. Specifically, the '579 patent explains that "a transaction cannot be conducted with an expired limited-duration credit card number." Ex. 4, '579 patent at 10:53-56. The authorization step would not occur for the same reasons the limited-use number would be rejected under the "rejecting" step. A person of ordinary skill reading the specification would understand these two steps to be mutually exclusive. The specification also does not disclose a payment processing authority "rejecting" a limited-use number. The specification describes criteria for why limited-use numbers may be invalid, such as when their limited duration has expired, but the claims refer to these as "conditions" for rejecting a limited-use number, not the act of rejecting the number itself. *See* Ex. 4, '579 patent, claim 6 ("invalid use of an expired limited-duration number"). Nothing in the specification indicates the appropriate meaning or scope of this claim or the various "limited-use number" terms. Ex. 8, Polish Decl. ¶¶ 88-89.

CardWare's "plain and ordinary meaning" proposal provides no clarity to the claim and fails to address the fundamental question of whether these terms refer to the same "limited-use number" or not. Ex. 8, Polish Decl. ¶ 90. For at least that reason, the claim is indefinite.

**G. "said secrets" ('538 patent, claim 27)**

| Apple's Construction | CardWare's Construction |
|---|---|
| Indefinite | Not indefinite. Plain and ordinary meaning. |

This term lacks an antecedent basis, and neither the context of the claims nor the intrinsic record provide the requisite clarity to understand what "said secrets" refers to. A person of



CARDWARE EXHIBIT 2016
APPLE v. CARDWARE IPR2025-01150
Page 31 of 39

ordinary skill cannot reasonably determine the meaning of "said secrets," rendering the term indefinite. *See In re Packard*, 751 F.3d at 1310, 1314; Ex. 8, Polish Decl. at ¶¶ 93-100.

Claim 27 of the '538 patent depends from claim 25. Claim 27 requires: "wherein said transaction sequence counter, said information and said secrets are known to both said device, and to said payment processing authority." Ex. 5, '538 patent, claim 27 (emphasis added). The only recitation of the word "secret" in claim 27 is found in the term at issue ("said secrets"), and independent claim 25 makes no reference to "secret" whatsoever. *See id*. at claims 25, 27. Thus, the term "said secrets" lacks an antecedent basis in both independent claim 25 and dependent claim 27. A person of ordinary skill therefore cannot ascertain the meaning of "said secrets" based on the claim language alone. Ex. 8, Polish Decl. ¶ 94.

Even looking elsewhere in claim 27, a person of ordinary skill cannot reasonably determine what "said secrets" refers to. The limitation prior to "said secrets" states: "wherein further said cryptogram number is created by said device processor cryptographic combination of device transaction sequence counter count, a payment account information, a user information, and information stored in the device and specific to the device and which is not communicated in the transaction[.]" Ex. 5, '538 patent, claim 27. Claim 27 appears to refer to the "device transaction sequence counter count" as "said transaction sequence counter," and the "payment account information" and "user information" as "said information." *Id*.; Ex. 8, Polish Decl. ¶ 95. But "information stored in the device and specific to the device and which is not communicated in the transaction" cannot be "said secrets," since claim 27 requires that "said secrets are known to both said device, and to said payment processing authority." *Id.* The earlier limitation of claim 27 expressly states that the "information stored in the device and specific to the device" is



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 32 of 39**

not communicated, and thus, cannot be "known…to said payment processing authority," as claimed. *Id.*

Other claims in the '538 patent suggest that secrets are either known by "a payment processing authority" or the "device," but not both, as required by claim 27. For example, claim 18 specifies "payment processing authority secrets" (Ex. 5, '538 patent at 22:51-52), claim 20 specifies "information and secrets known to a payment processing authority" (*id.* at 23:42-43), claim 22 separately recites both "device secrets; payment processing authority secrets" (*id.* at 24:15-16), and claim 23 specifies "payment processing authority secrets" (*id.* at 24:24-25). While these limitations are far from unambiguous, none recite secrets "known to both said device, and to said payment processing authority," and provide no helpful insights for a person of ordinary skill to reasonably determine the scope of "said secrets" in claim 27. Ex. 8, Polish Decl. ¶ 96. Thus, the meaning of "said secrets" remains ambiguous even in view of other claims.

