IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

KERMIT AGUAYO and KHANH N. TRAN,	§	
Plaintiffs,	§	
V.	§	CIVIL ACTION NO. H-02-1747
UNIVERSAL INSTRUMENTS CORPORATION,	§	
Defendant.	§	

MEMORANDUM AND OPINION

This patent dispute arises from a long-standing problem of automated assembly processes: the people who operate the machines can make mistakes in loading components on the assembly machines. These mistakes are more likely, and the consequences more costly, when the components involved are tiny and visually indistinguishable. Such components increase the potential for two types of human errors: identifying what the component to be placed is and determining where to place it for automated assembly. A number of individuals and entities, including plaintiffs, have devised ways to address these problems. On August 31, 1992, plaintiffs Kermit Aguayo and Khanh Tran applied for United States Patent No. 5,283,943 (the "'943 Patent"). This patent claimed an invention for "ensuring the proper loading of assembly equipment" used in the automated assembly of multiple-component products. In 2002, plaintiffs sued Universal Instruments Corporation, alleging that two devices, the PSV – "Platform Setup Validation" – and the CVS+ –

"Component/Reel Verification System" – infringed most of the claims of the '943 Patent. Universal designed and marketed the CVS+ and the PSV as options for use on Universal's general surface mount – "GSM" – automated assembly machine.

At trial, Universal did not dispute that the CVS+, which was discontinued in 1996, infringed claims of the '943 Patent. Universal sold only two CVS+ units before introducing the successor device in 1997, the PSV.[1] Universal designed the PSV specifically to avoid infringing the '943 Patent and throughout this litigation vigorously denied any infringement. Universal also challenged the validity of the '943 Patent, arguing that the '943 Patent did not describe a new solution to the problem of operator error in placing components on automated assembly machines and that prior art made the '943 Patent invalid.

This court held a hearing under *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370 (1996), and construed the terms that the parties submitted. After granting in part and denying in part the parties' cross-motions for summary judgment, this court held a jury trial on the following issues: whether Universal's PSV machine infringed the asserted claims of the '943 Patent; whether the '943 Patent was invalid based on three different items of prior art; what a reasonable royalty rate would be for Universal's sales of its CVS+ and PSV products; and whether any infringement was willful. The parties timely made and renewed motions for judgment as a matter of law on infringement and validity.

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[1] Trial Tr. (testimony of Lawrence Evans, expert damages witness for Universal) 3056:9-3057:5. Plaintiffs sought damages for 514 PSV units. 3077:11-18.

In its answers to specific questions, the jury found that the PSV literally infringed the asserted claims of the '943 Patent. Universal moves for judgment as a matter of law, asking this court to find noninfringement or, in the alternative, order a new trial.[2] This court grants the motion for judgment as a matter of law, finding no infringement.[3]

The jury also found that three prior art references invalidated many of the claims of the '943 Patent as anticipated, obvious, or both. The '943 Patent has two independent claims, claim 1 and claim 13. The jury's answers to the questions made all of claim 1's dependent claims invalid under 35 U.S.C. § 102(b) except for dependent claims 4 and 5. The invalidity finding was based on one of the three items of prior art – the Philips Reel Verification System sold to Ford Motor Company (the "Philips RVS"). Although the jury found that dependent claims 4 and 5 were not anticipated by the Philips RVS, these two claims require virtually the same elements as claims 17 and 18, which depend from independent claim 13. The jury treated these two pairs of claims consistently in answering every other question. In answering the questions as to anticipation by the Philips RVS, however, the jury gave a different answer as to claims 17 and 18 than as to claims 4 and 5. The jury found that claims 4 and 5 were not anticipated by the Philips RVS, while claims 17 and 18 were anticipated. Universal asserts that the jury's answers are inconsistent and asks

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[2] Docket Entry No. 329.

[3] Docket Entry No. 347. Universal also moved for judgment as a matter of law or in the alternative for a new trial on the issue of lack of written description, asserting that if any of the independent claims was construed so broadly as to make the PSV infringe, that claim was invalid for failure to comply with the written description requirement. Docket Entry No. 331. This court's finding of noninfringement moots this motion.

for judgment as a matter of law that claims 4 and 5 are anticipated by the Philips RVS. Plaintiffs respond that the verdict is not inconsistent and ask for judgment as a matter of law that no claim of the '943 Patent is invalid as anticipated or, in the alternative, for a new trial.[4] This court concludes that the verdict is indeed inconsistent and that as a matter of law, claims 4 and 5 are anticipated by the Philips RVS.

Universal also moves for judgment as a matter of law that the defenses of laches and equitable estoppel bar plaintiffs' claims.[5] This court finds that neither laches nor equitable estoppel are applicable.

The remaining sets of motions address damages and attorneys' fees. At trial, the jury found a reasonable royalty rate of $2,000 for the sale of each infringing unit. Universal moves for judgment as a matter of law that plaintiffs may not collect such royalties for 65 units sold to Motorola, which were the subject of a settlement between plaintiffs and Motorola in a suit alleging that Motorola infringed the '943 Patent.[6] This court grants Universal's motion. Finally, plaintiffs move to recover their fees and costs under 35 U.S.C. § 285 on the basis that the case is exceptional. Because this court found, as a matter of law, that the claims of the '943 Patent are invalid and not infringed, this motion is not addressed.

These rulings, based on a careful review of the pleadings, the motions and responses, the record, and the applicable law, are explained in detail below.

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[4] Docket Entry Nos. 327, 333, 346.

[5] Docket Entry Nos. 322; 323.

[6] Docket Entry No.325.

I. Background

The '943 Patent, issued on February 8, 1994, relates to "improving processes of automated assembly."[7] The "Summary of the Invention" states that "[t]he present invention contemplates a system for assembling multiple component products using automated assembly equipment," by "ensuring the proper loading of assembly equipment."[8] An assembly machine operator loads components or compartments of components on the proper locations on the automated assembly machine. The machine then retrieves the components or compartments from the designated locations and places them in the desired locations on the product undergoing assembly. In the section entitled "Background of the Invention," the '943 Patent described the problem it was attempting to address, as follows:

> Many mistakes occurring in modern automated manufacturing are caused by human error in the set up of the assembly process. Specifically, assembly operators are prone to load components in the wrong places because modern articles of manufacture have increasingly large numbers of components which are often visually similar. To prevent these set up errors, well trained operators are usually very careful and deliberate in their work. However, no degree of care can totally prevent mistakes. Furthermore, careful and deliberate behavior results in very slow set up which reduces productivity.
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> The aforementioned problem is particularly acute in the assembly of electronic products, where components are especially numerous and physically similar. . . . To compound matters, modern electronic assemblies are assembled by machines called pick and place assemblers. These assemblers are designed to retrieve components directly from industry

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[7] '943 Patent, col. 1, ll. 5-6.

[8] *Id.*, col. 2, ll. 39-46.

> standard reels or tubes. Therefore, the operator's primary visual contact is with the package and not the component.
>
> Electronic products typically require several dozen different components. In a pick and place system, each tube or reel of components must be loaded in a specific place. Given the similarity of visual appearance of the reels and tubes, it is extremely easy for an operator to load a pick and place location with the wrong components.[9]

The '943 Patent disclosed a three-element system and a four-element system for "ensuring the proper loading of assembly equipment." Independent claim 1 recites a system "comprising" three primary elements: an "assembly machine," a "component identifier," and a "location indicator." Independent claim 13 requires the same three primary elements and adds an "information processor." The use of the transitional word "comprising" in the preamble of a claim indicates that the scope of the claim is not limited to the recited elements. Additional elements may be present but still fall within the scope of the claim. *See, e.g., AFG Indus. Inc. v. Cardinal IG Co., Inc.*, 239 F.3d 1239, 1244-45 (Fed. Cir. 2001) ("When a claim uses an 'open' transition phrase, its scope may cover devices that employ additional, unrecited elements. We have consistently held that the word 'comprising' is an open transition phrase.") (citations omitted).

Plaintiffs contend that the Universal PSV infringes independent claim 1 and dependent claims 3, 4, and 5, and independent claim 13 and dependent claims 14-18, 21-24,

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[9] *Id.* at col. 1, l. 64-col. 2, l. 33.

and 26-28.[10] Independent claim 1 and dependent claims 3, 4, and 5 involve the three-element system. These claims read:

> 1. A system for assembling multiple component products, comprising:
>
> an assembly machine which assembles products using components retrieved from a plurality of compartments located at a corresponding plurality of locations, each compartment located according to a type of component stored within;
>
> a component identifier that identifies the type of component stored in each compartment by analyzing indicia of the components or component compartments; and
>
> at least one location indicator, responsive to the component identifier, for producing an indication signal of the corresponding location of each component compartment or component after the type of component has been identified.
>
> 3. The system of claim 1, further comprising, an error indicator that indicates if a compartment has not been placed in a corresponding location indicated by the location indicator.
>
> 4. The system of claim 3, said error indicator indicating if a compartment has not been placed in said corresponding location indicated by the location indicator within a predetermined amount of time.
>
> 5. The system of claim 4, said predetermined amount of time been selected to correspond to a time required to load the compartment in said corresponding location.[11]

The second set of allegedly infringed claims involves the four-element system. Independent claim 13 and dependent claims 14-18, 21-24, and 26-28 read as follows:

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[10] It is undisputed that the CVS+ infringed the '943 Patent.

[11] '943 Patent, col. 18, ll. 39-54 and ll. 62-68; col. 19, ll. 6-11.

13. A system for assembling multiple component products, comprising:

a machine which assembles products using components retrieved from a plurality of compartments, each compartment being located in a corresponding one of a plurality of locations according to type of component stored within each compartment;

an information processor;

a component identifier, connected to the information processor, that identifies a type of component stored in a compartment, said information processor operating to determine a proper location of each identified compartment; and

at least one location indicator, connected to and controlled by the information processor, that indicates the proper location of each identified compartment.

14. The system of claim 13, further comprising at least one compartment sensor that senses whether a compartment is present in a previously identified location.

15. The system of claim 13, further comprising one compartment sensor per location.

16. The system of claim 13, further comprising an error indicator which indicates if a compartment has not been placed in a location indicated by the location indicator.

17. The system of claim 16, said error indicator indicating if a compartment has not been placed in a location indicated by the location indicator within a predetermined period.

18. The system of claim 17, said predetermined time period being selected to correspond to a time required to load a compartment in a corresponding location.

21. The system of claim 13, wherein the component identifier comprises an optical reader.

22. The system of claim 21, wherein the indicia of the components or compartments comprises optically readable indicia.

23. The system of claim 22, wherein the optically readable indicia comprises a bar code.

24. The system of claim 13, wherein the location indicator comprises an individual visual indicator corresponding to each location.

26. The system of claim 13, where the assembly machine comprises: a pick and place machine; and a tape and reel feeding system.

27. The system of claim 13, where the information processor comprises: a computer with memory; and a digital I/O circuit that facilitates communication between the computer and the component identifier and the location indicators.

28. The system of claim 27, further comprising a relay circuit connected to and controlled by the computer for disabling the assembly machine if all locations are not loaded with compartments containing the correct type of component.[12]

Figure 1 of the '943 Patent is a block diagram of the three-element and the four-element systems in an automated assembly apparatus. The figure is described as an illustration of "two embodiments comprising the minimum necessary features of the invention."[13]

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[12] '943 Patent, col. 19-20.

[13] *Id.*, col. 6, ll.18-19.

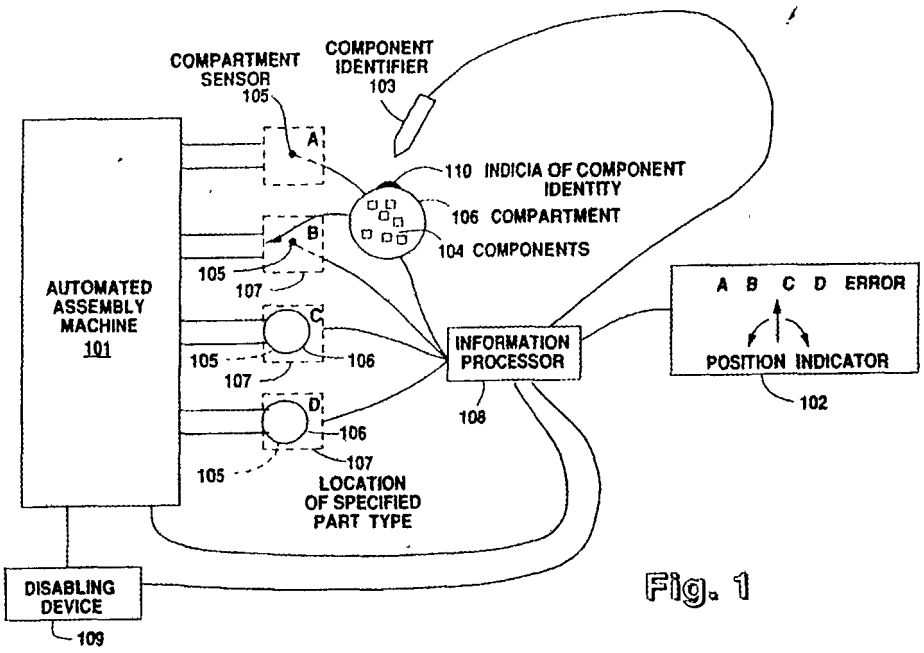

Fig. 1

The "Detailed Description" section of the '943 Patent sets out the differences between the three- and four-element systems claimed in the independent claims:

> The three element embodiment contrasts with the four element embodiment both physically and conceptually. The four element embodiment may broadly be described as having a central information processor which is designed to accommodate all other elements of the invention. The information processor serves to prompt, interpret, compute, process and transfer information as necessary. In contrast, the three element embodiment distributes the functions of the information processor among the other elements. It is further contemplated that hybrid embodiments might also become preferable. A hybrid embodiment would involve information processing functions occurring both at the central information processor and at the peripheral elements. Such an embodiment

> could realize speed and efficiency advantages in complex or large assembly situations.[14]

The "Detailed Description" of the three- and four-element systems states that both systems have the "identical" three primary parts: an assembly machine, a component identifier, and a location indicator.[15] The four-element system adds an information processor.[16]

The "Detailed Description" sets out the "typical" process using the three-element system, as follows:

> The machine operator would begin the process of loading the assembly machine by identifying a compartment or group of components. That is to say that the machine operator uses component identifier 103 to identify the first type of component. The component type is then compared with reference information that allows for the determination of the proper location 107 for the identified components. For purposes of a three-element system, this comparison and determination may take place either in the component identifier 103 or in the position indicator 102.[17]

The "Detailed Description" also sets out the "typical" operation of a four-element system:

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[14] '943 Patent, col. 6, ll. 1-18.

[15] The "Detailed Description" states: "[f]rom a practical perspective, the current invention can also be described as comprising four major elements. The first three elements are identical to those discussed above [in the three-element system]." '943 Patent, col. 5, ll. 6-9.

[16] *Id.*, ll. 9-12.

[17] *Id.*, col. 4, ll. 50-60.

> [T]he machine operator uses component identifier 103 to identify the first type of component 104. The component identifier 103 then transfers the component type to the information processor 108. The component identifier . . . may transfer this information without performing any computations or processing because the information processor 108 performs those tasks. The information processor . . . then determines the proper location 107 of the identified components using preprogrammed information in addition to the data provided by component identifier. Next, the information processor . . . informs the position indicator 102 of the position that should be indicated. . . . After the proper location . . . has been determined it is conveyed to the machine operator.[18]

Following a hearing, this court construed all the claim terms the parties requested under *Markman*.[19] The construed terms are as follows:

> A "component product" is a product assembled from component parts.
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> An "assembly machine" is an apparatus that assembles products by gathering components.
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> A "component" is a part stored in a compartment and used in the assembled product.
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> A "component identifier" is an optical or magnetic reader, or an equivalent thereof, which identifies, recognizes, or selects the component or component compartment being placed in a location during the assembly process.
>
> "Indicia" is a marking.
>
> A "location indicator" is a device that indicates a proper or corresponding location of an identified compartment or

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[18] *Id.*, col. 5, ll. 48-65.

[19] Docket Entry No. 74.

component before placement of the compartment or component in that location.

An "error indicator" is a device that indicates if a compartment has not been placed in a location, or if the compartment has not been placed in a location within a predetermined amount of time.

A "predetermined amount of time" is the amount of time determined before placement of a compartment in a location.

A "time required to load a compartment" is the time it takes to load a compartment in a corresponding location.

A "disabling device" in claims 6 and 7 (which depend on claim 1, the three-element version of the invention) is a relay, or equivalent structures, connected to the location indicator, the component identifier, and the assembly machine, which disables or enables the assembly machine in response to commands from either or both the location indicator and component identifier, depending upon the distribution of the functions of the information processor between the location indicator and the component identifier.

A "disabling device" in claims 19 and 20 (which depend on claim 13, the four-element version of the invention) is a relay, or equivalent structures, connected to the information processor and the assembly machine, which disables or enables the assembly machine in response to commands from the information processor.

An "information processor" is a computing system that processes information to determine a proper location of each identified component.

A "sensor" is a device that senses the presence of a compartment.

An "individual visual indicator" is a device that provides a visual indication corresponding to each location.

