

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SML INTELLIGENT INVENTORY SOLUTIONS LLC and
SML (USA) INC.,
Petitioner,

v.

ADASA INC.,
Patent Owner.

IPR2025-00125
Patent 9,798,967 B2

Before JUSTIN T. ARBES, DEVON ZASTROW NEWMAN, and
MICHAEL T. CYGAN, *Administrative Patent Judges*.

NEWMAN, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. *Background and Summary*

SML Intelligent Inventory Solutions LLC and SML (USA) Inc. (collectively, “Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting institution of *inter partes* review of claims 1–20 (“the challenged claims”) of U.S. Patent No. 9,798,967 B2 (Exhs. 1001 (patent issued October 24, 2017), 1002 (*ex parte* reexamination certificate (11358th)), “the ’967 patent”). ADASA Inc. (“Patent Owner”) filed a Patent Owner Preliminary Response (Paper 7, “Prelim. Resp.”).

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314(b) (2018); 37 C.F.R. § 42.4(a) (2019). An *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Upon consideration of the Petition, the Preliminary Response, and the evidence of record, we conclude that Petitioner has not established a reasonable likelihood of prevailing on its assertion that at least one challenged claim is unpatentable based on the grounds advanced here. Accordingly, we deny institution of *inter partes* review of claims 1–20 of the ’967 patent.

B. *Real Parties in Interest*

Petitioner and Patent Owner identify themselves as the real parties-in-interest. Pet. 81; Paper 8, 2 (Mandatory Notices).

C. *Related Matters*

The parties identify *ADASA Inc. v. SML Grp. Ltd. et al.*, No. 4:24-cv-00370 (E.D. Tex.) as a related litigation involving the ’967 patent. Pet. 82;

Paper 8, 2. The parties further identify the following related matters: *ADASA Inc. v. CCL Industries Inc.*, Civil Action No. 2:24-CV-08409, currently pending in the District of New Jersey; *ADASA Inc. v. R-Pac International LLC*, Civil Action No. 1:24-CV-06102, currently pending in the Southern District of New York; *ADASA Inc. v. Avery Dennison Corp.*, Civil Action No. 6:17-CV-01685-MK (“*Avery Dennison* litigation”), filed in the District of Oregon, Eugene Division, now closed;¹ *ADASA Inc. v. Avery Dennison Corp.*, Case No. 22-1092, appeal to Federal Circuit Court of Appeals, now closed; and *Ex Parte* Reexamination No. 90/014,052, filed with the U.S. Patent and Trademark Office on November 29, 2017, now closed. Pet. 82; Paper 8, 2–3.

We note that the ’967 patent has been separately challenged in IPR2024-01416. Pet. 82; Paper 8, 2–3.

D. The ’967 Patent

On appeal from the *Avery Dennison* litigation, the Federal Circuit described the ’967 patent disclosure as follows, which we adopt for purposes of this decision:

The ’967 patent relates, in part, to methods and systems for commissioning radio-frequency identification (RFID) transponders. ’967 patent at 3:27–32. RFID transponders, also known as RFID tags, are used, like barcodes, to identify and

¹ In the *Avery Dennison* litigation, the district court initially granted Patent Owner’s motion for summary judgment that the asserted claims of the ’967 patent are not anticipated by Kuhno (Ex. 1008). *ADASA*, 55 F.4th at 906. Following a jury verdict of infringement, the Federal Circuit reversed the district court’s grant of summary judgment of no anticipation and remanded. *Id.* at 913. On remand, the jury found that the defendant had not proven, by clear and convincing evidence, that claim 1 is anticipated by Kuhno. *See* Ex. 2004, 2; Pet. 5–6; Prelim. Resp. 3.

track objects by encoding data electronically in a compact label. *Id.* at 1:32–34. But unlike traditional barcodes, RFID tags need not include external, machine-or human-readable labels and can communicate the data they encode over a distance using radio-frequency transmission. *Id.* at 1:34–53, 6:28–59.

To facilitate identifying and tracking an object in the stream of commerce, RFID tags are encoded with information associated with the object through a process known as “commissioning.” *Id.* at 1:40–53. The encoded data may include various categories of information, “for example, data representing an object identifier, the date-code, batch, customer name, origin, destination, quantity,” etc. *Id.* at 1:45–50. Regardless of the specific categories included, to ensure accurate tracking, it is critical that the data uniquely identify the tagged object. *Id.* at 2:21–22, 2:48–50.

In the RFID industry, uniqueness is ensured by assigning RFID tags an Electronic Product Code (EPC or EPCglobal) in accordance with certain global formatting standards. An EPC is a serialized object number comprising object class information and a serial number that together uniquely identify the associated object. *See id.* at 9:7–15. For example, the EPC may be a Serialized Global Trade Item Number (SGTIN), which consists of a Global Trade Item Number identifying the brand and class of the item (i.e., object class information) followed by a serial number uniquely identifying the tagged item within the brand and class. *Id.* Since objects from the same brand and class will share the same object class information, ensuring the uniqueness of the overall EPC amounts to ensuring uniqueness of the serial number.

Ensuring uniqueness, however, is not necessarily straightforward. *Id.* at 2:49–50. Serialization generally “requires a central issuing authority of numbers for manufacturers, products, and items to guarantee uniqueness and to avoid duplication of numbers.” *Id.* at 2:23–25. The issuing authority assigns blocks of numbers to remote locations, wherein each remote location receives the numbers one by one

or where the numbering space is partitioned in some manner. *Id.* at 2:25–29. But, in either case, the encoded numbers must generally be reconciled by comparison to a central database “either one or several numbers at a time.” *Id.* at 2:30–32.

In the case of EPCglobal numbers, the central issuing authority is known as GS1. *Id.* at 7:61–65, 9:7–15. GS1 distributes blocks of numbers to member companies in a hierarchical manner, wherein each company is authorized to then “further allocate numbers from its upper level database to as many lower database levels as it deems necessary to distribute number authority throughout its enterprise.” *Id.* at 7:61–8:3.

Using central databases to distribute the allocated numbers has certain drawbacks. It generally requires encoders to maintain a continuous network connection with the database so that new serial numbers can be retrieved when an RFID tag is commissioned. *See id.* at 3:27–4:4. But a continuous connection is not always possible and, even when it is, may be plagued by network delays that slow down the commissioning process. *See id.* at 3:64–4:4. This in turn may delay or impair downstream activity, including manual steps in the commissioning or distribution process. *Id.*

The '967 patent seeks to “overcome[] these shortcomings” using systems and methods for commissioning RFID tags “on-demand” and “with no external authorizations or queries required on a transponder-by-transponder basis,” enabling commissioning to proceed without the need for continuous connectivity to a central database. *Id.* at 3:27–35, 3:64–67. In one embodiment, pre-authorized ranges of serial numbers for specific object classes are allocated to lower levels in the hierarchy, for example, individual encoders. *Id.* at 8:4–11. In this embodiment, the object class serial number space is subdivided into sectors defined by a series of fixed “Most Significant Bits” (MSBs), wherein the number of allocatable sectors is determined by the number of MSBs. *Id.* at 8:11–15. For example, according to the SGTIN-96 standard, the serial number space consists of 38 bits which can encode 2^{38} distinct

serial numbers. If the first 14 of these bits are designated as MSBs, then the serial number space is correspondingly subdivided into 2^{14} sectors or “blocks” which can be allocated to as many as 2^{14} different encoders. *See id.* at 8:21–29. The remaining 24 bits can then be used to encode a unique serial number space within a given block. *Id.*

See Ex. 1032 (ADASA Inc. v. Avery Dennison Corp., 55 F.4th 900 (Fed. Cir. 2022)), 5–6.