Likewise, a person of ordinary skill cannot determine from the intrinsic evidence what "said secrets" means in the context of claim 27. The specification mentions "secrets" in only one sentence: "[t]he limited-duration payment number is able to be generated according to … user key or secrets, on-card unique hardware secrets, payment authority key or secrets, … and other information associated with the transaction." Ex. 5, '538 patent at 7:20-25. In this example alone, there are at least three different types of "secrets"—and various combinations thereof—that, perhaps, a person of ordinary skill could consider "said secrets" in claim 27. A person of ordinary skill would not be reasonably certain which type of "secret" is the claimed "said secrets" in the claim based on this disclosure, however. Ex. 8, Polish Decl. ¶ 97. Furthermore, claim 27 requires that "said secrets are known to both said device, and to said payment processing authority," but it is not apparent from the claims nor the specification which "secrets"



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 33 of 39**

would be known to both the claimed device and a payment processing authority to satisfy claim 27. *See* Ex. 5, '538 patent, claim 27; Ex. 8, Polish Decl. ¶ 97. For example, there is no indication that a "payment processing authority" would or would not know user secrets or hardware secrets, leaving the meaning of "said secrets" ambiguous. Ex. 8, Polish Decl. ¶ 98. The prosecution history of the '538 patent similarly contains no valuable insights into the meaning of "said secrets." Ex. 8, Polish Decl. ¶ 99.

The patentee could have easily used unambiguous language instead of "said secrets." As between the patentee, who had an opportunity to choose its claim language, and the public at large, the patentee must bear the cost of its imprecise and indefinite claim language. *See Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 909 (2014) (stating that "the patent drafter is in the best position to resolve the ambiguity in . . . patent claims" (quotations omitted)).

**H. "its valid limitations of use" ('286 patent, claims 1 and15)**

| Apple's Construction | CardWare's Construction |
|---|---|
| Indefinite | Not indefinite. Plain and ordinary meaning. |

The parties' dispute centers around whether the phrase "its valid limitations of use" has clear antecedent basis such that the scope of claim 1 and 15 is reasonably ascertainable. It does not. There are four possible interpretations of what "its" refers to: (1) the card issuer authority, (2) transaction attempt, (3) electronic device, or (4) the limited-use payment information; the specification fails to inform a person of ordinary skill to which "its" refers. CardWare's proposed plain and ordinary meaning construction does not resolve this ambiguity. Therefore, the scope of each claim 1 and 15 lacks reasonable certainty, rendering this term indefinite. *Halliburton*, 514 F.3d at 1249.

To start, the subject limitation in claim 1 recites: "wherein a card issuer authority is operable to reject as invalid a transaction attempt outside of its limitations of use." Ex. 6, '286



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 34 of 39**

patent at 20:7-9. As a matter of plain grammar, the phrase "its limitations of use" reasonably relates back to either (1) the card issuer authority, or (2) the transaction attempt. Indeed, the specification discusses use limitations for each of these elements. For example, the specification explains that a card issuer authority has its own "key or secrets" which limits whether a use is valid. Ex. 6, '286 patent at 7:57-63; Ex. 8, Polish Decl. ¶ 107 (explaining that a person of ordinary skill would have understood that a card issuer authority would be limited to validating its own keys or secrets). As to the transaction attempt, the specification states that "[a]n attempt to perform a transaction having an amount exceeding the remaining credit available will not result in a valid limited-duration credit card number, and therefore an authenticated transaction cannot proceed." Ex. 6, '286 patent at 13:35-39. In addition, a transaction attempt, may be limited to "only one transaction, a finite number of transactions, or may be limited to a specified period of time—e.g., 2 minutes, 10 minutes, 3 hours." *Id.* at 11:10-16; 16:51-54 ("In one embodiment, the limited-duration credit card … is limited in scope of use to a predetermined number of authorized transactions."). Thus, a person of ordinary skill could reasonably conclude that "its" refers to either "the card issuer authority," or the "transaction attempt." Ex. 8, Polish Decl. ¶¶ 106-09.