> A "light emitting diode" is a semiconductor device that emits optical radiation when biased in the forward direction.
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> A "digital I/O circuit" is a digital input/output circuit.
>
> A "relay circuit" is an electric device connected to and controlled by a computer or other information processor to cause contact operation in associated electric control circuits.

After the *Markman* ruling, the parties moved for summary judgment as to both infringement and validity. This court granted the motions in part and denied them in part.[20] The parties tried the issues of infringement, validity, reasonable royalty, and willfulness to a twelve-person jury. In preliminarily instructing the jury before the parties presented evidence, this court added two points to the claim construction order. The first point clarified that as to a location indicator, "the proper or corresponding location for a particular component must be determined after the component is identified by the component identifier and before the location indicator indicates that location for that component." The second point made it clear that a "corresponding location" is the correct or proper location in which to place the identified components or component compartments.[21]

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[20] This court denied both parties' motions for summary judgment on infringement and denied Universal's motion for summary judgment on invalidity in part. As to the invalidity arguments, this court found as a matter of law that the Philips RVS sold to Ford Motor Company, more than one year before the '943 Patent's filing date, fell under section 102(b); that a version of the Philips RVS was displayed at a trade show in 1991; and that another prior art item, the Mennitt Motorola article published in a trade magazine more than one year before the '943 Patent's filing date, was a "printed publication" under section 102(b). Docket Entry No. 212.

[21] Hearing Tr. Aug. 9, 2004, 239-248. During the pretrial hearings, this court ruled on objections to exhibits and witnesses as well as on both parties' motions in limine. During those hearings, this court denied Universal's motion to preclude plaintiffs from arguing that the information processor may perform some of its functions *after* the operator has placed a component in its proper

The evidence at trial described the work leading up to the patent and the patent claims. Both inventors testified, as did representatives of the company where they worked when they developed the invention. The testimony revealed that Aguayo, a process engineer, and Tran, a software engineer, developed the invention while working in quality control at a company called XeTel in Austin, Texas. XeTel was in the business of manufacturing printed electronic circuit boards for computers. In the 1980s, many assembly operations were using bar codes to identify component parts contained in reels.[22] It was also common for assembly machine operators to use a bar code reader to identify a component part number and to consult a paper listing component part numbers and their corresponding locations on the assembly machine to determine where to place a component or reel of components on the assembly machine.[23]

Aguayo and Tran attempted to reduce human errors in placing components on assembly machines during the production of printed circuit boards. In 1989, Aguayo and Tran built a prototype of an invention designed to give increased guidance to assembly

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location. This court also rejected Universal's argument that claim 1 requires software or logic circuitry. At the close of the evidence, this court rejected Universal's requests to add new claim constructions in the final instructions to the jury. Universal argued that "operate to determine" should be defined as a comparison between component type and preprogrammed set up information, a construction that this court did not adopt or provide to the jury. Hearing Tr. Aug. 28, 2004, 3521:7-3541: 24

[22] Plaintiffs testified that they did not invent putting bar codes on component reels or invent the step of using bar code readers to identify components by numbers. Trial Tr.(Aguayo) 856:22-857:3.

[23] Trial Tr.(Aguayo) 856:4-6; 857:22-25.

machine operators in placing components on assembly machines. The prototype, known as the XeScan, used a bar code reader to read the label on a reel of components. This step avoided reliance on the human operator to figure out what a particular component or reel of components was. The XeScan then determined the proper location for that scanned component and displayed the number of that slot location on the monitor. This step avoided reliance on the operator's comparison of a component number with a preset reference list of component numbers and corresponding locations.[24] The XeScan used a bar code reader to identify a component or a reel containing components, compared the component identification information provided by the bar code scan against a preprogrammed list of components and their proper locations, and displayed the number of the slot location where each identified component had to be placed on the assembly machine. Plaintiffs' witnesses at trial described the XeScan as a "preferred embodiment" of what became the '943 Patent. XeTel determined not to pursue a patent on the XeScan, but allowed Aguayo and Tran to do so.

Plaintiffs sought to patent both the automated assembly apparatus and the method for its use. The patent examiner required plaintiffs to elect between the apparatus and method claims.[25] The examiner stated:

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[24] Trial Tr. (Aguayo) 854:25-856:17; 996:13-997:17 (testimony of Mark Trutna, former sales and marketing manager at XeTel); 1087:18-1089:20 (testimony of David Kalen, formerly a salesman of pick and place automated assembly machines).

[25] P. Ex. 2, Prosecution History of the '943 Patent, at 1-84.

> Inventions I and II are related to apparatus and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the apparatus as claimed can be practiced with another materially different apparatus or (2) the apparatus as claimed can be used in a materially different process of using that apparatus. In the instant case the apparatus as claimed can be used in a materially different process of using that apparatus such as simply identifying components.[26]

The patent issued on February 8, 1994. After the patent issued, plaintiffs unsuccessfully sought commercial applications. Although XeTel became bankrupt in 2001, plaintiffs followed technological developments in pick-and-place assembly machines, attending trade shows and reading industry publications. The parties dispute whether plaintiffs met their responsibility as patent holders by waiting until 2002 to notify Universal of their belief that the PSV infringed the '943 Patent.

The evidence at trial described the design and operation of Universal's CVS+ system and two versions of its PSV system. In 1990, Ford Motor Company had purchased a reel verification system from Philips. In 1992, Ford asked Universal to design a reel verification system based on the Philips RVS.[27] Universal's response was the CVS+. Testimony at trial described in detail both the Philips RVS, which Universal asserts is prior art that invalidates the '943 Patent, and the CVS+. Both the Philips RVS and the CVS+ used a bar code scanner to identify a component or combination of components; used a computer to compare the

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[26] *Id.*

[27] Trial Tr. 1847: 5-14 (testimony of James Kane, former general manager of Universal Systems Division).

identified components to preprogrammed information listing the proper slot location for each component or combination of components to determine the proper slot location for that component; and showed the operator the number for that slot location. Universal designed the CVS+ to operate like the Philips RVS. The CVS+ itself compared the bar code scan data with a preprogrammed list of component numbers and slot locations and told the operator the number of the slot location where the component was to be placed.

On May 27, 1995, plaintiffs notified Universal by letter that the CVS+ infringed the '943 Patent. Universal responded by a letter from outside patent counsel dated June 1, 1995. In the letter, Universal explained why it believed the CVS+ did not infringe. That belief was based on an erroneous and incomplete understanding of how the CVS+ functioned. At trial, Universal acknowledged that the CVS+ did infringe the '943 Patent claims. Although plaintiffs disagreed with the noninfringement conclusion stated in the 1995 letter from Universal, they took no further action until 2002.

Universal discontinued making and selling the CVS+ in 1996, for reasons unrelated to the '943 Patent. In 1997 Universal replaced the CVS+ with the PSV. In 1996, during the development of the PSV design, Universal became aware that its planned design infringed the '943 Patent. Universal changed the PSV design specifically to "design around" the '943 Patent, by removing the step in which the system itself compared the component identification number obtained from the bar code scan data with the component identification numbers listed in the preprogrammed setup table, determined the slot where that component belonged, and displayed the number of that slot on the computer monitor.

Plaintiffs' witnesses testified as to how the PSV could operate. Before the operator begins to load any components or compartments, the operator enters a preprogrammed setup list or table of the components needed and the particular slot locations for each of these components.[28] There may be a large number of slot locations to be loaded with components, up to seventy-two.[29] The operator uses a bar code scanner to "read" the label on a component or reel of components. The bar code labels on the reels contain an alphanumeric (and perhaps English) description of what component type it contains. When an operator scans a bar code label on a reel of components, the scanner sends the data obtained from the bar code scanner to a computer, which derives the component identification number from the data and stores that number.

Plaintiffs' witnesses testified at trial that the setup information for a product may refer to a particular component or reel of components by an identification number that is different from the identification number used by the vendor of that component or reel.[30] Defendants' witnesses disputed that this occurred often, but agreed that it could happen. In that event, a software process turns the bar code data into a component identification number that matches the format of the identification numbers in the preprogrammed setup list. This process involves removing unnecessary characters and matching the scanned component

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[28] Trial Tr. (testimony of William Sonner, software engineer for Universal) 3191:22-24.

[29] Trial. Tr. (Sonner) 3191:16-18.

[30] Trial Tr. (Cole) 1388:2-1390:13; (Sonner) 3201: 2-3202:1.

number to the stored component identification number in the setup list.[31] The PSV then displays that component identification number on a computer monitor. The monitor also displays the preprogrammed setup list or table of the component identification numbers and the proper slots for each.[32]

All the witnesses agreed that the PSV system does not perform any comparison between the component identification number and the preprogrammed setup list or table. All the witnesses agreed that the PSV computer monitor does not directly or specifically tell the human operator the particular slot number for the identified component. Instead, the operator must scroll and read down the preprogrammed setup list to find the component identification number that matches the component identification number produced after the barcode scan. The operator must then read across the setup list to find the corresponding slot location number.[33] As noted, the preprogrammed setup list or table of the identification

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[31] Trial Tr. (Rhyne) 427: 3-430:14; (Cole) 1285:7-1286:6.

[32] The software used in the PSV changed over time. The older system, the OS2, used a single window to display the component identification number and the preprogrammed setup table. It used a different field within that window to display the component identification number for a just-scanned component. The newer system, the NT Operating System, runs on Microsoft windows software. It uses two windows on the monitor screen. One window, the bar code scanner activity window, shows the component identification number after it is read by the bar code scanner and, if necessary, "translated" by the embedded PSV computer. The other window, the validation status window, shows the preprogrammed setup list. In both systems, as each slot is filled, the preprogrammed list entry for that component identification number and slot number disappears. Sonner testified that the later system was designed to "mimic" the OS2's functionality using Microsoft software. Trial Tr. (Sonner) 3190:6-3190:18.

[33] Trial Tr. (Rhyne) 575:23-576:5; 593:1-18; (Cole) 1452:17-1452:24; (Sonner) 3189:1-3189:4.

numbers of the components to be placed and the corresponding slot numbers for each of those components can have as many as seventy-two entries.

Universal marketed the PSV in industry publications and at trade shows. Aguayo was familiar with and read the publications and attended some of the trade shows, but did not specifically recall learning about the PSV until 2002. In April 2002, Aguayo attended a trade show and visited Universal's display booth. Aguayo testified that he saw a Universal device with light emitting devices ("LEDs") at each slot location. He believed that the PSV had this feature, which was one reason he thought the PSV infringed the '943 Patent.[34] After the trade show, Aguayo and Tran sued, alleging willful infringement. Aguayo was incorrect: Universal does not offer a device that uses LEDs and the PSV did not have them.

At trial, plaintiffs argued that the PSV infringes the '943 Patent because of the simultaneous display on the computer monitor of the component identification number and the preprogrammed setup table of component identification numbers and corresponding slot location numbers. Plaintiffs offered two experts – Dr. Thomas Rhyne, an electrical engineer, and J. Tipton Cole, a software programmer – to compare the claims of the '943 Patent with the PSV. Both experts concluded that infringement is present because the PSV has an assembly machine (the GSM); a component identifier (the bar code scanner); an information processor (the embedded computer that translates the bar code scan data into a component identification number and stores that information); and a location indicator (the computer screen that simultaneously displays the component identification number and the

[34] Trial Tr. 902:1-904:22.

preprogrammed list of the component identification numbers and their corresponding slot numbers). Rhyne and Cole testified that Universal's PSV system uses a bar code scanner to "read" a label on a component reel; uses an information processor to "translate" the bar code data into a component identification number that corresponds to the format of the component identification numbers in the preprogrammed setup list; and displays the translated component identification number on a computer screen that also displays the previously-stored setup list of the numbers of the components to be placed and the corresponding number of the slot location where each of those components was to be placed. According to plaintiffs' witnesses, the PSV infringes the '943 Patent because the computer monitor's simultaneous display of the component identification number and the preprogrammed setup table of component identification numbers and corresponding slot locations is a "location indicator." Plaintiffs' experts agree that the computer monitor provides a list that an operator must scroll through to find the component identification number matching the simultaneously displayed identification number for the just-scanned component, and read across the table to find the proper slot location for that component.

Universal did not dispute how the PSV could operate, but did dispute how the PSV was intended to operate. Universal argued that the PSV was intended to be a postplacement verification system, not a preplacement guidance system. Universal presented witnesses and manuals to show that the PSV was intended to have the operator first consult the preprogrammed setup list on the computer screen to locate a particular component and identify the slot in which it belonged; partially place the component in that slot; and then

scan the component using the bar code scanner. The PSV shows the component number on the computer monitor. The operator fully mounts the component in the slot. If the right component is placed in the proper slot, the color of the field on the computer monitor changes to green and the feeder is "enabled." If the incorrect component is mounted in the slot, the field turns red.[35] Universal argued that the intended function of the PSV as a postplacement verification, in which the scan takes place after the operator identifies the correct slot location and partially inserts the component into that slot, does not infringe the '943 Patent, which claims a preplacement location indicator system. Universal's witnesses agreed that the PSV could simultaneously display on the computer screen the component identification number and the preprogrammed setup list or table, before the operator fully mounts the scanned component into a particular slot on the assembly machine.[36]

Universal also argued that whether the PSV was used to guide an operator in the initial decision of where to load a component reel, or to confirm to the operator that an initial, tentative decision as to the proper placement was correct, it did not infringe the '943 Patent. Universal argued that the '943 Patent claims a system in which the invented device both identifies the component for the human operator and tells the operator where to place that component. The PSV, by contrast, was deliberately designed not to provide the second

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[35] Trial Tr. (Sonner) 3210:5-3210:15.

[36] Kane testified that the PSV system itself does not prevent an operator from scanning the reel before it is placed in a slot. Trial Tr. 1894:24-1895:9. Sonner also testified that Universal instructs PSV operators to use the bar code scanner to validate loaded components, but that the PSV does not require a particular sequence of operation. Trial Tr. 3204:1-3204:3.

piece of information. The PSV performs no comparison or analysis of the information obtained by the bar code scan after whatever manipulation or translation may be required to produce a component identification number in the proper format. The PSV does not provide any specific indication to the operator of the proper location for an identified component. Instead, the PSV simultaneously displays the component identification number and a list or table of component identification numbers and their corresponding slot locations. The operator must scroll through the preprogrammed setup list, compare the component identification number provided after the scan with the preprogrammed setup list of component identification numbers, find the matching component number, and then read across the setup list to learn the proper slot location for that component. The '943 Patent, according to Universal, claims a device that not only provides a component identification number, but also determines where that identified component will go and indicates that location to the operator. Universal argues that the device claimed under the '943 Patent – not the human operator – must determine the proper location for each identified component after that component is identified. In the four-element system, that function is performed by the information processor. In the three-element system, that function is distributed among the three elements. Universal contends that it is reading the claims in light of the specification; plaintiffs contend that Universal is importing limitations from the specification not present in the claims.

Universal also defended the case on invalidity grounds. The critical date for the '943 Patent is August 31, 1991. Universal presented evidence of three allegedly invalidating prior

art sources. The first is an article written by Timothy Mennitt dated April 1991 and titled "Feeder Identification Assembly." The article was featured in Motorola's *Technical Developments* publication and mailed to over 200 recipients. In the article, Mennitt describes the Fuji Reel Verification System, an automated assembly machine in commercial use, and proposes a solution to improve the use of such machines. The second prior art source is a Japanese patent application, referred to as the Oki patent application, dated November 6, 1989 and published on June 25, 1991. The Oki patent application claims an automated assembly machine used to mount parts on printed circuit boards. The third source of prior art is the Philips Reel Verification System ("RVS"), an automated assembly machine developed by Philips and sold to Ford in July 1991. Universal presented documents describing the RVS and presented testimony from employees from both Philips and Ford involved in the development, sale, and use of the RVS. Edison Hudson, an engineer in the field of automated assembly machines, gave expert testimony on behalf of Universal as to how the Philips RVS operated and compared the RVS to each allegedly infringed claim of the '943 Patent.

Plaintiffs presented testimony from Rhyne disputing that the Philips RVS anticipated the '943 Patent claims or made them obvious. Plaintiffs also challenged aspects of each of the items of prior art, asserting that the Mennitt article was not enabling; that the Oki patent application was not enabling and did not disclose all of the elements in the '943 Patent claims; and that the Philips RVS was not offered for sale and was not ready for patenting.

At the close of the evidence, Universal moved under Rule 50(a) of the Federal Rules of Civil Procedure for judgment as a matter of law that the asserted claims of the '943 Patent are invalid because they are obvious or anticipated. Plaintiffs cross-moved for judgment as a matter of law that the prior art did not anticipate any of the '943 Patent claims or make them obvious. Universal also moved for judgment as a matter of law that the PSV does not infringe any of the asserted claims of the '943 Patent.

At the close of the evidence, plaintiffs asserted infringement under the doctrine of equivalents only as to dependent claim 28. Universal moved for judgment as a matter of law that the PSV did not infringe claim 28 under the doctrine of equivalents. This court granted Universal's motion for judgment as a matter of law that there was no infringement under the doctrine of equivalents because plaintiffs had failed to provide sufficient proof as to the function, way, and result tests of the doctrine of equivalents. The expert testimony did not specifically compare the function, way, and result of the relay circuit limitation found in claim 28 with that of the PSV. This court found that without such testimony or other evidence, plaintiffs' proof under the doctrine of equivalents was insufficient as a matter of law. *Lear Siegler, Inc. v. Sealy Mattress Co. of Mich., Inc.*, 873 F.2d 1422, 1427 (Fed. Cir. 1989).