E. Illustrative Claims

Independent claims 1 and 16 are representative of the challenged subject matter and are reproduced below with bracketed labels employed by Petitioner to facilitate analysis and discussion.

[1pre] An RFID transponder comprising:

[1A] a substrate;

[1B] an antenna structure formed on the substrate; and

[1C] an RFID integrated circuit chip which is electrically coupled to the antenna structure,

[1D] wherein the RFID integrated circuit chip is encoded with a unique object number, the unique object number comprising an object class information space and a unique serial number space,

[1E] wherein the unique serial number space is encoded with one serial number instance from an allocated block of serial numbers, the allocated block being assigned a limited number of most significant bits,

[1F] wherein the unique serial number space comprises the limited number of most significant bits uniquely corresponding to the limited number of most significant bits of the allocated block and of remaining bits of lesser significance that together comprise the one serial number instance.

[16pre] An integrated circuit, comprising:

[16A] a radio frequency circuit configured to backscatter a return link signal for processing by an RFID interrogator;

[16B] control logic; and

[16C] a memory,

[16D] wherein the memory is configured with a unique object number space, the unique object number space comprising an object class information space and a unique serial number space,

[16E] wherein the unique serial number space is encoded with one serial number instance from an allocated block of serial numbers, the allocated block being assigned a limited number of most significant bits, and

[16F] wherein the unique serial number space comprises the limited number of most significant bits uniquely corresponding to the limited number of most significant bits of the allocated block and remaining bits of lesser significance that together comprise the one serial number instance.

Ex. 1002, 1:21–39; 2:19–37.

Independent claim 13 contains the same limitations as claim 1 and further specifies that the RFID circuit chip is encoded with a global trade item number and that the unique serial number space “comprises at least 3 most significant bits uniquely corresponding to the limited number of most significant bits of the allocated block.” *Id.* at 2:1–18. The dependent claims specify further details about elements including encoding of the object class information space and the most significant bits and the substances comprising the RFID chip. Ex. 1001, 36:51–37:14, 37:33–38:4, 38:23–35.

F. Prior Art and Asserted Grounds

Petitioner asserts that claims 1–20 would have been unpatentable on the following grounds (*see* Pet. 7–8):

Claim(s) Challenged	35 U.S.C. §²	Reference(s)/Basis
1, 6–8, 10–12, 20	103	IBM200, ³ Kuhno ⁴
2–5, 13–19	103	IBM200, Kuhno, TDS ⁵
9	103	IBM200, Kuhno, Nitzan ⁶
1–8, 11–20	103	Bowers, ⁷ Tilson, ⁸ TDS
9	103	Bowers, Tilson, TDS, Nitzan
10	103	Bowers, Tilson, TDS, Forster ⁹

Petitioner supports its allegations with the Declaration of Jeffrey Fischer (Ex. 1005, “Fischer Decl.”). Patent Owner does not advance a declaration prepared for this proceeding.

G. Summary of Cited Prior Art

1. IBM200 (Ex. 1007)

IBM200 is entitled “Solution for Managing Serialization of EPC Identifiers for Use with RFID Tags.” Ex. 1007, code (54). A method is provided using software having a database of tables for managing serialization Tag Data Specification (TDS)-compliant EPCs. *Id.* at code (57). IBM200 explains that “[t]he format and contents of an EPC-compliant tag are governed by the EPCglobal [TDS],” but “[i]t can be difficult to

² The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Because the ’967 patent issued from an application that claims priority from an application filed before March 16, 2013, we apply the pre-AIA version of the statutory basis for unpatentability.

³ U.S. Patent 7,827,200 B2 (Ex. 1007, “IBM200”).

⁴ U.S. Patent 7,857,221 B2 (Ex. 1008, “Kuhno”).

⁵ EPCglobal Tag Data Standards Version 1.3 (March 8, 2006) (Ex. 1011, “TDS”).

⁶ U.S. Patent 7,394,382 B2 (Ex. 1022, “Nitzan”).

⁷ U.S. Patent 6,025,780 (Ex. 1009, “Bowers”).

⁸ U.S. Patent 7,777,628 B2 (Ex. 1010, “Tilson”).

⁹ U.S. Patent 7,571,862 B2 (Ex. 1023, “Forster”).

manage the unique serialization of EPC identifiers in addition to other EPC identifier fields.” *Id.* at 1:18–20, 1:42–44. IBM200 purports to solve this problem by efficiently generating and managing unique serial number portions of EPC identifiers via a database that “can use the nonserialized portion of an EPC to automatically generate the serialized portion of the EPC.” *Id.* at 1:44–46, 1:61–63. “Different sets of sequentially increasing (or sequentially decreasing) serial numbers (that are assigned to the associated unique nonserialized portions of the EPCs) can be associated with different nonserialized values.” *Id.* at 1:64–67.

Figure 1, reproduced below, is a schematic diagram of a system for managing serialization of RFID EPCs of IBM200. *Id.* at 2:49–53.

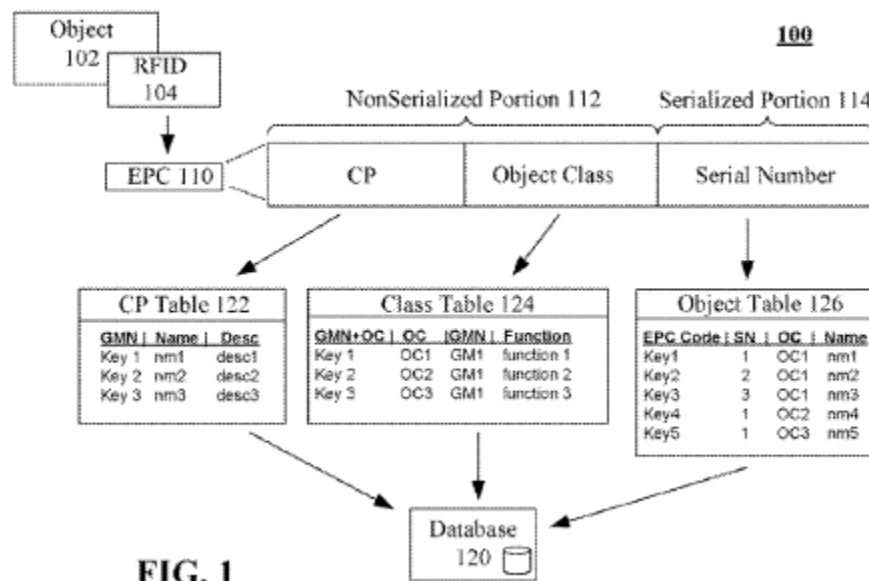


Figure 1 above shows system 100 having object 102 associated with RFID tag 104, which includes digitally encoded EPC 110 that is “uniquely assigned” to object 102. *Id.* at 2:63–3:2. “EPC 110 is an object encoded scheme for object identification created by the MIT Auto-ID Center” with format and contents governed by EPCglobal TDS. *Id.* at 3:30–43. Each

EPC 110 has a pure identity that includes nonserialized portion 112 and serialized portion 114. *Id.* at 3:56–58. Nonserialized portion 112 specifies a manufacturer and an object classification of object 102, and can include the unique Company Prefix (CP). *Id.* at 3:65–4:1. “Each CP can be recorded in a database table 122.” *Id.* at 4:3–4. Nonserialized portion 112 also includes an object classification unique for the CP which is stored in database table 124. *Id.* at 4:4–7. Serialized portion 114 is a value that is stored in database table 126. *Id.* at 4:11–12. Each of database tables 122, 124, and 126 “can be related tables of database 120, which can be a relational database.” *Id.* at 4:13–14. According to IBM200, “[t]he automatic assignment and generation of serial numbers is not limited to a simple increasing one-up generated number, but can utilize any mathematical function or serial number generation function that results in unique numbers” in which “[e]ach mathematical function can in a sense assign unique numbers from a pool of unallocated numbers specific to the nonserialized portion 112.” *Id.* at 4:49–56, 5:7–11.