Next, the claims expressly disclose use limitations of the claimed "computing device" of claim 1. Indeed, claim 6 includes a limitation similar to that at issue here in claims 1 and 15, but clarifies that "a card issuer authority is operable to reject as invalid a device transaction used outside of *a valid range of device limitations*." Ex. 6, '286 patent at 20:54-57 (emphasis added). Accordingly, "its limitation of use" could reasonably be interpreted as relating back to the claimed "electronic device." Ex. 8, Polish Decl. ¶ 110.



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 35 of 39**

For its part, CardWare contends "'limitations of use' obviously refers to the 'limited-use' nature of the card payment information." Ex. 15, PGR2023-00013, Paper 9, at 3 (CardWare's preliminary patent owner response in a post-grant proceeding filed by Samsung against the '286 patent). But CardWare's position ignores the similar use limitations of each of the card issuing authority, transaction attempt, and computing device. Accordingly, "its" referring to "limited-use payment information" is one, but not the only, reasonable interpretation.

Lastly, regarding claim 15, the limitation at issue is: " wherein a card issuing authority is operable to reject as invalid, a payment information used outside of its valid limitations of use." Ex. 6, '286 patent at 22:6-8. Claim 15 differs from claim 1 in that claim 15 recites "a payment information," rather than "a transaction attempt," but the discussion pertaining to claim 1 applies equally here. Indeed, similar to claim 1, it is unclear whether the recitation of "its" in claim 15 refers to the card issuing authority, payment information, limited-use payment information, or the device. Ex. 8, Polish Decl. ¶ 112.

Because a person of ordinary skill could not reasonably ascertain the antecedent basis for "its valid limitations of use" recited in claims 1 and 15, the claims are indefinite. *Halliburton,* 514 F.3d at 1249.

## IV. CONCLUSION

For the foregoing reasons, Apple respectfully asks the Court to adopt its proposed constructions.

Dated: May 27, 2025

Respectfully submitted,

*/s/ Nandan R. Padmanabhan*
John M. Guaragna
Texas Bar No 24043308
Nandan R. Padmanabhan
Texas Bar No. 24145172
Zachary Loney
Texas Bar No. 24092714



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 36 of 39**

Michael Saulnier
Texas Bar No. 24131647
DLA PIPER LLP (US)
303 Colorado, Suite 3000
Austin, TX 78701
Tel: (512) 457-7125
Fax: (512) 457-7001
john.guaragna@us.dlapiper.com
nandan.padmanabhan@us.dlapiper.com
zachary.loney@us.dlapiper.com

Sean Cunningham
Erin Gibson
Robert Williams
Peter Maggiore
DLA PIPER LLP (US)
4365 Executive Drive, Suite 1100
San Diego, CA 92121
Tel: (858) 677-1400
Fax: (858) 677-1401
sean.cunningham@us.dlapiper.com
erin.gibson@us.dlapiper.com
robert.williams@us.dlapiper.com
peter.maggiore@us.dlapiper.com

Benjamin Yaghoubian
Martin M. Ellison *(Pro Hac Vice)*
DLA PIPER LLP (US)
2000 Avenue of the Stars
Suite 400, North Tower
Los Angeles, CA 90067
Tel: (310) 595-3000
Fax: (310) 595-3300
benjamin.yaghoubian@us.dlapiper.com
martin.ellison@us.dlapiper.com

Ahimsa E. Hodari
Texas Bar No. 24132415
DLA PIPER LLP (US)
845 Texas Avenue, Suite 3800
Houston, TX 77002
Tel: 713.425.8400
Fax: 713.425.8401
ahimsa.hodari@us.dlapiper.com



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 37 of 39**

Mary C. Dahl *(Pro Hac Vice)*
DLA Piper LLP (US)
3203 Hanover St., Suite 100
Palo Alto, CA 94304
Tel: (650) 833-2000
Fax: (650) 833-2001

**ATTORNEYS FOR DEFENDANT APPLE INC.**



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 38 of 39**

**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that a true and correct copy of the above and foregoing document has been served on May 27, 2025, to all counsel of record who are deemed to have consented to electronic service via the Court's CM/ECF system per Local Rule CV-5. Any other counsel of record will be served by a facsimile and/or first-class mail.

*/s/ Nandan R. Padmanabhan*
Nandan R. Padmanabhan



**CARDWARE EXHIBIT 2016**
**APPLE v. CARDWARE IPR2025-01150**
**Page 39 of 39**