The jury returned a verdict in plaintiffs' favor on the literal infringement issue as to all the asserted claims of the '943 Patent. In answering the questions on validity, the jury found that all the claims except claims 4 and 5 were invalid because they were either anticipated or obvious under the prior art. In response to Question Number 5, the jury found

that the Philips RVS sold to Ford anticipated claims 1, 3, 13-23, and 26-28. The jury found that claims 4, 5, and 24 were not anticipated by the RVS. In response to separate questions, the jury found that claim 24 was anticipated by the Oki patent application and obvious in light of the prior art. In its posttrial renewed motions for judgment as a matter of law, Universal claims that the jury verdict is inconsistent. The jury found that claims 4 and 5 were not anticipated by the Philips RVS but found that claims 17 and 18 were anticipated. Universal argues that the two sets of claims have the same elements, making the verdict inconsistent.[37] Universal moves for judgment as a matter of law that claims 4 and 5 are anticipated by the Philips RVS or, in the alternative, for a new trial.[38] Universal also seeks judgment as a matter of law that all the asserted claims of the '943 Patent are invalidated by the Philips RVS.[39] Plaintiffs respond that the seemingly inconsistent verdict can be reconciled and, if not, should be the basis for a grant of a new trial.[40] Plaintiffs renew their motion for judgment as a matter of law under Rule 50(b) that none of the '943 Patent claims are anticipated or obvious, and, in the alternative, move for a new trial.[41] Universal also renews its motion for judgment as a matter of law that the PSV system does not literally

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[37] Docket Entry No. 327.

[38] Docket Entry Nos. 333; 353.

[39] Docket Entry No. 334.

[40] Docket Entry No. 348.

[41] Docket Entry Nos. 346; 341.

infringe the asserted claims of the '943 Patent.[42] Universal also moves for judgment as a matter of law that if the '943 Patent does infringe, it is invalid for lack of a written description.[43]

Each of the arguments as to the judgment that should be entered is examined below.

II. The Standard for Judgment as a Matter of Law

"The grant or denial of a motion for judgment as a matter of law is a procedural issue not unique to patent law, reviewed under the law of the regional circuit in which the appeal from the district court would usually lie." *Summit Tech., Inc. v. Nidek Co.*, 363 F.3d 1219, 1223 (Fed. Cir. 2004). A motion for judgment as a matter of law is appropriate when, on reviewing the entire record, there is no legally sufficient evidentiary basis for a reasonable jury to find for the nonmoving party on an issue. *DP Solutions, Inc. v. Rollins, Inc.*, 353 F.3d 421, 427 (5th Cir. 2003). In evaluating the record, the court must make all reasonable inferences for the nonmoving party. *Id; Reeves v. Sanderson Plumbing Prods., Inc.*, 530 U.S. 133, 120 S.Ct. 2097, 147 L.Ed.2d 105 (2000). Credibility determinations, the weighing of the evidence, and the drawing of legitimate inferences from the facts are jury functions, not those of a judge. *DP Solutions,* 353 F.3d at 427 (citing *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986)). In considering a Rule 50 motion for judgment as a matter of law following a jury verdict, the court must be "especially deferential" to the jury's findings. *Brown v. Bryan County, Okla.*, 219 F.3d 450, 456 (5th

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[42] Docket Entry No. 329.

[43] Docket Entry No. 331.

Cir. 2000). The Fifth Circuit's standard for reviewing a jury verdict is whether "the state of proof is such that reasonable and impartial minds could reach the conclusion the jury expressed in its verdict." *Am. Home Assur. Co. v. United Space Alliance*, 378 F.3d 482, 487 (5th Cir. 2004) (quoting *Liberty Mut. Ins. Co. v. Falgoust*, 386 F.2d 248, 253 (5th Cir. 1967)). A jury verdict must stand unless there is a lack of substantial evidence, viewed in the light most favorable to the successful party, to support the jury's factual findings, or the legal conclusions implied from the jury's verdict cannot, in law, be supported by those findings. *Am. Home*, 378 F.3d at 487.

"Judgment as a matter of law of no literal infringement is appropriate if no reasonable fact finder could determine that the accused devices meet every limitation of the properly construed claims." *Elkay Mfg. v. EBCO Mfg.*, 192 F.3d 973, 980 (Fed. Cir. 1999). Anticipation is a question of fact, and a jury determination of anticipation is reviewed for sufficient evidence. *Minn. Mining & Mfg. Co. v. Chemque, Inc.*, 303 F.3d 1294, 1301 (Fed. Cir. 2002). Obviousness is a legal question based on factual determinations. "In review of a jury verdict on the ground of obviousness, the underlying findings of fact, whether explicit or presumed as necessary to support the verdict, are reviewed for substantial evidentiary support; and the ultimate question of obviousness is reviewed for correctness in law, based on the factual premises." *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 381 F.3d 1371, 1375 (Fed. Cir. 2004). "When presented with patent validity and infringement issues, trial courts should . . . decide both." *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1540 (Fed. Cir. 1983).

III. The Motions for Judgment as a Matter of Law as to Literal Infringement

Plaintiffs assert that the PSV infringed both independent claim 1 and independent claim 13. Because the PSV consists of an assembly machine, a bar code scanner, a computer monitor, and a computer, the bulk of the plaintiffs' testimony and analysis focused on claim 13, the claimed four-element system. According to plaintiffs, the bar code scanner is the component identifier; the embedded computer monitor is the location indicator; and the computer is the information processor. Universal disputes that the PSV has a location indicator or an information processor as claimed in claim 13. As to claim 1, which does not require an information processor as a separate element, Universal disputes that the PSV has a location indicator as required in claim 1. Universal generally argues that because the '943 Patent was intended to avoid reliance on human operators to read identification numbers on components and match those numbers to numbers on lists and tables that showed corresponding slot locations, and because the PSV requires human operators rather than the device to perform the second function, the PSV does not infringe.

A. The Applicable Legal Standard

Patent infringement claims involve two analytic steps. *Scanner Tech. Corp. v. ICOS Vision Sys. Corp., N.V.*, 365 F.3d 1299, 1302 (Fed. Cir. 2004); *Novartis Pharm. Corp. v. Eon Labs Mfg., Inc.*, 363 F.3d 1306, 1308 (Fed. Cir. 2004). First, the court determines the meaning and scope of the asserted claims. *Scanner Tech.*, 365 F.3d at 1302; *Novartis Pharm.*, 363 F.3d at 1308. Claim construction is a matter of law. *Bai v. L&L Wings, Inc.*, 160 F.3d 1350, 1353 (Fed. Cir. 1998). Second, the claims as construed are compared to the

allegedly infringing device to determine whether the claims encompass the accused structure. *Scanner Tech.*, 365 F.3d at 1302; *Novartis Pharm.*, 363 F.3d at 1308. Whether the accused device contains each element exactly, as properly construed, is a question of fact. *Bai*, 160 F.3d at 1353. Literal infringement of a claim requires that every limitation recited in the claim appears in the accused device, "i.e., that the properly construed claim reads on the accused device exactly." *Cortland Line Co., Inc. v. Orvis Co., Inc.*, 203 F.3d 1351, 1358 (Fed. Cir. 2000). If even one limitation is missing or not met as claimed, there is no literal infringement. *Id.* at 1358.

The parties accuse each other of arguing for claim constructions inconsistent with the Federal Circuit's approved approach. Plaintiffs accuse Universal of importing limits from the specification to cabin the claims to preferred embodiments. Universal accuses plaintiffs of ignoring the consistent and repeated statements in the specification in presenting the claims.[44] After this court issued its *Markman* opinion, and very shortly before trial in this

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[44] The cases reflect and recognize a tension between interpreting the claims in light of the specification and importing limitations from the specification. *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1327 (Fed. Cir. 2002); *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 904 (Fed. Cir. 2004), *cert. denied,* 125 S.Ct. 316; *Gemstar-TV Guide Int'l, Inc. v. Int'l Trade Comm'n*, 383 F.3d 1352, 1366 (Fed. Cir. 2004); *E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003); *Tex. Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1204-05 (Fed. Cir. 2002). In the absence of an express intent to impart a novel meaning to the claim terms, the words are presumed to take on the ordinary and customary meanings attributed to them by those of ordinary skill in the art. *See, e.g., Mars, Inc. v. H.J. Heinz Co., L.P.*, 377 F.3d 1369, 1373 (Fed. Cir. 2004). "[A] claim term will not carry its ordinary meaning if the intrinsic evidence shows that the patentee distinguished that term from prior art on the basis of a particular embodiment, expressly disclaimed subject matter, or described a particular embodiment as important to the invention." *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366-67 (Fed. Cir. 2002). "Absent a clear disclaimer of particular subject matter, the fact that the inventor anticipated that the invention may be used in a particular manner does not limit the scope to that narrow context." *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1301 (Fed. Cir. 2003); *see also C.R. Bard v. U.S. Surgical*

case began, the Federal Circuit granted an *en banc* rehearing in a case, to address the law of claim construction. In *Phillips v. AWH Corp.*, 376 F.3d 1382 (Fed. Cir. 2004), the court intends to clarify seven issues, including the following three: (1) Is the public notice function of patent claims better served by referencing primarily to technical and general purpose dictionaries and similar sources to interpret a claim term or by looking to the patentee's use of the term in the specification? If both sources are to be consulted, in what order? (2) If dictionaries should serve as the primary source for claim interpretation, should the specification limit the full scope of claim language (as defined by the dictionaries) only when the patentee has acted as his own lexicographer or when the specification reflects a clear disclaimer of the claim scope? If so, what language in the specification will satisfy those conditions? What use should be made of general as opposed to technical dictionaries? How does the concept of ordinary meaning apply if there are multiple dictionary definitions of the same term? If the dictionary provides multiple potentially applicable definitions for a term, is it appropriate to look to the specification to determine what definition or definitions should apply? (3) If the primary source for claim construction should be the specification, what use should be made of dictionaries? Should the range of the ordinary meaning of claim language be limited to the scope of the invention disclosed in the specification, for example, when only a single embodiment is disclosed and no other indications of breadth are disclosed? *Id.* at 1383.

Corp., 388 F.3d 858, 863 (Fed. Cir. 2004) (ordinary and customary meaning does not trump the intrinsic record).

Although the forthcoming *en banc* decision will no doubt clarify how specifications and sources such as dictionaries are to be used in claim construction, the infringement analysis at issue does not depend on the outcome. To the extent the parties ask this court to revisit the construction of disputed claim terms and to compare the construed claims to the accused PSV, this court need not await the resolution of the precise relationship among ordinary and customary meaning, dictionary definitions, and the intrinsic record, because even under plaintiffs' preferred methodology and claim constructions, the record reveals no literal infringement, as a matter of law.

B. The Information Processor: Claim 13

Claim 13, the four-element system, requires the presence of an information processor "operating to determine a proper location of each identified component." In its opinion issued under *Markman*, this court adopted plaintiffs' proposed construction of "information processor" as "a computing system that processes information to determine a proper location of each identified component."[45] This construction rejected Universal's argument, renewed in its requested jury instructions and in its motion for judgment as a matter of law, that construing claim 13 in light of the consistent and exclusive description in the specification results in the following language: an information processor that performs the function of determining the proper location of the identified components by comparing the identified component to preprogrammed reference information that identifies the proper location. After hearing arguments from the parties, this court declined to instruct the jury that the

[45] Docket Entry No. 74, p. 30.

information processor "operate[s] to determine" the location of the identified components only by comparing the component identification information against the preprogrammed setup list or table.[46] This court instructed the jury that if the instructions did not provide a particular definition for a term used in the patent claims, those terms were to be given their ordinary meaning.[47]

In its motion for judgment as a matter of law, Universal seeks the following "implicit definition" of "operating to determine a proper location," derived from the '943 Patent specification:

> performing operations to find out or come to a decision about the proper location for an identified component after the component is identified, by comparing the identified component to preprogrammed reference information that identifies the proper location.[48]

Plaintiffs assert that the proposed revised claim construction is both too late and too limiting. Universal is correct that the only way the specification describes the four-element system is that after the component is scanned, the information processor compares the component identification number with the stored setup list in order to figure out the slot location of the just-scanned component.[49] The testimony at trial confirmed that this was the only description

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[46] Hearing Tr. Aug. 28, 2004, 3521:7-3541: 24.

[47] Docket Entry No. 311, p. 9.

[48] Docket Entry No. 329, p. 7.

[49] Universal cites to two passages in the specification that describe the operation of a three-element system and a four-element system. Universal cites to the underlined portion of the text and argues that "determine" has been defined by implication:

of the operation of the claimed systems, providing a strong argument in favor of Universal's proposed construction.[50] *See Bell Atl. Network Servs. Inc. v. Covad Communications, Group, Inc.*, 262 F.3d 1258 (Fed. Cir. 2001) (finding that the term "mode" was defined "by implication" based on its consistent use throughout the specification to mean only the three

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> Typically, an automated assembly process begins with the assembly machine having no components loaded. . . [T]he machine operator uses component identifier 103 to identify the first type of component. The component type is then compared with reference information that allows for the determination of the proper location 107 for the identified component. For purposes of a three element system, this comparison and determination may take place either in the component identifier 103 or in the position indicator 102. . . After the proper location 107 has been determined, it is conveyed to the machine operator.
>
> Typically, in a four element system, an automated assembly process begins with the assembly machine having no components loaded. . . [T]he machine operator uses component identifier 103 to identify the first type of component 104. The component identifier 103 then transfers the component type to the information processor 108. The component identifier 103 may transfer this information without performing any computations or processing because the information processor 108 performs those tasks. The information processor 108 then determines the proper location 107 of the identified component using preprogrammed information in addition to the data provided by component identifier 103. . . After the proper location 107 has been determined, it is conveyed to the machine operator."

These portions of the specification describe a particular process for using an automated assembly machine. The patentees prefaced both descriptions with the word "typically" and did not use words of exclusion or restriction. *See Iscar Ltd. v. Sandvik AB,* 243 F.3d 558 (Fed. Cir. 2000) ("typically" is an indication that the patent did not limit the apparatus claims to limitation described in specification); *Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 987 (Fed. Cir. 1988) ("What is patented is not restricted to the examples, but is defined by the words in the claims. . . .").

[50] Trial Tr. (Rhyne) 572:18-573:3; Trial Tr. (Tran) 1225:24; 1228:3-1228:4.

operational "modes" in the specification). Plaintiffs are correct, however, that there is no language in claim 13 that requires comparison of the preprogrammed reference information – the setup list – with the component identification number as the only method for determining the proper location of the identified components. Acknowledging the fine line between reading the claim in light of the specification and reading a limitation into the claim from the specification, this court declines to revise the construction of "information processor" as Universal seeks.

In the claim construction briefing, the parties did not seek, and this court did not provide, a construction of "determine" as used in the claim 13 element of the "information processor." At trial, the parties urged different "dictionary" meanings of this term. Universal contended that "determine" meant to "find out or come to a decision about by investigation, reasoning, or calculation."[51] Plaintiffs contended that "determine" meant to "resolve," "fix conclusively," or "remove doubt."[52] Regardless of which of these dictionary definitions is used, and applying the construction of "information processor" that plaintiffs themselves sought, this court concludes that as a matter of law, the PSV does not contain the information processor element of claim 13 and therefore does not infringe.

Universal changed the original design of the PSV specifically to "design around" the '943 Patent by removing the step in which the device itself determines the number of the

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[51] MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 346 (9th ed. 1990).

[52] *Id.* At trial, Universal's witness, Kane, also testified that "resolve" is a valid definition of the word "determine" in the context of the '943 Patent.

specific slot in which an identified component belongs and provides that number to the operator.[53] The embedded computer in the PSV determines the component identification number, but does not do any calculation or analysis that determines the proper location of that identified component. As plaintiffs' witnesses repeatedly acknowledged, the PSV embedded computer does not do anything with the component identification number once it is derived from the bar code scan data, except to store it and simultaneously display it on a computer screen with the preprogrammed list of the component identification numbers and their corresponding slot locations.

In the earlier version of the PSV, the OS2 version, a computer monitor displayed a validation status screen showing a preprogrammed table of component identification numbers and corresponding slot locations. The table could consist of as many as seventy-two components numbers and slot locations, although only four were visible on the computer monitor at any one time. After the bar code scan produced a number for the scanned component, the operator then scrolled down the preprogrammed setup table to find the same component identification number on the preprogrammed table, then read across the table to find the slot location for that component.[54] In the later version of the PSV, the NT version, a validation status window showed the setup list or table before a component reel was scanned. Another window showed the bar code scan activity. A field labeled "scanned id"

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[53] Trial Tr. (Whitney Ackerman, Director of Intellectual Property for Universal) 3147:8-3149:23.