2. *Kuhno (Ex. 1008)*

Kuhno is entitled “RFID Tag System.” Ex. 1008, code (54). Kuhno’s system applies a radio frequency identification tag having a representation that “includes an indication of a predetermined position for placement of the radio frequency identification tag on an item corresponding to [a] barcode.” *Id.* at code (57). Kuhno does not address the “format and configuration of the RFID Printer Data . . . and the protocols related to the barcode and RFID tag.” *Id.* at 6:66–7:3.

Kuhno describes a “Serial Number Setup” through which “characteristics of the carton and pallet serial numbers” are defined based on

user input. *Id.* at 14:20–21. The “system application applies a unique number to each carton and each pallet” and “increments the applicable number for each sequential carton and pallet.” *Id.* at 14:22–25. A preferred embodiment adds the “Julian calendar date, the production line number and the carton number” to provide multiple points of information about the labeled contents. *Id.* at 14:25–28. Carton Serial Length and Carton Sequence Length represent numbers of digits, respectively, based on user input. *Id.* at 14:31–35, Fig. 19. Carton information is defined for a given production line and the “system application defines a serial number for each carton that is the combination of a predetermined number, . . . production line number 366 and an end portion within a range” defined by user information. *Id.* at 16:7–13. Subsequent carton numbers are “used as the least significant portion of the serial number [] equal to a value entered by the operator” and each carton is processed “until the serial number end portion reaches the Serial Number Range Ending value,” when the number restarts at the beginning of the range. *Id.* at 16:14–22.

In another embodiment, the screen display of the mobile labeling system has a drop-down box that can be “used to select the encoding type of the RFID tags used in the system” as either 64 Bits or 96 Bits. *Id.* at 3:33–34, 15:65–67, Fig. 20A. In yet another embodiment, the screen display of the mobile labeling system has a RFID tab that provides fields for EPC code type, EPC product code, EPC manufacturer number, and RFID tag serial number range. *Id.* at 4:15–16, 23:41–44, Fig. 31F.

3. *Bowers (Ex. 1009)*

Bowers is entitled “RFID Tags Which Are Virtually Activated and/or Deactivated and Apparatus and Methods of Using Same in an Electronic

Security System.” Ex. 1009, code (54). Bowers’s RFID tag “includes unique tag information which is logged into a computerized database that contains a record for each of the tags in the set.” *Id.* at code (57). At least a portion of the tag information “is electronically alterable so as to allow the tag to be electronically activated and deactivated.” *Id.* at 3:32–36.

Figure 13, reproduced below, is an exemplary database of Bowers.

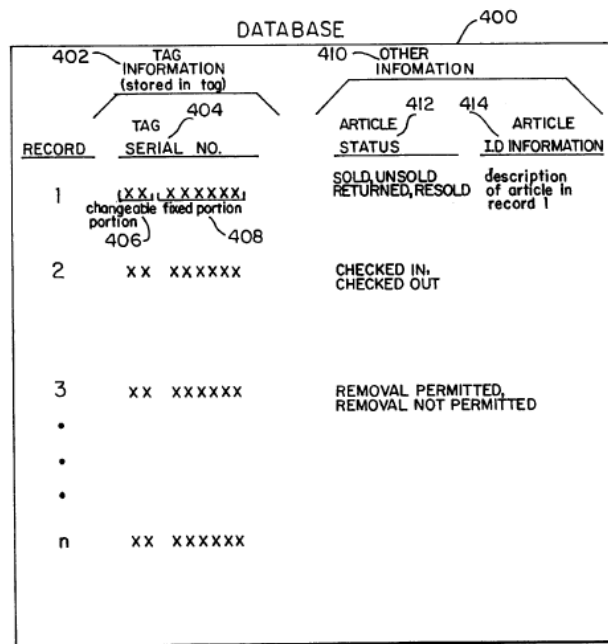


FIG. 13

Figure 13 above shows database 400 having tag information field 402 comprising a tag serial number 404, in which tag serial number 404 includes variable or changeable portion 406 of one or more bits and fixed portion 408 of a plurality of bits. *Id.* at 10:56–61. Optionally, database 400 includes other information field 410 “pertaining to the record, such as article status 412 and article identification information 414.” *Id.* 10:61–64.

4. *Tilson (Ex. 1010)*

Tilson is entitled “Radio Frequency Identification System and Method for Use in Cast Concrete Components.” Ex. 1010, code (54). Tilson’s system includes a RFID transponder that “is programmed with information concerning [a] cast concrete component” to which a RFID tag is affixed. *Id.* at code (57).

Figure 8, reproduced below, “is a highly schematic illustration of a data structure” stored by a preferred RFID assembly of Tilson’s system. *Id.* at 2:56–57.

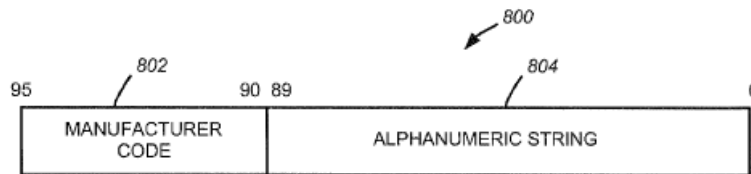


FIG. 8

Figure 8 above shows data structure 800 of a RFID tag that represents information, such as a serial number, that is stored on a non-volatile memory. *Id.* at 7:63–65. Data structure 800 includes manufacturer code portion 802 and alphabetic, numeric, or alphanumeric code portion 804 “which together form the unique serial number.” *Id.* at 7:66–8:3. As an example, “bits 90–95 of a 96-bit data structure may store the manufacturer code, and bits 0–89 may store the alphanumeric portion.” *Id.* at 8:3–5. A manufacturer’s code may be “used in all RFID assemblies sent to and used by this particular manufacturer.” *Id.* at 8:8–10. The data structure 800 may be modified to carry additional information such as a manufacturer name, supplier, batch number, or project or structure information. *Id.* at 8:32–41.

5. *TDS (Ex. 1011)*

TDS is a ratified specification of “EPCglobal Tag Data Standards Version 1.3.” Ex. 1011, 1.¹⁰ TDS applies to RFID tags (Gen 2 Tags) that conform to the “Gen2 Specification” for standardized “EPC Tag Encodings.” *Id.* 3:35–42, 3:62–68. TDS explains that EPC “is an identification scheme for universally identifying physical objects” via RFID tags and other means, in which “[t]he standardized EPC Tag Encoding[] consists of an EPC (or EPC Identifier) that uniquely identifies an individual object, as well as a Filter Value when judged to be necessary to enable effective and efficient reading of the EPC tags.” *Id.* at 8:181–185. The standard EPC Tag Encoding has a header, followed by a filter and partition value, which is followed by a domain identifier. *Id.* at 8:192–193, Fig. A. TDS discloses that EPC Version 1.3 uses a coding scheme that can include a Global Trade Item Number and a Serial Shipping Container Code. *Id.* at 8:196–200. TDS discloses that “[i]n general, each encoding scheme specifies what limits it imposes on the value that may appear in any given encoded field.” *Id.* at 10:245–246.

For a new identity type called “Serialized Global Trade Item Number (SGTIN),” a Global Trade Item Number (GTIN) is used to identify “a particular class of object, such as a particular kind of product or [stock keeping unit (SKU)].” *Id.* at 12:302–307. TDS discloses:

To create a unique identifier for individual objects, the GTIN is augmented with a serial number, which the managing entity is responsible for assigning uniquely to individual object classes.

¹⁰ We refer to the page number at the bottom right of each page and the line number on the left of each page.

The combination of GTIN and a unique serial number is called a Serialized GTIN (SGTIN).

The SGTIN consists of the following information elements:

- The *Company Prefix*, assigned by GS1 to a managing entity. The Company Prefix is the same as the Company Prefix digits within an EAN.UCC GTIN decimal code.
- The *Item Reference*, assigned by the managing entity to a particular object class. The Item Reference for the purposes of EPC Tag Encoding is derived from the GTIN by concatenating the Indicator Digit of the GTIN and the Item Reference digits, and treating the result as a single integer.
- The *Serial Number*, assigned by the managing entity to an individual object. The serial number is not part of the GTIN code, but is formally a part of the SGTIN.

Id. at 12:313–325. Figure C of TDS is reproduced below.

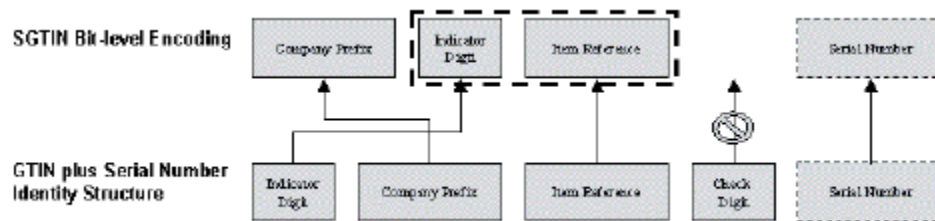


Figure C shows “how the parts of the decimal SGTIN are extracted, rearranged, and augmented for encoding.” *Id.* at 12:326–330. TDS discloses that for a SGTIN-96, included, in addition to a Header, are five fields: the Filter Value, Partition, Company Prefix, Item Reference, and Serial Number. *Id.* at 25:688–690, Table 4.

6. Nitzan (*Ex. 1022*)

Nitzan is entitled “Battery Assisted Backscatter RFID Transponder.” *Ex. 1022*, code (54). Nitzan discloses that its RFID transponder has an integrated circuit that “may comprise an organic polymer electronic chip.” *Id.* at 25:64–65.

7. *Forster (Ex. 1023)*

Forster is entitled “RFID Tag That Provides a Flat Print Area and a Pinch Roller That Enables the Same.” Ex. 1023, code (54). Forster discloses that its RFID Tag includes a face stock and an RFID device in which the RFID device “is mounted to or disposed on an inlay side” of the face stock. *Id.* at 2:53–59.

II. ANALYSIS

A. *Legal Standards*

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed invention and the prior art are such that the invention, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the claimed invention pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). In this section, we apply that standard to assess whether Petitioner shows sufficiently, for purposes of institution, that the subject matter of claims 1–20 would have been obvious over the combined disclosures of the asserted references in each ground.

B. *Person of Ordinary Skill in the Art*

“The level of skill in the art is a factual determination” that provides a primary guarantee of objectivity in an obviousness analysis. *Al-Site Corp. v.*

VSI Int'l Inc., 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)). Petitioner adopts the following definition of a person of ordinary skill in the art (hereafter, sometimes “POSITA”) of the ’967 patent proposed by Patent Owner in the *Avery Dennison* litigation:

[A]t least a bachelor’s degree in electrical engineering, computer science, or computer engineering, or a related discipline, and at least five years of experience which would consist of, A, designing, developing, evaluating and/or using RFID or other AIDC [automatic identification and data capture] technologies in inventory management, unique object identification, and/or security; or B, studying and conducting research related to RFID technologies and using RFID and other AIDC technologies in inventory management, unique object identification, and/or security.

Pet. 6 (citing Ex. 1030, 707:3–13). Patent Owner does not offer a definition of an ordinarily skilled artisan of the ’967 patent at this time. *See generally* Prelim. Resp.

Based on the information presented, we find that the asserted prior art itself is sufficient to demonstrate the level of skill in the art at the time of the invention. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (prior art itself can reflect the appropriate level of ordinary skill in the art). To the extent a more precise definition is required, we apply Petitioner’s unopposed proposed definition for purposes of determining whether to institute review because it is consistent with the disclosures of the asserted prior art references and the problems addressed in the ’967 patent.

C. Claim Interpretation

In an *inter partes* review, the Board construes the terms of a patent claim “in accordance with the ordinary and customary meaning of such

claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b). Under that standard, claim terms generally are given their plain and ordinary meaning as would have been understood by the ordinarily skilled artisan at the time of the invention and within the context of the entire patent disclosure. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). We construe terms in controversy only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Petitioner proposes the following claim constructions: “an allocated block of serial numbers” as “a pre-authorized range of binary serial numbers” and “uniquely corresponding” as the “term’s plain and ordinary meaning, consistent with the articulation of the plain and ordinary meaning” in the *Avery Dennison* litigation. Pet. 8–12. As to the remaining claim terms, Petitioner applies the district court’s constructions in the *Avery Dennison* litigation. *Id.* at 12 (citing Ex. 1028).

Patent Owner applies the following constructions that were entered during in the *Avery Dennison* litigation: “object class information space” as “data field within the memory of the RFID integrated circuit chip for information identifying the class of an object, such as a company prefix, item reference code, partition value, and/or filter value,” “unique serial number space” as “data field within the memory of the RFID integrated circuit for information identifying a unique serial number,” “being assigned a limited number of most significant bits” as “includes a limited, predefined sequence at the leading end,” “remaining bits of lesser significance” as “the

remaining lower order bits at the trailing end,” “is encoded with one serial number instance” as “has stored within it one serial number instance,” “an allocated block of serial numbers” as “a pre-authorized range of serial numbers,” and “uniquely corresponding” as its plain and ordinary meaning. Prelim. Resp. 32.

For purposes of resolving whether to institute trial, we adopt and apply the interpretations stated in the district court’s claim construction order and applied by the Federal Circuit on appeal, Ex. 1028.¹¹ *See* 55 F.4th 900, 908–909, 912–913 (Fed. Cir. 2022) (citing the district court’s claim construction order).

D. The Patentability Challenges

1. Grounds 1A–C: Alleged Obviousness of Claims 1, 6–8, 10–12, and 20 over IBM200 and Kuhno; Claims 2–5 and 13–19 over IBM200, Kuhno, and TDS; and Claim 9 over IBM200, Kuhno, and Nitzan

Petitioner contends that the combinations above teach all limitations of claims 1–20. Pet. 28–55. Patent Owner does not dispute at this stage that the Petition identifies sufficient evidence from the IBM200 and Kuhno combination to disclose limitations [pre]–[d] recited in independent claim 1. Patent Owner’s arguments relate to limitations [e] and [f] alone, which are consistent in independent claims 1, 13, and 16. Prelim. Resp. 42–56. We address Petitioner’s allegations regarding how IBM200 and Kuhno teach these limitations, followed by Patent Owner’s arguments in response, below.