[54] D. Ex. 679 (OS2 validation status window); D. Ex. 686 (OS2 post-scanned screen).

displayed the component identification number after the operator scanned the component. The validation status window simultaneously displayed the preprogrammed setup list or table. To use the simultaneous display of information to learn the proper slot location for the identified component, the operator had to scroll through the setup list, find a component identification number in the list that matched the component identification number derived from the bar code scan data, then read across the table to find the number of the proper slot to place the component.[55]

Plaintiffs' witnesses testified at trial that the embedded computer in the PSV is the "information processor," as called for in claim 13. Rhyne and Cole testified that this computer receives data as to the component type from the bar code scanner. The bar code scanner, according to plaintiffs, satisfies the "component identifier" element of claim 13.[56] The bar code scanner then sends the data to the computer. The computer manipulates or translates the data to produce a component identification number, which is stored, as is the preprogrammed setup list, and displayed on the computer monitor. Rhyne and Cole explained that the PSV "operates to determine" the proper location of the identified component by having the bar code scanner – the "component identifier"– obtain data about the component type; having the embedded computer – the "information processor" –

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[55] D. Ex. 659 (NT system pre-scan screen shot); D.Ex. 661 (NT system post-scan screen shot).

[56] Trial Tr. 3-570:8-571:23. ("[W]hat the claim language requires is identification of a type of a component, and I believe that has been done when the bar code reader produces [the bar code values]. That bar code clearly identifies a type of component in the reel.").

translate the bar code scan data into a component identification number; then having the computer monitor – the "location indicator" – simultaneously display the component identification number with the preprogrammed setup list, which the operator can read, scroll through, match numbers, and read across, to learn the proper location for that component. According to Rhyne's and Cole's testimony, the embedded computer in the PSV performs no operation, calculation, or analysis other than translating the bar code scan data into a component identification number.[57]

The embedded computer in the PSV "operates to determine" – whether defined as "figures out," "calculates," "resolves," or "ends uncertainty about" – what the component identification number is, not where the identified component should be placed. The "information processor" in claim 13 must, according to plaintiffs' own construction, "operate to determine" "a proper location of each identified component." The embedded computer in the PSV does not meet this claim limitation. According to plaintiffs' own witnesses, the embedded computer in the PSV merely refines or manipulates the bar code scan data about what the component is to produce a component identification number. The computer in the PSV does not obtain or provide any information as to where that identified component belongs. Nor does the computer in the PSV resolve uncertainty about where that identified component belongs. According to Rhyne and Cole, it is the computer monitor – the location indicator – that performs this claimed function by simultaneously displaying the component

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[57] Trial Tr. (Rhyne) 586:1-588:16; (Cole) 1452:17-24; 1498:10-17.

identification number produced by the embedded computer with the preprogrammed setup list. The embedded computer in the PSV does nothing more than translate or manipulate bar code scan data to obtain a component identification number. It does not "operate to determine" a proper location for an identified component, as required for an information processor under claim 13 of the '943 Patent.

Plaintiffs' witnesses opined that the process of translating the bar code data into a component identification number that corresponds to the preprogrammed setup list in the PSV is the same thing as "operating to determine a proper location."[58] Plaintiffs' witnesses testified that the PSV "operates to determine" a proper location for a component when it "translates" the bar code data for that component into a component identification number. Cole described one element of this step as the "alternate entry lookup" – a comparison of the scanned component identification number with the stored setup list of component numbers.[59] The specification describes this process of taking information from the bar code scanner, transferring it to a computer, and comparing it against a "list of parts for the current product of manufacture," a "pre-stored index of valid part numbers," as component identification.[60]

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[58] Trial Tr. (Rhyne) 573:4-25. Cole testified at trial that "the determination of the component ID is the same thing as the determination of the proper location." Trial Tr. 1452:17-24.

[59] Trial Tr. 1388:2-1390:13.

[60] '943 Patent, col. 14, ll. 49-61. ("In a preferred embodiment, component identifier . . . is a bar code reader (connected to the computer's serial port or keyboard) reading a bar code from a reel of electronic components. The indicia . . . is read and stored then control shifts to "valid part?" block 822. Here the part is compared against a list of parts for the current product of manufacture. If the stored part number is found on the list then control shifts to "Turn on LED indicator" block 823. If the part is not found, then control shifts to block 824 where the user is alerted that the part

In this portion of the specification, as in all other parts of the '943 Patent, determining the component identification value or number is different from determining the proper location for the identified component. Throughout the '943 Patent, and in claim 13 itself, it is clear that after a component is identified, the information processor then determines the correct location of the identified component, so that the location or position indicator may convey that information to the human operator. The embedded computer in the PSV uses preprogrammed information as to valid part numbers, in addition to the bar scan data, only to determine what the component is, not where it goes. The embedded computer in the PSV does nothing in addition to, or after, "translating" the bar code scan data into a component identification number that is stored. By contrast, the information processor required in claim 13 must "operate to determine a proper location of each identified component." The '943 Patent is clear that information as to what a component *is* differs from information about *where* it belongs. The embedded computer in the PSV "translates" the bar code scan data into a component identification number if the vendor's label does not match the format used in the assembly process. This "translation" does not "determine" the proper location of that component; instead, it "determines" the component identification number for that component.

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is not valid. Control then shifts back to block 821 for the identification of another compartment 106. This process continues until a valid part is identified at which time control shifts to block 823. At block 823 the computer indicates the correct location 107 of the identified components 104. The computer will possess the correct information, having obtained it from a pre-stored index of valid part numbers.").

The language of claim 13, construed as plaintiffs themselves sought, consistent with the specification and the different dictionary definitions that could apply, does not allow the collapse of the information processor's function of "operating to determine a proper location of each identified component" into the function of identifying a component. The '943 Patent consistently and repeatedly treats component identification and proper location as two separate and distinct elements and limitations.[61] *See Bell Atl.*, 262 F.3d 1258 (patentees invariably used terms "rate" and "mode" to refer to separate and distinct concepts and could not conflate the terms to assert infringement).

Claim 13 requires an information processor that "processes information to determine a proper location of each identified component." The component identifier "identifies, recognizes, or selects the component or component compartment being placed"; the information processor "processes information to determine a proper location of each identified component." The '943 Patent does not support plaintiffs' argument that the information processor determines a "proper location" simply by producing a "component identification number." Rather, it is clear from the '943 Patent that the information processor determines a proper location after the component is identified; that this determination is a determination of location, not further refinement about the component type

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[61] '943 Patent, col. 4, ll. 55-58 "The component type is then compared with reference information that allows for the determination of the proper location."; col. 5, ll. 55-57 "The information processor then determines the proper location of the identified components. . ."; col. 7, ll. 4-6 "[M]achine operator uses component identifier. . . to identify component . . . or compartment, . . . position indicator . . . advises machine operator of the proper position for the identified component."

or identification number; and that this determination is made by the information processor, not the human operator.

"[L]iteral infringement requires that each and every limitation set forth in a claim appear in an accused product." *Frank's Casing Crew & Rental Tools, Inc. v. Weatherford Internat'l, Inc.*, 389 F.3d 1370, 1378 (Fed. Cir. 2004) (citing *Becton Dickinson & Co. v. C.R. Bard, Inc.*, 922 F.2d 792, 796 (Fed. Cir. 1990)). The PSV does not implement the limitation that is found in the "information processor" element in claim 13. There is no legally sufficient basis for the jury to find that the PSV literally infringes claim 13 of the '943 Patent.

C. Claim 1 and the Distributed Information Processor Functions

Both independent claims require that the invention itself determine the proper location of the identified component. The parties argued the same theory of infringement for both claim 1 and claim 13. Plaintiffs stated in their response to Universal's motion for judgment as a matter of law that only one infringement analysis is necessary for both independent claims.[62] Universal also treats its infringement analysis as applying to both claims.[63] But claim 13 requires a separate information processor; claim 1 does not. During pretrial motions, this court held that although claim 1 does not require an information processor as a separate physical element, claim 1 does require the information processor functions to be

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[62] Docket Entry No. 337, p. 4.

[63] Docket Entry No. 329, p. 12.

present. The issue was discussed during an evidentiary hearing held on July 13, 2004. The following exchange occurred:

> The Court: Do you believe that processing does occur in claim 1, information processing?
>
> Plaintiffs: As applied to this infringing device, yes, I believe it does.
>
> The Court: Not looking at the infringing device [but] . . . within the patent.
>
> Plaintiffs: Within the patent, I think that where it says that functions of the information processor are distributed, I think the function, which is to compare and determine, has to be distributed, but I think that this is in contrast to an information processing device which handles that sort of internally and electronically. So, I think the function of determining does need to be within claim 1, yes.
>
> The Court: All right. And information processing in that sense must be distributed across the elements of claim 1.
>
> Plaintiffs: It has to be among those three [elements], somewhere.[64]

The day before trial, August 9, 2004, plaintiffs again acknowledged that claim 1 required the information processing functions as previously discussed. Their concern was that the jury understand the import of the "comprising" language used in claim 1:

> The Court: A three-element system does require the functions of an information processor to be present although they may be located in or distributed across the three elements. That is true. And Dr. Rhyne agreed with that.

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[64] Hearing Tr. 163:8-164:1.

> Plaintiffs: I think everyone agrees with that, your Honor. . . . What we don't agree on is – and I guess this could be handled in the instructions and we can argue it – that the three-element system, since it says comprising, can add something else.[65]

The jury instructions explained "comprising" as plaintiffs requested.

The '943 Patent specification states: "[T]he three element embodiment distributes the functions of the information processor among the other elements."[66] It is a well-established canon of claim construction that when a particular embodiment is described in the specification as the claimed invention, and not just one way of using it, that claim is not entitled to a scope broader than that embodiment. *Network, LLC v. Centraal Corp.*, 242 F.3d 1347, 1352 (Fed. Cir. 2001); *Wang Labs., Inc. v. Am. Online, Inc.*, 197 F.3d 1377, 1383 (Fed. Cir. 1999); *Modine Mfg. Co. v. United States Int'l Trade Comm'n*, 75 F.3d 1545, 1557 (Fed. Cir. 1996). The context in which the embodiment is described must always be considered to determine if the embodiment is the "invention" or just a "preferred embodiment." *Wang Labs.*, 197 F.3d at 1383; *see Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1370 (Fed. Cir. 2003) (a court must "look[] to whether the specification refers to a limitation only as part of less than all possible embodiments or whether the specification read as a whole suggests that the very character of the invention requires the limitation be a part of every embodiment"). If the specification calls an embodiment "the invention" or

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[65] Hearing Tr. 66:4-15.

[66] '943 Patent, col. 6, ll.8-10.

the "present invention," it is appropriate to limit the claims to that embodiment. *See, e.g., Microsoft Corp. v. Mutli-Tech. Sys. Inc.*, 357 F.3d 1340, 1348 (Fed. Cir. 2004) ("In light of those clear statements in the specification that the invention ('the present system') is directed to communications 'over a standard telephone line,' we cannot read the claims . . . to encompass data transmission over a packet-switched network such as the Internet."); *Cultor Corp v. A.E. Staley Mfg. Co.*, 224 F.3d 1328, 1331 (Fed. Cir. 2000) ("Whether a claim must, in any particular case, be limited to the specific embodiment presented in the specification, depends in each case on the specificity of the description of the invention and on the prosecution history. These sources are evaluated as they would be understood by persons in the field of the invention."). These cases are consistent with the axiom that statements in the specification must be clear to narrow the scope of a claim. *Teleflex, Inc.*, 299 F.3d at 1327.

The statement in the specification that the functions of the information processor must be present in claim 1 unambiguously refers to the invention as a whole. The '943 Patent does not limit this statement to a preferred three-element embodiment, but uses it to describe all three-element embodiments. The PSV only determines the component identification number, which is only one element of claim 1. The PSV does not contain an information processor or distribute its functions among the other three elements. Therefore, claim 1 is not infringed, as a matter of law.

D. The Location Indicator: Claim 1 and Claim 13

Both claim 1 and claim 13 require a component identifier that identifies the "component type." Both claim 1 and claim 13 require a location indicator that indicates the proper location for each identified component. Like claim 13, claim 1 requires both component identification and location indication, but claim 1 does not require a separate information processor.[67]

This court adopted the following definition of "location indicator":

> A "location indicator" is a device that indicates a proper or corresponding location of an identified compartment or component before placement of the compartment or component in that location.

To clarify the claim construction, this court added that:

> The proper or corresponding location for a particular component must be determined after the component is identified by the component identifier and before the location indicator indicates that location for that compartment.

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[67] Claim 1 requires:

> at least one location indicator, responsive to the component identifier, for producing an indication signal of the corresponding location of each component compartment or component after the type of component has been identified.

Claim 13 requires:

> at least one location indicator, connected to and controlled by the information processor, that indicates the proper location of each identified compartment.

'943 Patent, col. 18, ll. 50-54; col. 19, ll. 38-41.

Plaintiffs argue that the computer monitor in the PSV is the location indicator. Plaintiffs assert that the simultaneous display of the component identification number and the preprogrammed setup list or table of component numbers and their corresponding slot locations is the "indication signal" required in claim 1 and the "indication" required in claim 13. Rhyne testified that the component identification number acts as an "arrow" that "points to" or "indicates" the matching component identification number on the preprogrammed setup list, allowing the operator to read across the table to find the slot number for that component.[68] Universal responds that the simultaneous display of information on a computer screen does not meet the "location indicator" element because there is no indication or indication signal of the proper location for each identified component.[69]

In the claim construction order, this court rejected Universal's argument that the location indicator must use the algorithm recited in the written description of the '943 Patent. Instead, this court adopted plaintiffs' proposed construction of the location indicator as a device that "indicates a proper or corresponding location of an identified component or compartment," adding only words making it clear that the "location" had to be determined after the component was identified by the component identifier and the "indication" had to occur before the compartment or component was placed in that location.

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[68] Trial Tr. (Rhyne) 575:23-576:5; 593:1-18 ("The operator has to use [the component identification number] as a pointer to know where to go look in the list for himself or herself to find the actual slot number.").

[69] Docket Entry No. 354.

Independent claim 1 requires that the location indicator "produce[] an indication signal of the corresponding location of each compartment or component" after the type of component has been identified; independent claim 13 requires that the location indicator "indicate[] the proper location of each identified compartment." This court previously held that "corresponding location" is the "correct or proper location in which to place the identified component or component compartments." No party objected to this part of the *Markman* order. To the contrary, plaintiffs' proposed construction equated "a proper location" with a "corresponding location."

The "Summary of the Invention" teaches that the "location indicator" produces "an indication signal of the corresponding location of each component compartment or component after the type of component has been identified."[70] The "Detailed Description" of the three-element system states that the position or location indicator may be "any indication that informs the machine operator of the proper location." The Description does not limit the form of the indication, but does make clear what the content of the information must be. The Description further explains that:

> In a simple configuration, the position indicator may inform the machine operator of a symbol (number, letter, or otherwise) that is indicative of a location. For example, FIG. 1 shows locations labeled as A, B, C and D. If an identified device belongs in location D, the position indicator points to letter D. A more useful configuration, employs a visual indication at the site of the location. For example, if after identification the invention determines that components belong in location D, then a

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[70] '943 Patent, col. 3, ll.1-5.

> blinking light adjacent location D would guide the machine operator to properly place the components.[71]

The three-element system in claim 1 has a location identifier that is "responsive to the component identifier," while the four-element system in claim 13 has a location identifier that is "connected to and controlled by the information processor." In the four-element system, the information processor "informs the position indicator of the position that should be indicated," and "[a]fter the proper location has been determined, it is conveyed to the machine operator."[72] This court previously rejected Universal's argument that "responsive to the component identifier" required the location indicator to determine the proper or corresponding location to place the identified component. This court construed "location indicator" consistently in claim 1 and claim 13. The difference between "controlled by the information processor" and "responsive to the component identifier" "reflects different functional limits on the structure defined by the term 'location indicator,'" but does not change the structure connoted by the term.[73] This holding is supported by the fact that the "Detailed Description" of the four-element system in the '943 Patent adds no detail about

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[71] '943 Patent, col. 4, ll. 34-37.

[72] '943 Patent, col 5, ll. 59-65.

[73] Docket Entry No. 74, p. 22.

the location indicator beyond that provided in the "Summary of the Invention"[74] and in the "Detailed Description" of the three-element system.

The parties did not ask this court to construe the words "indication signal" or "indication" of the proper or corresponding location of the identified component, as used in the claimed element "location indicator." The dictionary definition of "indicator" is "one that indicates. . . ."[75] The dictionary definition of "indicate" is "to point out or point to . . . [or] to be a sign, symptom, or index of. . . ."[76] The dictionary definition of "signal" is a "sign, indication . . . [or] something (as a sound, gesture, or object) that conveys notice or warning. . . ."[77] These definitions are consistent with the description used throughout the '943 Patent of the "indication signal" or "indication" in the location indicator. Although the indicator signal or indication may be in any form that is "indicative of a location," the content of the indicator signal or indication must convey to the operator the proper, or correct, location for the identified component or component compartment.

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[74] Statements that describe the invention as a whole are more likely to be found in certain sections of the specification, such as the Summary of the Invention. *See Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1348 (Fed. Cir.) ("Those statements, some of which are found in the 'Summary of the Invention' portion of the specification, are not limited to describing a preferred embodiment, but more broadly describe the overall inventions of all three patents."), *cert. denied,* 125 S.Ct. 61 (2004).

[75] MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 613 (9th ed. 1990).

[76] *Id.*

[77] *Id.* at 1096.

According to plaintiffs, the indication signal is the display of the component identification number at the same time as the display of the preprogrammed setup list. A side-by-side display of a component identification number and a table or list of component identification numbers and the slot numbers where they are to be placed does not convey to the operator the proper location for that identified component. This simultaneously displayed information does not "point to" or "point out" or serve as an "index of" "the" proper or corresponding slot location for the scanned and identified component. The displayed component identification number does not "point to" or "point out" any one entry in the simultaneously-displayed preprogrammed setup table of component identification numbers and corresponding slot location numbers. After the operator has the simultaneous display, the operator must then scroll down the preprogrammed setup list, locate the component identification number that matches the displayed component identification number resulting from the bar code scan, and read across the table to find the proper slot number. The simultaneous display of the preprogrammed setup list and the component identification number does not "point to," "point out," or otherwise inform the operator of the proper location for that component. Rather, the operator must take the information and perform additional steps to find the matching component identification number and read across the preprogrammed setup list to learn the number of the proper slot in which to place the identified component. The PSV computer monitor has provided information from which the operator can learn the location, but the PSV computer monitor has not indicated that location. Accordingly, claim 1 and claim 13 are not infringed, as a matter of law.

E. Plaintiffs' Prosecution History Argument

Plaintiffs argue that the prosecution history supports their assertion that the PSV infringes and refutes Universal's argument that a device that merely identifies component numbers does not fall within the scope of the '943 Patent claims. Plaintiffs originally sought to patent both the automated assembly apparatus and the method for its use. The patent examiner required plaintiffs to elect between the apparatus and method claims and plaintiffs chose the apparatus claims.[78] The examiner stated:

> Inventions I and II are related to apparatus and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the apparatus as claimed can be practiced with another materially different apparatus or (2) the apparatus as claimed can be used in a materially different process of using that apparatus. In the instant case the apparatus as claimed can be used in a materially different process of using that apparatus such as simply identifying components.[79]

Plaintiffs argue that the examiner's statement about using the apparatus simply to identify components supports their position that a device may infringe even if the device does not perform any process beyond "translating" bar code scan data into a component identification number and then displaying that number with a stored list of component numbers and slot locations.

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[78] P. Ex. 2, Prosecution History of the '943 Patent, at 1-84.

[79] *Id.*

It is true that a patented invention claiming an apparatus may perform more than one process, and an accused device may operate differently from the embodiments described in the patent and still infringe. *See, e.g., Virginia Panel Corp. v. Mac Panel Co.*, 133 F.3d 860, 866 (Fed. Cir. 1997) ("[I]t is well settled that device claims are not limited to devices which operate precisely as the embodiments described in detail in the patent."). The PSV, however, does not merely operate differently from the embodiments described in detail in the patent. Rather, the PSV does not do what the patent claims. The PSV does not perform the required claim elements the patent claims call out, because the PSV does not determine the location of an identified component and the PSV does not have a location indicator that produces an indication signal of the location of the identified component. Despite the fact that the PSV shares some unclaimed functional capabilities with the patented apparatus, it does not perform required claim elements. It does not infringe, as a matter of law.

What a patented apparatus does, beyond what the claims cover, does not determine infringement because the accused device must contain each and every element of the claim to infringe. The PSV does not. "Judgment as a matter of law of no literal infringement is appropriate if no reasonable fact finder could determine that the accused devices meet every limitation of the properly construed claims." *Elkay Mfg.*, 192 F.3d at 980.

Plaintiffs' argument from the prosecution history proves too much. A defendant may design around a patent. Competitors are entitled to review the public record – the claims, the specification, and the prosecution history – apply the established rules of claim construction, ascertain the scope of the patentee's claimed invention, and design around the

claimed invention. *Markman,* 52 F.3d at 978-79. A single statement in the prosecution history does not trump the meaning of the claims and the specification because it provides a closer description of an accused product. "Although prosecution history can and should be used to understand the language used in the claims, it . . . cannot 'enlarge, diminish, or vary' the limitations in the claims." *Id.* at 979 (quoting *Goodyear Dental Vulcanite Co. v. Davis*, 102 U.S. 222, 227, 26 L.Ed. 149 (1880)). "[T]he claims define the scope of the right to exclude; the claim construction inquiry, therefore, begins and ends in all cases with the actual words of the claim." *Teleflex, Inc.,* 299 F.3d at 1324 (quoting *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed.Cir.1998)). "[T]he language of the claim frames and ultimately resolves all issues of claim interpretation." *Id.* (quoting *Abtox, Inc. v. Exitron Corp.*, 122 F.3d 1019, 1023 (Fed.Cir.1997)). When the specification and the prosecution history conflict, any ambiguities must be resolved in favor of the specification and the claims. "[T]he specification is the basic presentation by the application, and the claims represent the final product of a sometimes imperfect process." *Biogen, Inc. v. Berlex Labs., Inc.*, 318 F.3d 1132, 1140 (Fed.Cir.2003)("Representations during prosecution cannot enlarge the content of the specification.").

A single statement in the prosecution history does not operate to redefine or broaden the '943 Patent as claimed. A construction that the '943 Patent "simply identifies components" would improperly remove limitations that appear in the unambiguous language of the claims. In the language plaintiffs cite, the patent examiner was not referring to any particular claim language. The statement about "identifying components" only describes the

function of a single element in the two independent claims – the component identifier. The independent claims require additional elements. Claim 1, like claim 13, requires that after a component is identified, the invention itself determine the location of the identified component and then indicate that location to the machine operator.

F. Conclusion as to Literal Infringement

The PSV, operating in the way the plaintiffs have described, identifies a component number and simultaneously displays that number on a computer screen with a preprogrammed table or list of component numbers and slot numbers.[80] As a matter of law, the PSV does not infringe independent claims 1 and 13 or any of their dependent claims. *See Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1553 (Fed. Cir. 1989) ("It is axiomatic that dependent claims cannot be found infringed unless the claims from which they depend have been found to have been infringed.").

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[80] This court does not rely on Universal's argument that there can be no infringement because the PSV was intended to be a postplacement verification system, not a preplacement guidance system. Universal presented evidence that the intended and primary use of the PSV was to have the operator first consult the preprogrammed setup list on the computer screen to locate a particular component. As noted, Universal's witnesses agreed that the PSV could operate as plaintiffs' witnesses described. Trial Tr. (Kane) 1894:24-1895:9; (Sonner) 3204:1-3. An accused device may be found to infringe if it is reasonably capable of an infringing use, even if it is also be capable of noninfringing modes of operation. *Hilgraeve Corp v. Symantec Corp.*, 265 F.3d 1336, 1343 (Fed. Cir. 2001). "[A]n accused product that sometimes, but not always, embodies a claimed method nonetheless infringes." *Bell Communications Research, Inc. v. Vitalink Communications,* 55 F.3d 615, 622-23 (Fed. Cir. 1995).

IV. The Issue of the Inconsistent Verdict

A "judge has a duty to attempt to reconcile a jury's apparently inconsistent responses to special interrogatories." *Carr v. Wal-Mart Stores, Inc.*, 312 F.3d 667, 670 (5th Cir. 2002). A court "must attempt to reconcile the jury's findings, by exegesis if necessary." *Ellis v. Weasler Eng'g, Inc.*, 258 F.3d 326, 343 (5th Cir. 2001) (citing *Gallick v. Baltimore & O.R. Co.*, 372 U.S. 108, 119, 83 S.Ct. 659, 9 L.Ed.2d 618 (1963)). If the answers to the interrogatories seem to conflict, the court is obligated to reconcile the answers, if possible, to validate the jury's verdict. *White v. Grinfas*, 809 F.2d 1157, 1161 (5th Cir.1987). Only if there is no view of the case that will make the jury's answers consistent may a court set aside the jury's decision. *Ellis*, 259 F.3d at 343.

"To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter." *See PPG Indus., Inc. v. Guardian Indus. Corp.*, 75 F.3d 1558, 1566 (Fed. Cir. 1996). In response to Jury Question Number 5, the jury found that the Philips RVS sold to Ford anticipated claims 1, 3, 13-23, and 26-28 of the '943 Patent. The jury found that the Philips RVS did not anticipate claims 4, 5, and 24.[81] Universal asserts that the jury's findings with regard to claims 4 and 5 and 17 and 18 are inconsistent because the two sets of claims have the same

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[81] In response to Jury Question No. 4, the jury found that claim 24 was anticipated by the Oki patent application. In response to Jury Question No. 6, the jury found that claim 24 was obvious in light of the prior art in the automated assembly field before August 31, 1991. Docket Entry No. 318.

limitations. Plaintiffs contend that the jury's response that claims 4 and 5 were anticipated but that claims 17 and 18 were not can be reconciled on the basis of differences in the language between independent claim 1, from which claims 4 and 5 depend, and independent claim 13, from which claims 17 and 18 depend.[82] Universal responds that the slight differences in claim language do not make the verdict consistent. Universal argues that the proper resolution to the inconsistent verdict is to find that, as a matter of law, claims 4 and 5 as well as claims 3, 16, 17, and 18 are anticipated.[83]

Claims 4 and 5 relate to the three-element system of the '943 Patent; claims 17 and 18 relate to the four-element system. These claims all contain an error indicator limitation. Each claim uses similar, but slightly different, language:

> 3. The system of claim 1 [the three-element system], further comprising an error indicator that indicates if a compartment has not been placed in *a corresponding location indicated by the location indicator.*
>
> 4. The system of claim 3, said error indicator indicating if a compartment has not been placed in *said corresponding location indicated by the location indicator* within a predetermined amount of time.
>
> 5. The system of claim 4, said predetermined amount of time been selected to correspond to a time required to load the compartment in said corresponding location.

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[82] Docket Entry No. 348.

[83] Docket Entry No. 327.

> 16. The system of claim 13 [the four-element system], further comprising an error indicator which indicates if a compartment has not been placed in *a location indicated by the location indicator.*
>
> 17. The system of claim 16, said error indicator indicating if a compartment has not been placed in *a location indicated by the location indicator* within a predetermined period.
>
> 18. The system of claim 17, said predetermined time period being selected to correspond to a time required to load a compartment in a corresponding location.[84]

The jury found that the Philips RVS anticipated independent claims 1 and 13. Claim 13 is narrower than claim 1 because it requires every element of claim 1 plus an information processor. The jury also found that the Philips RVS anticipated claim 3, which depends from claim 1, but not claims 4 and 5, which include the limitations of claim 3. The jury also found that the Philips RVS anticipated claim 16, which depends from claim 13, as well as claims 17 and 18, which include the limitations of claim 16. The common limitation among claims 3, 4, and 5, and claims 16, 17, and 18, is the error indicator. Claim 4 requires "said error indicator," which finds its antecedent basis in claim 3 and is the same error indicator required in claim 3. *See Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1356-57 (Fed. Cir. 1999) (concluding that "a discharge rate" and "the discharge rate" referred to same rate because the terms were used in the same context and noting that such a construction avoided any lack of antecedent basis problem); *Georgia Pacific Corp. v. U.S. Gypsum Co.*, 195 F.3d

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[84] Docket Entry No. 343, '943 Patent, col 18-20 (emphasis added).

1322, 1331 (Fed. Cir. 1999) (unless a patent otherwise provides, a claim term cannot be given a different meaning in the various claims of the same patent); *Eastman Chem. v. BASF Aktiengesellschaft*, 2002 WL 31085363, at *6-8 (Fed. Cir. 2002). Claim 5 requires the system of claim 4, including the error indicator of claim 3. By finding that the Philips RVS anticipated claim 3, the jury found that the error indicator of claim 3 is present in the Philips RVS. This finding is consistent with the jury's verdict that the Philips RVS anticipated claims 16, 17, and 18, each of which also require an error indicator. Plaintiffs concede that the error indicator limitation does not provide a basis to reconcile the verdict.[85]

The other difference between claim 3, which the jury found was anticipated, and claims 4 and 5, is the "within the predetermined amount of time" limitation in claims 4 and 5. The jury found that this limitation was present in the Philips RVS by concluding that the RVS anticipated claims 17 and 18. This language does not provide a basis to reconcile the jury's verdict that the Philips RVS anticipated claims 17 and 18 but not claims 4 and 5.

Plaintiffs' primary argument is that the difference between the language of claim 4, which requires the error indicator of claim 3 "indicating if a compartment has not been placed *in said corresponding location* indicated by the location indicator within a predetermined amount of time," and the language of claim 17, which requires the error indicator of claim 16 "indicating if a compartment has not been placed *in a location* indicated by the location indicator within a predetermined period," is a difference that reconciles the

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[85] Docket Entry No. 348, p. 2.

jury's verdict. Plaintiffs contend that the difference between "said corresponding location" in claim 4 and "a location" in claim 17, makes claims 4 and 5 sufficiently different from claims 17 and 18 to allow the jury to find anticipation as to claims 17 and 18 but not as to claims 4 and 5.

The language plaintiffs cite does not reconcile the jury's verdict. The claim language itself defeats plaintiffs' argument. Claim 17 requires the system of claim 16, as is clear from the use of the words "said error indicator." The error indicators of claims 16, 17, and 18 all "indicate if a compartment has not been placed in a location indicated by the location indicator." Claim 16 requires the system of claim 13, adding the error indicator. Claim 13 defines what location the location indicator indicates: "the proper location of each identified compartment." Claim 13 defines "a location indicated by the location indicator" as "the proper location of each identified component."

Claim 4 requires the system of claim 3, making this explicit by the words "said error indicator." The error indicators required by claims 3, 4, and 5 all "indicate if a compartment has not been placed in said corresponding location indicated by the location indicator." Claim 3 requires the system of claim 1, adding the error indicator. Claim 1 defines what location the location indicator indicates: "the corresponding location of each component compartment or component after the type of component has been identified."

Plaintiffs' argument is that "location indicator" means something different in claim 1, which states that it indicates "the corresponding location of each component compartment or

component after the type of component has been identified," than it means in claim 13, which states that a "location indicator" indicates "the proper location of each identified component." This court's *Markman* order, issued over a year before trial, construed a "location indicator" as a "device that indicates a **proper or corresponding location** of an identified compartment or component before placement of the compartment or component in that location." Similarly, this court construed "corresponding location" as "the **correct or proper location** in which to place the identified components or component compartments."[86] No party objected to this part of the *Markman* order. To the contrary, plaintiffs themselves argued for a construction of location indicator that equated "a proper location" to a "corresponding location." Plaintiffs argued for the following construction of "location indicator": "A device that indicates a proper or corresponding location of an identified compartment or component."[87] The parties did not ask the court separately to construe the meaning of "a location," but the only location described in claim 1 and claim 13 and the dependent claims at issue is the location "indicated by the location indicator."

Claims 4 and 5, and, 17 and 18, all refer to the same location – the location indicated by the location indicator. This court and all parties consistently construed the words "said corresponding location indicated by the location indicator" in claim 4 and "a location indicated by the location indicator" in claim 17 as having the same meaning. This court defined

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[86] Docket Entry No. 311, p.10.

[87] Docket Entry No. 40, p. 20.

"**corresponding location** indicated by the location indicator" – the words of claim 3, from which claims 4 and 5 depend – and "location indicator . . . that indicates the **proper location**" – the words of claim 13, from which claims 17 and 18 depend – as meaning the correct or proper place for the component or component compartment, indicated by the location indicator. A location indicated by the location indicator, required in dependent claim 17, is defined in independent claim 13 as the proper location for the identified component. This court and the parties consistently construed "the proper location for the identified component or compartment" as having the same meaning as the "corresponding location for the identified component or compartment," as required in independent claim 1 and dependent claim 4.

The claims contain several differences in language that no party has ever asserted result in a difference in meaning. Claim 1, for example, describes "an assembly machine which assembles"; claim 13 describes "a machine which assembles." Claim 4 refers to a "predetermined amount of time"; claim 17 refers to a "predetermined period." Plaintiffs have not argued that these or other differences alter the scope of the claims. Treating these slight differences in wording as synonymous in meaning does not present a claim differentiation problem. "There is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims. To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant." *Tandon Corp. v. United States Int'l Trade Comm'n*, 831 F.2d 1017, 1023 (Fed. Cir. 1987). Recognizing that the

various terms used in the '943 Patent claims to describe what the location indicator indicates all mean "the location indicated by the location indicator" does not make any claim superfluous. The difference in the three-element and the four-element system is defined in the claim language: in claim 1, the location indicator is responsive to the component identifier, and in claim 13, the location indicator is responsive to the fourth element that is not present in claim 1, the information processor. No difference is described or claimed between claim 1 and its dependent claims, and claim 13 and its dependent claims, in the location that the location identifier identifies. In both claim 1 and claim 13 and the dependent claims, the location indicator indicates a proper or corresponding location for a component or component compartment. When neither the plain meaning nor the patent itself commands a difference in scope between terms, they may be construed identically. *Power Mosfet Techs.*, 378 F.3d at 1410. "[Claims] that are written in different words may ultimately cover substantially the same subject matter." *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1480 (Fed. Cir. 1998) (quoting *Tandon Corp. v. United States Int'l Trade Comm'n*, 831 F.2d 1017, 1023 (Fed. Cir. 1987)); *see Bancorp Servs., L.L.C. v. Hartford Life Insur. Co.*, 359 F.3d 1367, 1371 (Fed. Cir. 2004) ("[I]t is not unknown for different words to be used to express similar concepts, even though it may be poor drafting practice.").