¹¹ Petitioner proposes that “an allocated block of serial numbers” be interpreted as “a pre-authorized range of *binary* serial numbers,” whereas the district court interpreted the term to mean “a pre-authorized range of serial numbers.” *See* Pet. 9 (emphasis added); Ex. 1028, 9. We apply the district court’s interpretation.

Because Patent Owner addresses limitations [e] and [f] together in its arguments, and addresses all claims together for Grounds 1A–C, we review Petitioner’s allegations regarding both limitations before turning to Patent Owner’s response.

a) Petitioner’s Allegations Regarding Limitation [e]

Limitation [e] recites, “wherein the unique serial number space is encoded with one serial number instance from an allocated block of serial numbers, the allocated block being assigned a limited number of most significant bits.” Petitioner identifies that “IBM200 teaches a unique serial number space” and “encoding an RFID tag with one serial number instance.” Pet. 34 (citing Ex. 1007, 1:34–36). Petitioner alleges that IBM200 also discloses allocating a block of serial numbers when it discloses “different manufacturer divisions that produce objects having the same object classification can be assigned a subset of numbers from a number pool [or ‘block’] of unassigned numbers to ensure that unique serial numbers are always generated.” *Id.* (citing Ex. 1007, 5:7–11). Petitioner alleges that IBM200 discloses that assigning serial number blocks can be done according to any method resulting in unique numbers. *Id.* at 34–35 (citing Ex. 1007, 5:49–53).

Petitioner turns to Kuhno for disclosure of subdividing the serial number space prior to encoding, citing Kuhno’s teaching that “the carton serial number may include several components desired, for example including the Julian calendar date, the production line number and the carton number.” *Id.* at 35 (citing Ex. 1008, 14:25–28). Petitioner cites Kuhno’s disclosure that the “Carton Serial Length defines the number of digits in the carton serial number,” including the predefined production line number and

date and the carton number, and that the “Carton Sequence Length is the number of digits in the carton number.” *Id.* at 35 (citing Ex. 1007, 14:31–35, Fig. 19).

Petitioner offers the testimony of its declarant, Mr. Fischer, regarding the understanding of a POSITA regarding Kuhno’s serial number space encoding. Mr. Fischer opines that a POSITA would have understood Kuhno’s partitions to be in binary, including Kuhno’s 24-digit Carton Serial Number. *Id.* at 36–37 (citing Ex. 1005 (Fischer Decl.) ¶ 172; Ex. 1008, 14:31–35, 15:65–67, 23:41–44, Figs. 19, 20A, 20B).

Mr. Fischer further opines that “by defining the Carton Serial Length (total number of bits) and Carton Sequence Length (number of bits allocated to the ‘least significant’ ‘end portion’ of the serial number), the remaining bits are allocated to the most significant, leading portion bits of the carton serial number,” and Kuhno therefore discloses partitioning of the serial number such that the most significant bits encode the predetermined data and line number partition of the serial number and the least significant bits encode the incremented carton number partition. *Id.* at 37–38 (citing Ex. 1005 (Fischer Decl.) ¶¶ 172–174; Ex. 1008, 16:8–22). Mr. Fischer alleges that because the leading portion bits of the carton serial number are fixed, they necessarily distinguish the serial numbers that are assigned from others with different binary prefixes. *Id.* at 38 (citing Ex. 1005 (Fischer Decl.) ¶¶ 175–176; Ex. 1008, 7:13–16, 7:50–52). Mr. Fischer contends that this system therefore teaches “establishing a pre-authorized range of binary serial numbers that is being assigned a limited number of most significant bits.” *Id.* (emphasis omitted). As a result, Petitioner argues that the

combination of IBM200 and Kuhno teaches limitation [e]. *Id.* (citing Ex. 1005 (Fischer Decl.) ¶¶ 177–178).

b) Petitioner’s Allegations Regarding Limitation [f]

Limitation [f] recites, “wherein the unique serial number space comprises the limited number of most significant bits uniquely corresponding to the limited number of most significant bits of the allocated block and of remaining bits of lesser significance that together comprise the one serial number instance,” which Petitioner contends IBM200 in view of Kuhno disclose. Pet. 39. Petitioner relies on its prior arguments regarding limitations [d] and [e] for the claim term “unique serial number space,” the recited allocation of serial numbers in blocks, and partitioning of most and least significant bits as addressed above. *Id.*

Petitioner offers the testimony of Mr. Fischer regarding Kuhno’s disclosure of the “uniquely corresponding to” limitation. Mr. Fischer opines that, in addition to assigning serial numbers with most significant bits representing (1) a production date and (2) a production line for a “pre-defined group of cartons” that are “labeled by one station,” Kuhno discloses that the same production date information is used for the “entire pre-defined group.” Pet. 39–40 (citing Ex. 1005 (Fischer Decl.) ¶ 180; citing Ex. 1008, 7:13–18, 7:50–52). Mr. Fischer explains that, due to Kuhno’s number assignment process, “all items in the pre-defined group have the same most significant bits in their serial numbers.” Ex. 1005 (Fischer Decl.) ¶ 181. Mr. Fischer concludes that “because that shared date/production line combination are unique, Kuhno teaches the claimed unique correspondence between the MSBs and the range of serial numbers in the allocated block.” *Id.* As a result, Petitioner argues that the

combination of IBM200 and Kuhno teaches limitation [f]. Pet. 40 (citing Ex. 1005 (Fischer Decl.) ¶ 182).

With regard to the motivation to combine IBM200 and Kuhno, Petitioner alleges that a POSITA would have been motivated to combine the ability to “allocate unique identifiers across multiple manufacturing facilities for objects with the same object classification, as taught by IBM200,” with Kuhno’s teachings regarding subdividing a serial number space, by partitioning the space into “(1) a more-significant, leading group of bits that identifies, e.g., a specific Julian calendar date and/or production line, and (2) a less-significant group of remaining bits that contains a serial number.” *Id.* at 29–30 (citing Ex. 1005 ¶ 147; Ex. 1008, 14:23–28).

c) Patent Owner’s Allegations Regarding Limitations [e] and [f]

Patent Owner argues that Petitioner fails to demonstrate that IBM200 and Kuhno teach the data structure recited by limitations [e] and [f]. Prelim. Resp. 40–55. Patent Owner argues that Petitioner’s cited teachings from IBM200 do not address an “allocated block being assigned a limited number of [MSBs],” relying exclusively on Kuhno for that element of limitation [e] and for the entirety of limitation [f]. *Id.* at 41. But Kuhno, Patent Owner argues, affirmatively excludes “protocols relating to the ‘format and configuration of the RFID Printer Data’” and provides only “dropdown menus for selection among industry standard EPC encoding schemes.” *Id.* at 42–43 (citing Ex. 1008, 1:23–27, 15:65–16:6, 23:41–44, Fig. 31F). Instead, according to Patent Owner, the Petition impermissibly relies on Mr. Fischer’s testimony alone regarding the alleged understanding of a POSITA to provide the remaining disclosure necessary to demonstrate obviousness. *Id.* at 43 (citing *DSS Tech. Mgmt. v. Apple Inc.*, 885 F.3d 1367, 1374, 1377

(Fed. Cir. 2018), and *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361–62 (Fed. Cir. 2016)).