To attempt to reconcile the verdict, plaintiffs also focus on the differences between the independent claims. Independent claim 1, from which claims 4 and 5 depend, requires the location indicator to be "responsive to the component identifier." Independent claim 13, from

which claims 17 and 18 depend, states that the location indicator is "controlled by an information processor." As Universal points out, when the jury found that the Philips RVS anticipated both claims 1 and 13, the jury found that the location indicator limitations were present in the Philips RVS. The primary difference between the two independent claims is that an information processor is present in claim 1 but not claim 13. As a result, the location indicator of claims 4 and 5 is responsive to the component identifier, while in claims 17 and 18, the location indicator is responsive to the information processor. These differences, however, do not reconcile the verdict. The jury found that the Philips RVS anticipated claim 1 – and its dependent claim 3 but not its dependent claims 4 and 5 – and anticipated claim 13 and its dependent claims 16, 17, and 18. The jury found that the Philips RVS had all the limitations of both independent claims, as well as the limitations of dependent claims 3, 16, 17, and 18.

There are differences in claim 1 and claim 13, and the claims that depend from these independent claims, resulting from the added information processor element in claim 13. Those differences do not, however, explain or reconcile the jury's finding that the Philips RVS anticipated independent claims 1 and 13; anticipated dependent claims 3 and 16, which require an error indicator; anticipated dependent claims 17 and 18, which require the error indicator of claim 16 with a timeout feature of a predetermined period; but did not anticipate claims 4 and 5, which require the error indicator of claim 3 with the same timeout feature of a predetermined period. When the jury found that independent claim 1 and dependent claim 3

were anticipated by the Philips RVS, the jury found that the Philips RVS had all three elements of the three-element system, including an error indicator. When the jury found that claims 17 and 18 were anticipated by the Philips RVS, the jury found that the Philips RVS had all four elements of claim 13, plus the error indicator of claim 16 with the timeout feature of claims 17 and 18. It is inconsistent for the jury also to find that claims 4 and 5, which have the three elements of claim 1 and the error indicator of claim 3 with the timeout feature, are not anticipated by the Philips RSV. The jury treated claims 4 and 5 the same way it treated claims 17 and 18 in every other question answered.[88] The jury treated claims 4 and 5 differently from claims 17 and 18 only in answering Jury Question Number 5. Claims 17 and 18, which depend from claim 13 and relate to the four-element system, are narrower than claims 4 and 5, which depend from claim 1 and relate to the three-element system. The jury found the narrower set of claims anticipated. All the limitations of claims 4 and 5, which distinguish claims 4 and 5 from claim 3, are included in claims 17 and 18. The verdict is inconsistent.

V. The Motions for Judgment as a Matter of Law that the '943 Patent Is Invalid

Finding the jury verdict inconsistent requires this court to determine the effect of the inconsistency. Universal has moved for judgment as a matter of law that the Philips RVS

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[88] In response to Jury Question No. 2, the jury found that all claims except claims 4, 5, 17, and 18, (and 24 and 28), were anticipated by the Mennitt article published by Motorola. In response to Jury Question No. 3, the jury found all claims except 4, 5, 17, and 18 were anticipated by the Oki patent application. In response to Jury Question No. 6, the jury found that all claims except claims 4, 5, 17 and 18 were obvious in light of the prior art.

anticipated claims 4, 5, and 24 and that claims 4, 5, 17, and 18 are obvious.[89] Universal argues that proper resolution of the anticipation question as to claims 4 and 5 also resolves the inconsistent verdict. Plaintiffs claim that an inconsistent verdict requires a new trial and that judgment as a matter of law is not proper.[90] Plaintiffs have moved for judgment as a matter of law that none of the '943 Patent claims are anticipated or obvious, or in the alternative, for a new trial.[91]

The Federal Circuit reviews the denial of a motion for a new trial under the law of the regional circuit. *Power Mosfet Techs.*, 378 F.3d at 1410. In the Fifth Circuit, district courts "do not grant new trials unless it is reasonably clear that prejudicial error has crept into the record or that substantial justice has not been done, and the burden of showing harmful error rests on the party seeking the new trial." *Sibley v. Lemaire*, 184 F.3d 481, 487 (5th Cir.1999). The issue is whether, as a matter of law, the Philips RVS anticipated claims 4 and 5 as well as claims 17 and 18 of the '943 Patent. This court agrees with Universal that the record supports the grant of judgment as a matter of law that claims 4 and 5 are anticipated, and concludes that a new trial is not necessary. *See Mycogen Plant Science v. Monsanto Co.*, 243 F.3d 1316, 1326 (Fed. Cir. 2001) (if proper grant of judgment as a matter of law makes the verdict consistent, a new trial is not necessary).

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[89] Docket Entry No. 333.

[90] Docket Entry No. 348.

[91] Docket Entry Nos. 346, 341.

A. The Motion for Judgment as a Matter of Law that the Philips RVS Anticipated Claims 4 and 5 of the '943 Patent

Plaintiffs argue that the jury correctly found that the Philips RVS did not anticipate claims 4 and 5 because the Philips RVS error indicator did not encompass all the limitations of those claims.[92] Plaintiffs argue that the jury incorrectly found that the Philips RVS did anticipate claims 17 and 18.[93] Specifically, plaintiffs argue that the evidence showed that the Philips RVS generated the same error signal if a component was inserted into an incorrect slot and if it was inserted after the time limit expired. Universal presented evidence at trial that the Philips RVS system includes a "timeout" feature, which requires the operator to rescan the component if it is not loaded within an allotted amount of time after it is scanned. David Lynch, a former manufacturing engineer for Ford Motor Company who worked with Philips on the RVS, testified: "there is a timeout feature incorporated in the software, and I think we set it to 45 seconds, where after you scan a part, you have insert the part into a slot. . . . So if you then inserted the part that you scanned after the timeout had expired into the correct slot, the system would come back and tell you it was an error . . . ."[94] The error message did not appear until after the component was loaded and did not specify that the operator waited too long to load the component.[95]

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[92] Docket Entry No. 348.

[93] Docket Entry No. 346.

[94] Trial Tr. 2324:21-2326:10.

[95] *Id.*

Plaintiffs do not dispute that the Philips RVS conveys an error message to the operator if the predetermined amount of time expires. Plaintiffs argue that informing the operator to rescan the component by way of a generic error message is insufficient to anticipate claims 4 and 17. Plaintiffs argue that the difference between claim 3 and claims 4 and 5 (and between claim 16 and claims 17 and 18) is a difference in the content of the error message. Plaintiffs argue that claims 3 and 16 on the one hand and claims 4 and 17 on the other require separate and distinguishable error messages: claims 3 and 16 require an error message stating that a component was placed in the wrong slot within the allotted time, while claims 4 and 17 require an error message stating that a component was placed in the correct slot, but after the allotted time expired. The Philips RVS displays the same error message if an operator placed a scanned component reel in the wrong slot within the time allowed; in the wrong slot after the time allowed; or in the right slot after the time allowed. Plaintiffs argue that the Philips RVS does not anticipate claims 4 and 17 because the Philips RVS gives the same error message for incorrect placement and untimely placement. Plaintiffs support their argument by referring to the preferred embodiment of Figure 8, which shows a timeout error message text that is different from the incorrect placement error message text.[96] At trial, Rhyne testified that the Philips RVS does not anticipate claim 4 because the same error message is used for an improperly-placed and an untimely-placed component.[97]

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[96] Docket Entry No. 348

[97] Rhyne argued that based on the '943 Patent flow charts and certain portions of the specification, under the claimed timeout feature, "when the timeout expires the operator gets a

Universal responds by arguing that plaintiffs are improperly reading limitations from the preferred embodiment, and that under proper claim construction, claims 4, 5, 17, and 18 are anticipated. Universal argues that the plain language of claim 4 and this court's claim construction do not require the asserted limitations.[98]

The claim language does not support plaintiffs' argument that the error indicator required by claims 4 and 17 must have a text or content different from the error indicator required by claims 3 and 16. The claims are differentiated by what triggers the error indicator, Claims 3 and 16 require that the error indicator is triggered by placement in the wrong location. Claims 4 and 17 require that the error indicator is triggered by an untimely placement. The claims do not require a particular content for the error message or require a separate error message depending on the underlying trigger. The "said" error indicator in

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message: You've waited too long." Trial Tr. 3346: 24-3347:2. Rhyne testified that in the Philips RSV, "there's several errors that can cause exactly the same message. There's no way of knowing what went wrong that caused the error message." Trial Tr. 3348:11-16; 3343:15-3345:2.

[98] Universal correctly notes that Rhyne's attempt to limit the claims to Figure 8 is inconsistent with plaintiffs' insistence that the patent claims are not limited to the embodiments and figures provided in the Detailed Description.

> The written description of the '943 Patent does state the algorithm flow chart [of Figures 8A-8C] presented is "the method of operation of the present invention." The written description, however, lacks works or expressions of manifest exclusion or restriction representing a clear disavowal of claim scope. . . This court concludes that the '943 Patent is not limited to the operating algorithm [of Figures 8A-8C] presented in the written description.

Docket Entry No. 74, p. 27.

claim 4 finds antecedent support in the error indicator of claim 3: the "said" error indicator in claim 4 is the same error indicator in claim 3. *See Process Control Corp.*, 190 F.3d at 1356-57. Claim 3 requires the "error indicator to indicate" *if* a component has not been placed in the proper location. Claim 4 requires the "error indicator to indicate" *if* the predetermined amount of time has expired, but does not require the error indicator to indicate *that* the predetermined amount of time has expired. The claims make no distinction as to content of the error indication.[99]

Claims 3 and 16 require an error indicator that is triggered by one kind of error – improper placement. Claims 4 and 17 require that the error indicator of claims 3 and 16 ("such error indicator"), be triggered by a different kind of error – untimely placement. The difference between the claims is the type of error that triggers the error indicator. The claims do not define "error indicator" differently depending on the type of error that is indicated. *See Georgia Pacific Corp.*, 195 F.3d at 1331 ("Unless the patent otherwise provides, a claim term cannot be given a different meaning in the various claims of the same patent."); *Southwall Tech., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1579 (Fed. Cir. 1995) (holding that claim term found in different claims must be interpreted consistently). Plaintiffs' own

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[99] Plaintiffs also argue that there was no evidence presented that the Philips RVS sends an error signal to the operator *only* if the operator has placed the component in the "corresponding" location. The evidence showed that the error signal is generated if a component is loaded into any slot after the time limit has expired. Docket Entry No. 348, p.6. Claims 4 and 5 require an error message if the operator does not load a component in its proper location within a predetermined amount of time. The Philips RVS did this. The fact that it also indicates an error when the operator loads the component into an incorrect location does not preclude the Philips RVS from anticipating claims 4 and 5.

proposed construction of the term "error indicator," adopted in the *Markman* order, defined the term "error indicator" broadly, to cover a device that indicates improper placement and untimely placement. Nothing in the claim language requires that the error indicator specifically identify the type of the underlying error that triggers the indicator. Rather, the claim language only requires that certain types of errors trigger the "error indicator." Plaintiffs' argument reads limitations from the specification into the claim. *See Liebel-Flarsheim Co.,* 358 F.3d at 904-05; *In re Paulsen,* 30 F.3d 1475, 1480 (Fed. Cir. 1994) (improper for patentee to import "extraneous" limitation to avoid anticipation apart from any need to interpret particular words or phrases in the claim). The limitation of a separate and distinct error message for different types of underlying errors is not found in the plain language of the claims, as construed in light of the specification.[100] The Philips RVS can anticipate claims 3, 4, 5, 16, 17, and 18 of the '943 Patent if the Philips RVS has an error indicator that informs the operator if there was an error in placing the component. The evidence is undisputed that the Philips RVS has such an error indicator.

Plaintiffs also argue that because the RVS does not inform the operator of a timeout error until after the component is loaded into a slot, it does not anticipate the '943 Patent.[101]

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[100] Before describing any particular embodiment, the specification describes the timeout feature of "the invention." This portion states that "if the components are correctly positioned within a specified time (t0), the [loading] procedure continues uninterrupted, . . . if the components are not correctly positioned within time t0, then the machine operator is alerted *of an error* and the loading procedure is halted until the component identifier . . . is used to identify the components or compartment again." '943 Patent, col 7, ll. 1-14.

[101] Docket Entry No. 348, p.4.

Claims 4 and 5, and, claims 17 and 18 do not require that the error indicator designate when the allotted time expires, as opposed to when the operator attempts to load a reel after the allotted time has expired.[102] Rather, these claims require that the error indicator notify the operator if the allotted time for loading the compartment has expired. The claims do not state that this error indication must occur precisely when the time expires.

The parties agree that the Philips RVS indicates an error when an operator takes longer than a predetermined amount of time to load a component into a slot. The operator must rescan the component and then put it in the correct slot, within the allotted time, before it can be successfully loaded. The clear and convincing evidence presented at trial established that the Philips RVS has the limitations recited in claims 4 and 5. Plaintiffs' arguments as to the functionality of the error indicator in claims 4 and 5 do not reconcile the verdict. To accept the plaintiffs' position, this court would have to set aside the jury's verdict that claims 17 and 18 were anticipated by the Philips RSV. As discussed below, the jury's verdict was supported by clear and convincing evidence that the asserted claims are anticipated by the Philips RVS.

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[102] Claims 5 and 18 state that the "said predetermined amount of time been selected to correspond to a time required to load the compartment in said corresponding location." The time required to load a compartment is "the time it takes to load a compartment in a corresponding location." Docket Entry No. 74, p. 52.

B. Plaintiffs' Motion for Judgment as a Matter of Law that None of the Asserted Claims were Anticipated

Plaintiffs assert that the jury's verdict and this court's finding of invalidity under section 102(b) cannot stand because, as a matter of law, the prior art is deficient. Whether a patent is invalid as anticipated is a two-step inquiry. Like infringement, the first step requires construing the claim, which is a matter of law. The second step in the analysis requires a comparison of the properly-construed claim to the prior art. *Power Mosfet Techs.*, 378 F.3d at 1406; *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1363 (Fed. Cir. 2004).

Section 102 of the Patent Act lists conditions for patentability, as follows:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States . . . .

35 U.S.C. § 102(a)-(b). A § 102(b) determination is a conclusion of law based on underlying findings of fact. *Linear Tech. Corp. v. Micrel, Inc.*, 275 F.3d 1040, 1047 (Fed.Cir.2001). A patent claim is invalid as "anticipated" as outlined in section 102, if every element or limitation recited in the claim is disclosed or inherent in a single prior art reference or event. *See Acromed Corp. v. Sofamor Danek Group, Inc.*, 253 F.3d 1371, 1383 (Fed. Cir. 2001) (quoting *Atlas Powder Co. v. Ireco, Inc.*, 190 F.3d 1342, 1347 (Fed. Cir. 1999)). "[A] prior

art reference may anticipate when the claim limitation or limitations not expressly found in that reference are nonetheless inherent in it." *Id.* Prior art anticipates only when it discloses every element of a patent claim sufficiently to enable a person skilled in the relevant art. *Elan Pharms., Inc. v. Mayo Found. for Med. Educ. & Research*, 346 F.3d 1051, 1054 (Fed. Cir. 2003).

1. The Philips RVS and Section 102(b)

A patent is invalid under section 102(b) if an offer to sell or the sale of a prior art device containing the claimed subject matter occurred more than a year before the patent filing date. In this case, the critical date is August 31, 1991. Before the critical date: (1) the invention must be the subject of a commercial offer for sale or an actual sale in this country; and (2) the invention must be ready for patenting. *Pfaff v. Wells Electronics, Inc.*, 525 U.S. 55, 67, 119 S.Ct. 304, 142 L.Ed.2d 261 (1998).

In its July 9, 2004 Memorandum and Order, this court found that, as a matter of law, Philips made a commercial offer in the United States to sell the RVS to Ford, as required under section 102(b).[103] Plaintiffs ask this court to reconsider the summary judgment ruling on the basis of a recent case, *Pellegrini v. Analog Devices, Inc.*, 375 F.3d 1113 (Fed. Cir. 2004), *cert. denied,* 2004 WL 2659292.[104] This court's earlier ruling was based on evidence showing that on October 1, 1990, Philips's Industrial Automation Division, located in

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[103] Docket Entry No. 212.

[104] Docket Entry No. 346.

Norcross, Georgia, responded to a commercial offer to sell the RVS to Ford's office in Dearborn, Michigan. Universal submitted deposition testimony of Stephen Pattison, Philips's Multi-National Account Manager for Ford. Pattison testified that Philips issued the offer to sell its RVS system to Tim Carbary, Ford USA's purchasing manager in Dearborn, Michigan, who then sent purchase orders to Philips's American organization. Carbary also testified in his deposition that only Ford's Michigan office, and not Ford's Canadian plant, had the authority to commit Ford to purchasing the RVS. Documents in the summary judgment record, including communications between the United States offices of Ford and Philips, are consistent. The undisputed evidence in the summary judgment record showed that the parties made the offer to sell the Philips RVS in the United States and accepted that offer in the United States. The evidence was also undisputed that the Philips manufactured the RVS in Holland and shipped it to Ford for use at its Markham facility, which is located in Canada. This court concluded that the offer for sale and the sale were "in this country," as required by section 102(b), citing *Pfaff*, 525 U.S. at 67; *Dow Chem. Co. v. Mee Indus., Inc.*, 341 F.3d 1370, 1375 (Fed. Cir. 2003); *In re Caveney*, 761 F.2d 671 (Fed. Cir. 1985).[105]

Plaintiffs have asked this court to reconsider its holding in light of *Pelligrini*. Plaintiffs argue that after *Pelligrini,* domestic offers to sell and agreements to purchase a product made outside the United States and shipped to a destination outside the United States

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[105] Docket Entry No. 212, p.30 (record citations omitted).

cannot satisfy the "on sale" bar under section 102(b). *Pelligrini* is an infringement case decided under section 271(f). This section states:

> (1) Whoever without authority supplies or causes to be supplied in or from the United States all or a substantial portion of the components of a patented invention, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.

35. U.S.C. §271(f). In *Pelligrini*, a patent owner sued an American company, alleging that the company had induced infringement by supplying a certain type of integrated circuit chip. The chips were designed in the United States and the instructions for their manufacture were transmitted from the United States. The chips were manufactured outside the United States and not physically shipped to or from the United States. The issue presented in *Pelligrini* was whether the defendant could be held liable as an infringer under section 271(f). The court held that the defendant could not be liable under the language of section 271(f), which requires the inducing parts to be supplied or caused to be supplied "in or from the United States." The court held that section 271(f) applies if the components of a patented invention are physically present in the United States and then either sold or exported in such a manner as to induce infringement. *Id.*

The *Pelligrini* case dealt with a different statute and a different subject matter. Section 271(f) is a an enforcement mechanism designed to curb attempts to circumvent an inventor's rights by exploiting the territorial limit of United States patent law. Unauthorized

manufacturers could avoid liability for infringement by supplying in or from the United States unassembled parts of a patented invention, to be assembled and used abroad. The *Pelligrini* holding was driven by the recognition that despite the statute's attempts to avoid easy circumvention of the patent law, it was limited on its face to infringement using parts supplied "in or from" the United States.

Section 102 is not so limited. Section 102 provides:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States . . . .

35 U.S.C. § 102(a)-(b). The *Pelligrini* opinion does not suggest that its holding applies outside the context of section 271(f) infringement cases. As Universal points out, the Federal Circuit has recognized that it is improper to import authorities construing section 102(b) to a section 271 infringement analysis. *3D Sys., Inc. v. Aarotech, Labs, Inc.*, 160 F.3d 1373, 1379 n.4 (Fed. Cir. 1998). *Pelligrini* is based on the plain language of the statute; this court's holding is consistent with such an approach because the actual offer and acceptance of the sale did occur in the United States.

The meaning of "on sale in this country" under section 102 is discussed in *Robbins Co v. Lawrence Mfg. Co.*, 482 F.2d 426 (9th Cir. 1973). The court held that whether or not a sale is consummated in a foreign country, the product is "on sale" in the United States for purposes of the statutory bar of section 102(b) if "substantial activity prefatory to a sale occurs in the United States. An offer for sale, made in this country, is sufficient prefatory activity occurring here, to bring the matter within the statute." *Id.* at 434. An offer of sale originating in a foreign country, directed to a consumer in the United States, can establish an on-sale bar. *In re Caveney*, 761 F.2d. 671, 676 (Fed. Cir. 1985). In *In re Caveney*, the court identified three policies that underlie the "on sale" bar: (1) a policy against removing inventions from the public domain that the public justifiably comes to believe are freely available due to commercialization; (2) a policy favoring prompt and widespread disclosure of inventions to the public; and (3) a policy of giving the inventor a reasonable amount of time following sales activity to determine whether a patent is worthwhile. *Id.* at 676. The court noted that when someone other than the prospective patentee makes a sale disclosing an invention, the policy against removing inventions from the public domain and the policy favoring early filing both justify application of the "on sale" bar. *Id.* at 677. The court noted that the "on sale" bar also protects the public's reliance on the availability of an invention that has been commercialized. Entities in the business of selling to potential users are members of the public whose reliance deserves protection. *Id.*

In both *In re Caveney* and *Robbins Co v. Lawrence Mfg. Co.*, during the offer and purchase, the invention was disclosed to some segment of the public in the United States, invoking the policy concern of public reliance. This case involves similar facts. In this case, the undisputed evidence showed that the consumer – Ford's Michigan office, which made the decision to purchase the Philips RVS for the Ford Markham facility and was the only Ford entity with the authority to do so – was in the United States.

As one commentator has noted, the policy underlying the "in this country" limitation is that foreign public use or on sale activities, unlike foreign patents or printed publications, may not be accessible to the American public. William C. Rooklidge, *The On Sale and Public Use Bars to Patentability: The Policies Reexamined*, 1 FED. CIR. B. J. 7, 9 (1991). If the offer or sale is sufficiently accessible to create the potential for detrimental reliance by the American public, then the bar should apply. Because the offer to sell and acceptance of the Philips RSV occurred and were exchanged within the United States, the invention was sufficiently accessible to trigger reliance and the on-sale bar. The *Pelligrini* opinion does not require this court to reverse its prior holding that Philips made an offer to sell the RVS to Ford within this country.

Plaintiffs' second argument is that there was insufficient evidence to conclude that the Philips RVS was "ready for patenting." The "ready for patenting" standard "may be satisfied in at least two ways: by proof of reduction to practice before the critical date; or by proof that prior to the critical date the inventor had prepared drawings or other descriptions of the

invention that were sufficiently specific to enable a person skilled in the art to practice the invention." *Pfaff*, 525 U.S. at 67-68 ("In this case the [ready for patenting] condition of the on-sale bar is satisfied because the drawings [the inventor] sent to the manufacturer before the critical date fully disclosed the invention."); *see also Robotic Vision Sys., Inc. v. View Eng'g, Inc.*, 249 F.3d 1307, 1312 (Fed. Cir. 2001) (rejecting patentee's claim that written disclosure was not an enabling disclosure of invention because it demonstrated that more work was needed for its intended purpose and emphasizing that after *Pfaff*, the focus is on whether there was a "complete conception" of the invention).

Universal primarily relied on three documents to establish that the Philips RVS was ready for patenting before the critical date of August 31, 1991 – RVS specifications; RVS software source code; and an RVS operating manual.[106] Universal also presented witnesses who had worked at both Ford and Philips during the development of the RVS and were familiar with the documents and the device. Plaintiffs claim that Universal's evidence that the RVS was ready for patenting is insufficient as a matter of law, because the evidence consisted of three separate documents of questionable origin and date and because there was insufficient evidence that these documents represented the invention actually sold to Ford.

It is not necessary that a single document or piece of evidence would be enabling to a person of ordinary skill in the art. *Vanmoor v. Wal-Mart Stores, Inc.*, 201 F.3d 1363, 1366 (Fed. Cir. 2000) (rejecting argument that invention was not ready for patenting because no

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[106] D. Ex. 35; D. Ex. 36; D. Ex. 40.

single piece of evidence presented at trial would be enabling). In this case, the RVS specification, the source code, and the operation manual all described the Philips RVS. Plaintiffs attack the RVS manual because no witness testified as to its maintenance and because it contains one page with a 1992 date.[107] The first page of the manual, however, states that it was issued in January 1991. Universal presented witnesses who corroborated that date.[108] Gerard Haagh, who worked for Philips as the technical software project leader for the RVS and helped write the manual, testified that it was published in 1991.[109] Lynch, who worked for Ford during the development of the RVS, testified that he saw the manual in 1991.[110]

As to the RVS specification and the software code, plaintiffs argue that there was no clear and convincing evidence that these documents actually represent the physical device shipped to Ford. Philips employees testified that the documents disclosed the entire RVS system sold to Ford. Haagh testified that the specification introduced at trial was the specification for the Philips RVS and that it formed the basis of the contract between Ford and Philips.[111] Lynch testified that Philips performed acceptance tests to ensure that the RVS

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[107] Docket Entry No. 357, D. Ex. 40, p.00152.

[108] *Id.*, p.00003.

[109] Trial Tr. 2052:1-14.

[110] Trial Tr. 2314:9-20.

[111] Trial Tr. 2049: 22-2051:7.

worked in accordance with the specifications.[112] Haagh also testified that the software code Ford used to operate the Philips RVS functioned as described in Universal's trial exhibits.[113]

Plaintiffs argue because evidence showed that aspects of the RVS were developed after the critical date, the jury's ready-for-patenting finding cannot stand. Plaintiffs rely on a September 25, 1991 letter Lynch wrote to Philips, discussing problems with the RVS system, as proof that there was significant development of the RVS after the August 31, 1991 critical date.[114] Plaintiffs cite to evidence that Ford informed Philips of a "fatal bug" in the RVS software in May 1992. Plaintiffs also point to a January 1992 document, in which Philips described the RVS as "not yet complete" and noted that Ford was "still not happy."[115]

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[112] Trial Tr. 2305:8-22.

[113] Trial Tr. 2279:19-2280:18.

[114] The letter states in part:

> The system clock in the RVS computer gets corrupted while the program is running. The date is fine but the time changes randomly.
>
> . . .
>
> The BCR [bar code reader] was not used with any other system. As indicated in my fax another BCR failed when the Philips installation crew was there installing the RVS. The information in the RVS manual, concerning the BCR's is sketchy at best. This issue requires further investigation by Philips.
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> . . .
>
> It is disturbing to find that Philips considers the RVS as released to be complete and final. Markham's position is that the current RVS is a Beta release and that the issues raised are feasibility problems not requests for additional functional requirements.

Docket Entry No. 346, P. Ex.59.

[115] Docket Entry No. 346, P. Ex 60, P. Ex. 66.

Plaintiffs do not claim that any of the problems led to the development of additional or different claimed features, but maintain that the problems cited are fatal to the jury's verdict.

Universal presented a memo from Ford to Philips, dated July 25, 1991, stating that Ford was extremely pleased with the functioning of the RVS.[116] The September 25, 1991 letter itself stated that the RVS system was running. Haagh testified that the RVS was working for its intended purpose in July 1991.[117] Lynch testified that the RVS system was working for its intended purpose in July 1991 and was a successful system.[118] Lynch testified that Ford and Philips engaged in a process of improving the RVS system, but that the core functionality of the RVS worked as expected in July 1991. Lynch also testified that Ford began using the RVS in commercial production to build airbags for Ford vehicles on August 6, 1991.[119] An invention is reduced to practice if it works for its intended purpose. *See EZ Dock. Inc. v. Schafer Sys., Inc.*, 276 F.3d 1347, 1353 (Fed.Cir.2002); *Pfaff*, 525 U.S. at 57 n.2.

At trial, Lynch explained the nature of the complaints raised in the September 25, 1991 letter.[120] The letter stated that there was a problem with the bar code reader, which, as

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[116] Docket Entry No. 357, D. Ex. 121.

[117] Trial Tr. 2273:24-2274:4.

[118] Trial Tr. 2308:7-15.

[119] Trial Tr. 2315:22-2317:1.

[120] Trial Tr. 2394-2423.

Lynch explained, did not function when it arrived, a not-uncommon occurrence in the industry. The so-called fatal bug was a problem in one small aspect of the software that only appeared in a narrow and infrequent application, but did not otherwise affect the RVS operation.[121] Lynch also explained that the "feasibility" problems raised in the letter referred to the messages displayed for the machine operator. Ford engineers felt that the actual text of the messages could be unclear to someone who did not have an engineering background.[122] Although plaintiffs demonstrated that the RVS was not technically perfect, the evidence presented at trial amply supports that the Philips RVS was "ready for patenting" within the meaning of section 102(b). *See STX, LLC v. Brine, Inc.*, 211 F.3d 588, 591 (Fed. Cir. 2000) ("fine tuning" and changes to the subjective qualities inherent in a product that improve its function cannot serve as an "escape hatch" to circumvent the on-sale bar).

Plaintiffs claim that the testimony Universal presented is insufficient as a matter of law to support the invalidity verdict because the witnesses were all interested.[123] Plaintiffs cite *Finnigan Corp. v. Internat'l Trade Comm'n*, 180 F.3d 1354, 1367 (Fed. Cir. 1999), in which the court stated that testimony concerning anticipating activities usually requires corroboration. In *Finnigan*, however, the sole basis to support the determination of a prior public use was the uncorroborated testimony of a single witness about his own work. *Id.* at

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[121] Trial Tr. 2421:10-2423:7

[122] Trial Tr. 2403: 4-22.

[123] Docket Entry No. 346, p.13.

1369-70; *compare Thomson S.A. v. Quixote Corp.*, 166 F.3d 1172 (Fed Cir. 1999), *cert. denied,* 527 U.S. 1036, 119 S.Ct. 2395, 144 L.Ed.2d 796 (anticipation finding supported by evidence from several sources including written documents). The "corroboration rule" applies to counterbalance the self-interest of a testifying inventor, but cross-examination and impeachment normally protect patentees from erroneous findings of invalidity. In addition to presenting the testimony of multiple witnesses who had worked on the Philips RVS at Philips and at Ford, Universal presented documentary evidence that corroborated the critical aspects of the factual testimony. Plaintiffs' objection is not the lack of any corroboration, but rather the sufficiency of the evidence and the jury's credibility determinations. At trial, plaintiffs cross-examined each witness as to his potential bias in the case. This court specifically instructed the jury to take into consideration the personal interest of the witnesses.[124]

Plaintiffs' final challenge is that the Philips RVS did not teach every element of the '943 Patent claims. Specifically, plaintiffs argue that there was insufficient evidence presented at trial to establish that the Philips RVS disclosed a "location indicator." A patent claim is invalid by anticipation if every limitation recited in the claim is disclosed or inherent in a single prior art source. "[T]he dispositive question regarding anticipation is whether one skilled in the art would reasonably understand or infer from the prior art reference's teaching that every claim [limitation] was disclosed in that single reference." *Dayco Prods., Inc. v.*

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[124] Docket Entry No. 311, p.4.

Total Containment, Inc., 329 F.3d 1358, 1368 (Fed. Cir. 2003) (internal quotation marks and alterations omitted); *see also Schumer v. Lab. Computer Sys., Inc.*, 308 F.3d 1304, 1315 (Fed. Cir. 2002) ("Typically, testimony concerning anticipation must be testimony from one skilled in the art and must identify each claim element, state the witnesses' interpretation of the claim element, and explain in detail how each claim element is disclosed in the prior art reference.").

Universal presented the testimony of Edison Hudson, an engineer in the automated assembly machine field. Hudson testified that from the standpoint of a person of ordinary skill in the automated assembly machine field, the Philips RVS taught every element of the claims of the '943 Patent. Hudson specifically identified the RVS's location indicator element by referencing both the RVS specifications and the operating manual. Hudson explained that the "xx" field displayed on the bar code terminal display in the Philips RVS operated as the location indicator.[125] The RVS operating manual instructs to "Read the Reel with the Barcode Reader[.] The Bar [C]ode Terminal will show you the location number of where this cassette is to placed."[126] Although, as plaintiffs point out, the RVS specification and operation manual did not label or specifically define the "xx" display as a "location indicator," the express language of the operating manual and Hudson's testimony provided a sufficient basis for the jury to conclude that the location indicator limitation was present

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[125] Trial Tr. 2895:22-2898:13.

[126] D. Ex. 40, p.2-41.

in the Philips RVS. *See Elan Pharms.*, 346 F.3d at 1054 ("The description in a [prior art] references does not have to be in the same words as the patent claim, but all requirements must be there, either stated or necessarily implied . . ."). This court concludes that the jury's finding of anticipation withstands plaintiffs' challenge.

The issue of claim 24 remains. The jury found that all the asserted claims except claim 24 (and claims 4 and 5) were anticipated by the Philips RVS. Universal challenges the jury's finding as to claim 24. The question is whether the "xx" field satisfies claim 24, which calls for the system of claim 13, "wherein the location indicator comprises an individual visual indicator corresponding to each location."[127] Rhyne testified at trial that "individual" means a separate indicator for each slot location.[128] Plaintiffs argue that the numeric display on a computer monitor does not satisfy the individual visual indicator limitation in claim 24. Universal responds that plaintiffs are arguing inconsistently: Rhyne argued that the CVS+ had a individual visual indicator but that the Philips RVS did not, even though both devices used a similar numeric display to indicate the proper slot location. Hudson testified that the "xx"display satisfied the location indicator element in claim 1 and claim 13 by displaying a slot number and similarly, that the same display satisfied claim 24 because it used an "individual and unique number" for each slot location.[129] Universal argues

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[127] '943 Patent, col. 20, ll. 29-31.

[128] Trial Tr. 3351:13-3353:14.

[129] Trial Tr. 2916:12-20.

that given plaintiffs' inconsistent argument and the evidence presented at trial, claim 24 is invalid as anticipated.

The plain language of claim 24 suggests separate location indicators for different slot locations. The specification supports this meaning. The specification contrasts a "simple configuration" with a "more useful" configuration for the location indicator. The "simple" location indicator points to the proper slot location for an identified component. The specification defines a "more useful" location indicator as a visual indication "at the site of the location."[130] This description supports Rhyne's testimony that the "individual" element in claim 24 refers to separate location indicators, as opposed to a single indicator. The RVS did not contain "individual" location indicators within the meaning of claim 24. This court concludes that the jury's verdict that the RVS did not anticipate claim 24 withstands Universal's challenge. Nevertheless, the jury found that claim 24 was anticipated by the Oki patent application, and the evidence supports this finding.

2. The Oki Patent Application and Claim 24

The Oki patent application was filed on June 25, 1991. The patent application is directed to automated assembly machines that build printed circuit boards.[131] This court ruled that the patent application was a printed publication under section 102(b).[132] In their

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[130] '943 Patent, col. 4, ll. 29-45.