Patent Owner further argues that the Petition, through Mr. Fischer, views Kuhno through hindsight bias to interpret the meaning of Kuhno’s statements and Figures in support of its arguments that a POSITA would have recognized them as teaching elements of limitations [e]–[f] despite that they lack any teaching supporting those disclosures. *Id.* at 43–44 (citing *Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570 (Fed. Cir. 1996)).

Patent Owner further argues that Petitioner and Mr. Fischer’s interpretation strains the language of the patent as written, interpreting “digits” to mean “bits” despite that Kuhno uses “bits” elsewhere. Prelim. Resp. 46 (citing Ex. 1008, Fig. 20B, 15:65–16:6). Patent Owner also argues that other RFID encoding-specific inputs solicited by the Fast Tag software specifically address RFID encoding and serial number range inputs, which contradicts Petitioner’s explained need for entering a Carton Serial Length or input of decimal values to define the serial number range. *Id.* at 46–47 (citing Ex. 1008, 15:65–16:6, 23:41–44, Fig. 20A, Fig. 31F). Patent Owner alleges that Petitioner’s arguments “conflat[e] discussion of printed information with encoded data,” leading it to misinterpret Kuhno’s teachings. *Id.* at 48–52 (citing Fig. 29E and stating with illustration that the bit coding of the tag shown therein does not match the data string encoding predicted by Petitioner).

Finally, Patent Owner argues that applying the industry standard for encoding, demonstrated by TDS, to the principles provided by Petitioner leads to inconsistent leading bits of encoded sequences. *Id.* at 51–52. Patent Owner argues that more explicit teaching would have been required to

practice the claimed data structure aside from “applying a methodology for generating serial numbers that involves combining multiple decimal values.” *Id.* at 52. Patent Owner provides examples of two such disclosures that allegedly do use the claimed data structure, which were published by GSI and Walmart after the priority date of the ’967 patent. *Id.* at 53–55 (citing Ex. 2010, 1, 4). According to Patent Owner, unlike Kuhno, these references “provide[] explicit instruction detailing the number and location of memory space to be utilized for storing a predefined sequence comprising a ‘line code’ or ‘site key,’ respectively, and identify the number of remaining memory bits available for storing a serial value.” *Id.* at 54–55.

d) Analysis

We are unpersuaded that a POSITA at the time of the invention, having read the disclosures of IBM200 and Kuhno, would have been led to make the “*uniquely corresponding to the limited number of most significant bits of the allocated block and of remaining bits of lesser significance that together comprise the one serial number instance*” subject matter of limitation [f].

The evidence of record reasonably shows that the teachings of IBM200 and Kuhno would have made it obvious for a POSITA to commission RFID tags with unique serial numbers partitioned into MSBs and bits of lesser significance. *See* Pet. 34–39; Ex. 1005 ¶¶ 167–176. However, on this record, Petitioner has not sufficiently shown that the POSITA, having read IBM200 and Kuhno, would have been led to create a serial number space in which the limited number of “most significant bits” uniquely corresponds to those bits assigned to an allocated block of serial numbers, as recited in limitation [f].

As Patent Owner argues, Kuhno does not address the protocols used for encoding of a serial number space on an RFID tag, but rather expressly describes those protocols as outside the scope of Kuhno's disclosure. Prelim. Resp. 42–43 (citing Ex. 1008, 6:66–7:3 (“The format and configuration of the RFID Printer Data depends on the requirements of the RFID printer and the protocols related to the barcode and RFID tag and are therefore not discussed herein.”)). Kuhno does permit a user to “select the encoding type of the RFID tags used in the system” (“64 Bits or 96 Bits”), which will define the size of the tag's memory space (Ex. 1008, 15:65–16:6, Fig. 20A), but Kuhno does not describe how such encoding operates—i.e., whether each portion of the serial number is encoded separately, or encoded after concatenation of the, e.g., production line and carton numbers.

We therefore turn to IBM200 for information regarding how the serial number space would be encoded in the proposed combination, as Petitioner and Mr. Fischer rely on IBM200 as teaching that “the unique serial number space is encoded with one serial number instance from an allocated block of serial numbers.” Pet. 34 (citing Ex. 1007, 1:34–36; Ex. 1005 ¶ 168).

IBM200 discloses that different types of EPCs exist, including “a Serialized Global Trade Item Number (SGTIN) type”, and that its invention can be used with any type of EPC. Ex. 1007, 3:44–52. Mr. Fischer similarly opines that “a POSITA would have understood that both the '967 patent and IBM200 reflect the unique object number *as taught by the EPC standard*—indeed, the '967 patent teaches ‘a particular EPCglobal key type, for example an SGTIN-96.’” Ex. 1005 ¶ 164 (citing Ex. 1001, 8:28–29, and IBM200, Ex. 1007, 3:39–43). IBM200 further explains that the EPC is divided into numbers identifying “manufacturer, object type, and serial

number” and “the format and content of an EEC-compliant tag is governed by the EPCglobal Tag Data Specification (TDS).” Ex. 1007, 3:39–43. TDS teaches that data strings for each field (e.g., company prefix, line number, serial number) are “concatenated and considered as a single decimal integer.” See, e.g., Ex. 1011, 28, 30–31, 34, 38, 41, 44–45, 47, 50 (steps 2 and 3 of “Encoding Procedure”); Prelim. Resp. 36.

We agree with Petitioner that the teachings of IBM200 and Kuhno would have taught a POSITA that an RFID tag could be encoded in binary and that the *order of components* coded within the RFID tag could be preserved along hierarchical numbering principles by dividing the serial number to include identifying elements such as Julian date and/or production line number that would be used as the leading portion of *digits* of each serial number. However, Petitioner does not explain how, with the TDS concatenation protocol, the subdivisions of the serial numbers that Petitioner alleges create unique correspondence would be retained to ensure unique correspondence of *most significant bits* in the resulting serial number as required by limitation [f]. See Prelim. Resp. 45–46, 51–53.

Petitioner’s evidence that Kuhno achieves the claimed unique correspondence relies on all items in the “pre-defined group of cartons” having the same pre-defined numbers. See Pet. 39–40 (citing Ex. 1005 ¶ 181). We agree with Patent Owner that maintaining this hierarchy alone is insufficient to ensure unique correspondence where the industry standard TDS encoding protocol is used, as IBM200 instructs. See Prelim. Resp. 51–53 (demonstrating in detail how concatenation of digits into a decimal value may result in a converted binary representation that does not have a “limited number of most significant bits uniquely corresponding to the limited

number of most significant bits of [an] allocated block and of remaining bits of lesser significance that together comprise the one serial number instance”). We further agree that the cited references would have needed more explicit teaching to teach or suggest the claimed data structure aside from merely “applying a methodology for generating serial numbers that involves combining multiple decimal values.” *Id.* at 52.

We agree with Patent Owner that Petitioner has not sufficiently explained how the TDS protocol, relied upon by IBM200, would teach the claimed unique correspondence of bits when combined with Kuhno’s non-bit hierarchy. Because Petitioner does not show sufficiently that the data structure recited in limitation [f] would have been obvious over the combined disclosures of IBM200 and Kuhno, Petitioner fails to establish “a reasonable likelihood” of prevailing with respect to claims 1, 13, or 16 based on this ground. 35 U.S.C. § 314(a). Our reasoning applies with equal force to the other claims challenged in this ground, because each inherits these limitations of claims 1, 13, or 16 through direct or indirect dependence.

In sum, on this record, we determine that Petitioner does not establish a reasonable likelihood of prevailing “with respect to at least [one] of the claims” based on Grounds 1A–C.

2. *Grounds 2A–C: Alleged Obviousness of Claims 1–8 and 11–20 over Bowers, Tilson, and TDS; Claim 9 over Bowers, Tilson, TDS, and Nitzan; and Claim 10 over Bowers, Tilson, TDS, and Forster*

Petitioner contends that the combinations above teach all limitations of claims 1–20. Pet. 56–79. Patent Owner does not dispute at this stage that the Petition identifies sufficient evidence from the Bowers, Tilson, and TDS combination to disclose limitations [pre]–[d] recited in independent claim 1 but, as with Grounds 1A–C, argues that the disclosures do not teach or

suggest the subject matter of limitations [e] and [f]. Prelim. Resp. 55–58. We address Petitioner’s allegations regarding how Bowers, Tilson, and TDS teach these limitations, followed by Patent Owner’s arguments in response, below. Because Patent Owner addresses limitations [e] and [f] together in its arguments, we review Petitioner’s allegations regarding both limitations before turning to Patent Owner’s response.

a) Petitioner’s Allegations Regarding Limitation [e]

Petitioner alleges that TDS discloses a unique serial number space, which would have been a familiar standard to a POSITA. Pet. 63–65 (citing Ex. 1005 ¶¶ 264–266).

Petitioner alleges Bowers discloses assigning predefined tags to a predefined set of articles for 1:1 association, which Mr. Fischer opines is disclosure of a pre-authorized range of serial numbers. *Id.* at 63–64 (citing Ex. 1009, 10:47–55; Ex. 1005 ¶ 265). Petitioner alleges that Bowers discloses avoiding duplication of serial numbers across entities. *Id.* at 54 (citing Ex. 1009, 6:39–47, 9:28–37).

Petitioner alleges that Tilson discloses partitioning a unique serial number space to assign a limited number of most significant bits to a manufacturer code portion with an alphanumeric portion occupying the rest. *Id.* at 64 (citing Ex. 1010, 7:65–8:5). Petitioner alleges Tilson discloses “bit level partition of the serial number space” and that “each bit-field is in a discrete memory unit that stores binary values” that are equivalent to the alphanumeric string. *Id.* (citing Ex. 1010, 8:3–5, Fig. 8; Ex. 1005 ¶ 266). Mr. Fischer concludes that a POSITA would have understood that Tilson’s disclosure of modification of the data structure to carry information regarding a manufacture or supply entity by “creat[ing] a prefix to a set of

subserial numbers was an existing practice in the RFID field” that partitions the 96-bit serial number at the bit level because “each bit-field is in a discrete memory unit that stores binary values.” Ex. 1005 ¶¶ 267–269. Mr. Fischer analogizes Tilson’s partitioning of a serial number space to “existing partitioning methods (such as subnetting and computer memory allocation) [that] assign prefixes to a specific allocated block.” *Id.* ¶ 270.

Mr. Fischer opines that a POSITA would have known that allocating serial numbers to “force uniqueness” is used in computer memory allocation and IP addressing methods. *Id.* ¶ 271. Mr. Fischer concludes that a POSITA would have recognized that each RFID tag “can be viewed as an ‘offset’ within a larger ‘memory block’ encompassing all tags in the system and that allocating serial numbers to these tags is essentially assigning unique memory addresses within the RFID system’s overall address space.” *Id.*

Through Mr. Fischer’s testimony, Petitioner alleges that a POSITA would have been motivated to use Tilson’s serial number partitioning in Bowers to avoid duplication of serial numbers across entities and that the techniques were “readily combinable.” Pet. 65 (citing Ex. 1009, 10:59–61,¹² Fig. 13; Ex. 1005 ¶¶ 272, 247). Mr. Fischer opines that a POSITA would have understood partitioning a serial number space to create a prefix to avoid duplication, and analogizes to examples in a textbook and the pharmaceutical industry. Ex. 1005 ¶¶ 247–248, 268 (citing Ex. 1013, 240; Ex. 1021, 2864–65). As a result, Petitioner argues that the combination of

¹² This citation was identified by Petitioner as “10:56-.” We have included the citation to the quoted language.

Bowers, Tilson, and TDS teaches limitation [e]. Pet. 66 (citing Ex. 1005 ¶ 273).

b) Petitioner's Allegations Regarding Limitation [f]

Petitioner alleges Bowers teaches “attaching ‘a predefined set of tags 10’ to ‘a predefined set of articles’ where ‘unique tag information is assigned to each tag 10 within the tag set and each of the tags are programmed accordingly.’” Pet. 67 (citing Ex. 1009, 6:14–21). Petitioner alleges that Bowers therefore teaches avoiding duplication of tag numbers across entities. *Id.*

Petitioner alleges that the use of “Tilson’s entity identifier encoded in the MSBs of serial numbers used at a particular store in Bowers, as discussed [in the Petition], achieves this goal,” and that a POSITA would have been motivated to combine the techniques to avoid duplicating serial numbers. *Id.* at 58, 67. Petitioner asserts that this combination “results in partitioning the unique serial numbers space at the bit level as recited by the ‘uniquely corresponding to’ limitation” and therefore discloses limitation [f]. *Id.* at 67 (citing Ex. 1005 ¶¶ 275–276).

c) Patent Owner's Allegations Regarding Limitations [e] and [f]

Patent Owner argues that Petitioner fails to demonstrate that Bowers, Tilson, and TDS teach the data structure recited by limitations [e] and [f]. Prelim. Resp. 55–58. Patent Owner argues that Petitioner’s cited teachings from Bowers and TDS do not address use of a data structure with MSBs assigned within the serial number space of an encoded RFID tag. Prelim. Resp. 55.

Patent Owner argues that Petitioner’s allegations regarding the use of a data structure having MSBs relies on Tilson alone, and specifically its

description of Figure 8. *See* Prelim. Resp. 55–56. Patent Owner argues that the two fields of encoded data on which Petitioner relies, a “manufacturer code” and a remaining “alphanumeric string” of data, closely mirror the TDS standard of a SSCC-type electronic product code. *Id.* at 56–57 (citing Ex. 1011, 14). Patent Owner argues that the “manufacturer code,” similar to the “company prefix” of the SSCC-type EPC, is a category of object class information as described in the ’967 patent, while the second portion is specific to the item being tagged. *Id.* at 57 (citing Ex. 1001, 9:7–16). Patent Owner argues that Petitioner’s assertion of Tilson’s Figure 8 as disclosing a manufacturing code as MSBs is wrong because “Tilson fails to disclose or suggest any data structure beyond use of an object class information field along with a serial number field in [a] schematically identical manner to the SSCC scheme taught in the TDS.” *Id.* at 58. Patent Owner concludes that Petitioner fails to show that TDS discloses the claimed data structure of limitations [e] and [f].

d) Analysis

After considering the parties’ arguments and evidence, we find Petitioner’s showing of obviousness of limitations [e] and [f] of the independent claims over the combination of Bowers, Tilson, and TDS insufficient. In particular, we are not persuaded that Petitioner has sufficiently established that Tilson teaches the subject matter of limitations [e] and [f] and that a person of ordinary skill in the art at the time of the invention would have been led by the disclosures in Bowers, Tilson, and TDS to have made the claimed subject matter of limitations [e] and [f].

We agree with Patent Owner that Petitioner’s evidence for obviousness of limitations [e] and [f] is primarily based on Tilson. *See* Pet.

63–67; Prelim. Resp. 55. However, we are unpersuaded that the disclosures of Tilson, viewed by one of ordinary skill at the time of the invention, would have been understood consistent with Petitioner and Mr. Fischer’s conclusions. Figure 8 of Tilson is reproduced again below.

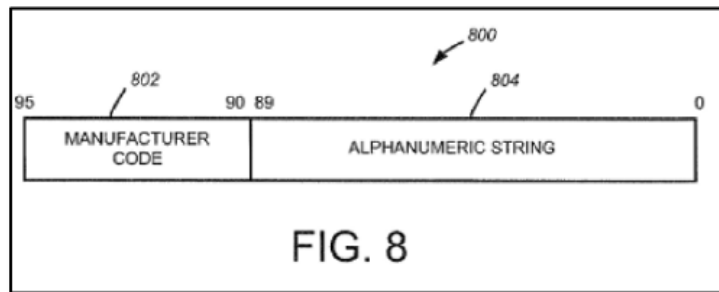
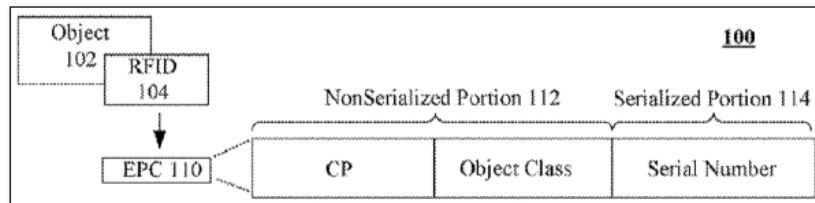


Figure 8 of Tilson is “a highly schematic illustration of a data structure stored by the preferred RFID assembly.” Ex. 1010, 2:56–57. Figure 8 represents partitioning a data structure by designating certain units of the serial number to represent two concepts, which Tilson explains can be, optionally, a manufacturer code and a concrete component identifier. *Id.* at 7:61–8:10. The data structure can be further partitioned to describe additional concepts, such as manufacturer name, supplier, batch number, or project or structure information. *Id.* at 8:32–41. We agree with Patent Owner that Tilson’s disclosure in Figure 8 provides a division of a serial number consistent with TDS’s disclosure of an object class space, where the first portion stores a manufacturer identifier, and the second, serialized portion “used to uniquely identify the tagged object” is not described as having “any internal data structure.” See Ex. 1011, 11–12 (describing “[t]he *Company Prefix* [manufacturer identifier], assigned by GS1 to a managing entity,” and showing “*Company Prefix*” separate from the serialized portion); Prelim. Resp. 57–58.

Patent Owner notes that this use of a first portion is consistent with the '967 patent's identification of a "company prefix" as a portion of the object class information. *See* Ex. 1001, 9:10–15 (company prefix, item reference, partition value, and filter value comprise object class information); Prelim. Resp. 57. Further, Petitioner proposed interpreting the meaning of terms of the '967 patent based on Patent Owner's constructions from the *Avery Dennison* litigation. *See* Pet. 8–12. Under that proposal, "object class information space" means "data field within the memory of the RFID integrated circuit chip for information identifying the class of an object, such as a *company prefix*, item reference code, partition value, and/or filter value." *Id.* at 12 (emphasis added). Tilson does not expressly define its portions 802 and 804 as separate components or suggest a data structure unlike the object class information defined above.

We further note that, as it pertained to Grounds 1A–C, Petitioner described IBM200 as including a non-serialized portion that could identify a manufacturer or object class. *See* Pet. 33 (citing Ex. 1007, 3:32–41 ("The EPC 110 is a simple, compact 'license plate' or identifier that uniquely identifies an associated object 102. . . . 'The EPC is divided into numbers that identify manufacturer, *object type*, and *serial number*.'")). Likewise, Mr. Fischer identified the object class as the non-serialized portion of a serial number space, as shown in IBM200's Figure 1, reproduced below.



Ex. 1007, Fig. 1; *see* Ex. 1005 ¶¶ 165–166. Figure 1 above shows system 100 having object 102 associated with RFID tag 104, which includes digitally encoded EPC 110 that is “uniquely assigned” to object 102.

Ex. 1007, 2:63–3:2. Mr. Fischer opined about this arrangement: “IBM200 discloses [that] the RFID integrated circuit chip is encoded with a unique object number, the unique object number comprising an object class information space and a unique serial number space,” where IBM200’s “unique object class information space (nonserialized portion) and . . . serial number space (serialized portion) comprise the unique object identifier (EPC number).” Ex. 1005 ¶¶ 160, 166. Mr. Fischer found this disclosure relevant to limitation [d], not limitations [e] or [f]. We are unpersuaded that, here, Tilson’s disclosure of the same information in the same manner teaches encoding a unique serial number space (limitation [e]) or uniquely identifying most significant bits (limitation [f]) rather than an object class information space similar to limitation [d]. We conclude that, on the record before us, Tilson’s teachings about a partitioned data structure are not sufficiently clear to establish that they teach or suggest limitation [e], “*wherein the unique serial number space is encoded with one serial number instance from an allocated block of serial numbers, the allocated block being assigned a limited number of most significant bits,*” or limitation [f], “*wherein the unique serial number space comprises the limited number of most significant bits uniquely corresponding to the limited number of most significant bits of the allocated block and of remaining bits of lesser significance that together comprise the one serial number instance.*”

Accordingly, because Petitioner does not show sufficiently that the data structure recited in limitations [e] and [f] would have been obvious over

the combined disclosures of Bowers, Tilson, and TDS, Petitioner fails to establish “a reasonable likelihood” of prevailing with respect to claims 1, 13, or 16 based on this ground. 35 U.S.C. § 314(a). Our reasoning applies with equal force to the other claims challenged in this ground, because each inherits these limitations of claims 1, 13, or 16 through direct or indirect dependence.

In sum, on this record, we determine that Petitioner does not establish a reasonable likelihood of prevailing “with respect to at least [one] of the claims” based on any ground asserted in the Petition. 35 U.S.C. § 314(a).

E. Discretion Under 35 U.S.C. § 325(d)—Advanced Bionics Analysis

Patent Owner contends that we should exercise our discretion under 35 U.S.C. § 325(d) to deny the Petition, as the art presented by Petitioner for Grounds 1A–C is either the same as or cumulative of the art considered by the Examiner during prosecution and/or reexamination of the ’967 patent. Prelim. Resp. 24–30. Patent Owner also contends that the arguments presented by Petitioner are substantially the same as those previously considered by the Examiner. *Id.* at 25–27. Patent Owner argues similarly for Grounds 2A–C. *Id.* at 27–30.

In view of our determination that Petitioner does not meet the threshold evidentiary showing necessary to support institution of review, we need not, and do not, resolve Patent Owner’s alternative request that we exercise our discretion to deny the Petition. *See* Prelim. Resp. 24–30.

III. CONCLUSION

Petitioner has not shown a reasonable likelihood of prevailing with respect to at least one of the claims challenged in the Petition.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the petition for *inter partes* review is DENIED.

IPR2025-00125
Patent 9,798,967 B2

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