[131] D. Ex. 419.

[132] Docket Entry No. 212.

motion for judgment as a matter of law on anticipation, plaintiffs argue that the Oki patent application does not disclose a "component identifier," a "location indicator," an "information processor," or "an error indicator."

The Oki patent application lists the following eight parts:

1. parts supply machine;
2. reel;
3. replacement instruction lamp;
4. data carrier;
5. work instruction computer;
6. reader writer;
7. progress control computer (control means); and
8. stick.

Hudson testified that the "reader/writer" disclosed the component identifier element; the "replacement instruction lamp" disclosed the location indicator and the error indicator elements; and that the "progress control computer" disclosed the information processor.[133] The description of a prior art reference need not use the same words as the patented claim. *Elan Pharms.*, 346 F.3d at 1054.

The primary difference between the device disclosed in the Oki patent application and the other prior art is the location indicator element. The Phillips RVS and the Fuji system

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[133] Trial Tr. 2950:1-2953:2.

described in the Mennitt article used a single structure – a computer monitor – and relied on a numeric representation of a specific slot location to guide the operator. In the Oki patent application, the device indicates the proper slot location by causing a light to blink next to that slot. The Oki patent application explains that the progress control computer causes the proper indication lamp to blink on and off. Plaintiffs claim that the Oki patent application did not teach a location indicator that is "controlled by an information processor." According to plaintiffs, the blinking lamps are not controlled by the progress control computer, but by the machine. The plain reading of the Oki application does not support plaintiffs' argument. The machine merely houses the lamps; their operation is controlled by the computer. As Universal points out, the Oki application states that "7 is the progress control computer, under which the aforementioned parts supply machine 1, the work instruction computer 5, and the reader/writer 6 are controlled."[134] As to claim 24, Hudson testified that the individual visual indicator limitation was "very clear" in the Oki patent application's description of the "replacement instruction lamps."[135] The evidence sufficiently supports the jury's finding that the Oki patent application teaches every element of claim 24.

Plaintiffs also argue that the Oki patent application is not enabling as a matter of law. Enablement requires that "the prior art reference must teach one of ordinary skill in the art to make or carry out the claimed invention without undue experimentation." *Minn. Mining,*

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[134] D. Ex. 419, U 32333.

[135] Trial Tr. 2959: 10-16.

303 F.3d at 1301. "The determination of what constitutes undue experimentation in a given case requires the application of a standard of reasonableness, having due regard for the nature of the invention and the state of the art." *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988). Plaintiffs point out that the Japanese patent system has no enablement requirement for laid-open applications and that the reference did not disclose flow charts to explain the software functionality. Hudson explained that the Oki reference was enabling and that making the machine would not require undue experimentation. According to Hudson, the level of understanding in the industry was high and no significant additional information was needed.[136] Hudson explained that every piece of hardware described in the Oki patent application had been in use for over ten years before the application date. To demonstrate that there was a high level of knowledge within the industry about reel verification systems, Universal also presented the testimony of William Wood, a former Ford employee who had developed two reel verification systems. Wood testified that he first developed a concept for a reel verification system in April 1990.[137] This court concludes that the evidence shows that the Oki patent application was enabling and sufficiently supports the jury's verdict.

C. The Remaining Motions for Judgment as a Matter of Law as to Invalidity

Universal filed a motion for judgment as a matter of law that all of the asserted claims were anticipated based on the public use of the Philips RVS in 1991 at a NEPCON trade

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[136] Trial Tr. 2965:11-2966:11.

[137] Trial Tr. 2787:2-23. Universal presented memos that Wood had written in 1990 describing the concept. D. Ex. 87.

show. After reviewing the evidence, this court finds the jury's verdict was supported by substantial evidence and denies the motion.[138] This court also denies plaintiffs' motion for judgment as a matter of law that no asserted claim was obvious.[139] Obviousness is ultimately a legal determination. This court concludes that the asserted claims of the '943 Patent were obvious. "[A] disclosure that anticipates under § 102 also renders the claim invalid under

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[138] Docket Entry No. 334. In February of 1991, Philips displayed and demonstrated its RVS product at a NEPCON trade show. Universal argued that the demonstration was an anticipating public use under section 102(b). In its response to Jury Question No. 4, the jury found that none of the asserted claims were anticipated based on the NEPCON demonstration. Universal has moved for judgment as a matter of law that the demonstration anticipated all of the claims. At trial, the parties focused on whether the RVS computer that was shipped to NEPCON performed the claimed functions of the '943 Patent. Haagh testified that he installed software that was intended to perform those functions. Trial Tr. 2158:20-2159:2; 2160:12-2161:24; 2162:9-2162:23. Plaintiffs point out that Haagh was not present at the NEPCON at trade show and that he did not have any documentary evidence to substantiate what version of the software was actually shipped. Trial Tr. 2167:17-18; 2190:22-2191:4. Universal concedes that the witnesses who were present at the NEPCON show could not remember the details of what they witnessed. Docket Entry No. 334, p.11. Universal failed to present clear and convincing evidence that the RVS displayed at NEPCON contained every claimed function of the '943 Patent.

[139] Docket Entry No. 341. The jury found that every claim was obvious except claims 4, 5, 17, and 18. Plaintiffs argue that it was legal error to instruct the jury to use the critical date in making their determination of obviousness. The jury was asked: "Do you find that Universal has proven by clear and convincing evidence – that is, that it is highly probable – that the following claims of the '943 patent are invalid as obvious in view of prior art and level of skill of persons in the automated assembly field before August 31, 1991." Plaintiffs argue that using the critical date rather than the earlier date of invention (in this case, no later than September 1989) is improper. Because the only prior art at issue was section 102(b) prior art, the critical date is appropriately used. *See In re Foster,* 343 F.2d 980, 988-90 (C.C.P.A. 1965), *cert. denied,* 383 U.S. 966, 86 S.Ct. 1270, 16 L.Ed.2d 307; *Netscape Communications Corp. v. Konrad,* 295 F.3d 1315, 1321 (Fed. Cir. 2002) ("Section 102(b) may bar patentability by anticipation if the device . . . includes every limitation of the later claimed invention, or by obviousness if the differences between the claimed invention and the device used would have been obvious to one of ordinary skill in the art."); *Baker Oil Tools, Inc. v. Geo Vann, Inc.*, 828 F.2d 1558, 1563 (Fed. Cir. 1987) ("If a device was in public use or on sale before the critical date, then that device becomes a reference under section 103 against the claimed invention.").

§ 103, for anticipation is the epitome of obviousness." *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir.1983).

This court concludes that Universal presented clear and convincing evidence that every asserted claim of the '943 Patent is invalid.

VI. Laches and Equitable Estoppel

Universal asserts that laches and equitable estoppel bar plaintiffs' recovery of damages for sales of the CVS+ and the PSV.[140] Plaintiffs respond that Universal is not entitled to the equitable relief it seeks because Universal misrepresented the functionality of the CVS+ in response to plaintiffs' 1995 letter asserting a belief that Universal infringed the '943 Patent.[141]

The '943 Patent issued on February 8, 1994. Universal began selling the CVS+ product in 1994. On March 27, 1995, plaintiffs notified Universal that they believed the CVS+ product infringed the '943 Patent. Universal responded to plaintiffs' notice with a letter written by Frank Wolffe, a lawyer specializing in patent law. The letter, dated June 1, 1995, denied plaintiffs' accusation of infringement:

> We have now completed the infringement phase of our investigation of the ['943 Patent], our conclusion being that the equipment manufactured and sold by Universal Instruments Corporation does not infringe upon the claims of your client's patent.

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[140] Docket Entry No. 322.

[141] Docket Entry No. 338; 360.

> From your client's application and claim, it is clear that the invention patented is directed to the combination of a component identifier and a location indicator, the latter being responsive to the component identifier. This concept is specifically incorporated in both generic claims 1 and 13.
>
> Universal's machine operating system on the other hand always provides location and component types to go therein and utilizes the indicia of component identity only to confirm that the proper component has been chosen for the previously identified location.
>
> I trust that this information regarding the operation of Universal's component verification system is sufficient for your [sic] to concur with our finding and in the absence of any response will consider this matter closed. Thank you very much for your patience and understanding with regard to the timeliness of our response.[142]

Plaintiffs did not respond to this letter. Universal now concedes that it was mistaken as to how the CVS+ functioned and in denying infringement. Universal discontinued the CVS+ in 1996 and began selling the PSV in 1997. Plaintiffs sued Motorola for infringement in 1999 in federal district court in the Western District of Texas. On February 10, 2000, the district court entered judgment in favor of Motorola, finding the '943 Patent invalid. In August 2001, plaintiffs entered into a settlement agreement with Motorola. Plaintiffs filed this suit in May 2002, asserting infringement by both the CVS+ and the PSV. Plaintiffs assert that they did not have actual knowledge of the PSV until 2002.

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[142] D. Ex. 5.

A. Laches

Laches is an equitable defense to a claim for patent infringement. 35 U.S.C. § 282. "Laches" is neglect or delay in bringing suit, which causes prejudice to the adverse party and operates as an equitable bar. *A.C. Auckerman, Co. v. R.L. Chaides Const. Co.*, 960 F.2d. 1020, 1032 (Fed. Cir. 1992). To invoke laches, a defendant must prove that (1) the plaintiff delayed filing suit for an unreasonable and inexcusable length of time from the time the plaintiff knew or reasonably should have known of its claim against the defendant, and (2) the delay operated to the prejudice or injury of the defendant. *Intertool, Ltd. v. Texar Corp.*, 369 F.3d 1289, 1297 (Fed. Cir. 2004). The period of delay is calculated from the time the patentee has actual or constructive knowledge of the defendant's potentially infringing activities. *Wanlass v. Gen. Electric Co.*, 148 F.3d 1334, 1337 (Fed. Cir. 1998). "The patentee who is negligently or willfully oblivious to sales, marketing, publication, public use, or other conspicuous activities of potential infringement cannot later claim his lack of knowledge as justification for escaping the application of laches." *Id.* at 1338-39. Constructive knowledge imposes a duty of reasonable diligence on the patentee. *See Advanced Cardiovascular Sys., Inc. v. Scimed Life Sys., Inc.*, 988 F.2d 1157, 1162 (Fed. Cir.1993) ("Absent actual knowledge, the facts must support a duty of inquiry."). The circumstances supporting a reasonable duty of inquiry include "pervasive, open, and notorious activities" by an accused infringer that a reasonable patentee would suspect were infringing. *Wanlass*, 148 F.3d. at 1338.

A delay of more than six years in filing suit is presumed to be unreasonable and inexcusable. *Leinoff v. Louis Milona & Sons*, 726 F.2d 734 (Fed. Cir. 1984). The presumption puts the burden of production on plaintiff to come forward with some explanation for the delay. A patentee may rebut the presumption by showing either that the patentee's delay was reasonable or the defendant suffered no prejudice, or both. The evidence must raise a genuine issue as to the reasonableness of the delay to overcome the presumption. *A.C. Aukerman Co.,* 960 F.2d at 1038. The defendant bears the burden of persuasion to prove laches at all times; that burden does not shift. "It must be emphasized that the establishment of the factors of undue delay and prejudice, whether by actual proof or by the presumption, does not *mandate* recognition of laches defense in every case. Laches remains an equitable judgment. . . ." *Id.* at 1036.

The presumption of laches arises with respect to the CVS+ product because plaintiffs knew of Universal's allegedly infringing use of the CVS+ in 1995, but did not file suit until May 2002. Plaintiffs argue that Universal's mistaken denial of infringement in its June 1, 1995 letter rebuts the presumption of undue delay. Universal claims that its denial should not bar the application of laches because Universal did not attempt to conceal the CVS+ from plaintiffs.

The fact that the CVS+ was "open and publicly available" does not negate the effect of Universal's response in the letter. A patentee's duty to inquire is subject to a standard of reasonableness. Plaintiffs met this obligation when they wrote to Universal and asserted

their belief that the CVS+ infringed the '943 Patent. In response, Universal specifically denied infringement, telling plaintiffs that the denial was based on an examination of how the CVS+ worked in comparison to the patented invention. In fact, Universal's infringement analysis was based on an erroneous understanding of how the CVS+ functioned. Plaintiffs were not required to disbelieve Universal's description of its own product. Within a year of sending the letter to plaintiffs denying infringement, Universal discontinued manufacture and sale of the CVS+. Under these circumstances, this court finds that plaintiffs fulfilled their duty of diligent duty inquiry and are not barred by laches as to the CVS+. *See Eastman Kodak Co. v. Goodyear Tire & Rubber Co.,* 114 F.3d 1547, 1559 (Fed. Cir. 1997) (accused infringer's activities are relevant to whether patentee exercised reasonable diligence including its denials of infringement); *Union Carbide Chems. & Plastics Tech. Corp. v. Shell Oil Co.,* 2004 WL 1305849 (D.Del.) ("It is contrary to principles of equity for [accused infringer] to affirmatively represent . . . that its activities were noninfringing and then permit it to subsequently assert laches as a defense when [the patentee], at least in part, relied on [the accused infringer's] representations.").

No presumption of laches attaches to the PSV. Universal began selling the PSV in February 1997. Plaintiffs did not have actual knowledge of the PSV, the successor to the CVS+, until they saw the system at a trade show in 2002.[143] Universal asserts that plaintiffs should have known about the PSV in 1997, when it was first introduced to the public.

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[143] Trial Tr. (Aguayo) 900:14-012:2.

Universal contends that plaintiffs have no legally cognizable excuse for waiting five years before filing suit alleging that the PSV infringed.

When an accused infringer relies on a patentee's constructive knowledge, the infringer must demonstrate a duty to inquire. *Wanlass*, 148 F.3d at 1338. The record reflects that the PSV was displayed and demonstrated in two major industry trade shows that occurred in 1998, 1999, 2000, 2001, and 2002. The exhibition booths were open to the public and Universal sales representatives were present to provide demonstrations of the PSV. The widespread marketing of infringing products may give rise to a duty to investigate and support a finding of constructive knowledge. In *Hall v. Aqua Queen Mfg., Inc.*, 93 F.3d 1548 (Fed. Cir.1996), the accused infringer had heavily advertised its allegedly infringing waterbed mattress in trade magazines and had displayed the product at numerous trade shows where the infringer actually met with the patentee. The patentee was the head of a trade organization and had knowledge of other potential infringements. *Id.* at 1552. The court concluded that it was appropriate to impute the patentee with constructive knowledge of the infringer's activities and held that laches precluded the recovery of damages. *Id.* at 1553. In the present case, the patented technology is not as easy to identify as the features of the water beds at issue in *Hall.*

According to Universal, the June 1, 1995 letter that misrepresented the CVS+'s functionality has no bearing on whether laches applies to plaintiffs' inaction with respect to the PSV because the PSV differed substantially from the CVS+. Universal's assertion does

not adequately take into account that Universal marketed the CVS+ and then the PSV as options for its GSM assembly machine. Universal discontinued the CVS+ before it began selling the PSV as an option for its GSM. Plaintiffs testified that almost every equipment supplier was offering some form of technology to verify the proper loading of assembly machines.[144] It was not unreasonable for plaintiffs to rely on Universal's denial that the CVS+ infringed in forgoing investigation into whether the PSV, which Universal identified as the successor to the CVS+, infringed. Plaintiffs testified that they went to trade shows and read trade magazines to monitor the automated assembly industry for potential infringers. Plaintiffs became aware of how the PSV operated in 2002, while attending such a trade show.

Universal argues that plaintiffs had a duty continually to monitor its activities, citing to *Wanlass,* 148 F.3d at 1338. In *Wanlass*, the patentee obtained a patent in 1977 and contacted General Electric Company about obtaining a license. The patent claimed "a single-phase run capacitor motor" to improve the efficiency of electric motors in certain products. GE acknowledged its reliance on the technology but responded that it did not consider it a new idea. The patentee then focused his attention on three-phase motors and attempted to negotiate a license with GE for this invention. In 1979, GE told the patentee that it was not interested in the three-phrase motor. The patentee sued GE for its use of single-phase motors in 1995, alleging that GE had begun infringing his patent in 1986. GE

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[144] Trial Tr. 898:1-5.

asserted laches, claiming that the patentee should have sued before 1989. Between 1977 and 1982, the patentee did some initial testing of GE's product for the use of single-phase motors, but did not find an infringing use. After the initial testing, the patentee did not test an accused product until 1992. The court agreed that the presumption of laches applied and found that the patentee should have known about the potential infringement at least six years before he filed suit. The court rejected the patentee's excuse that it would have been burdensome to test GE's products because only some uses of the patented technology infringed. The court responded that the patentee should have examined GE motors from time to time because GE used the patented technology in products that were inexpensive and easy to test for infringement. The court emphasized that the patentee's failure to investigate was egregious in light of his past dealings with GE, which gave him every reason to suspect infringement.

The facts of *Wanlass* are readily distinguishable from this case. It was not feasible for plaintiffs to purchase Universal's products. Plaintiffs testified that they did request product information from Universal's website, without success.[145] Universal's witnesses testified that it has a policy against sending product information to actual or potential competitors.[146] Plaintiffs attended trade shows, but did not visit every booth. Unlike the patentee in *Wanlass,* plaintiffs had no reason to suspect that Universal was using their

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[145] Trial Tr. 1245:24-1246:16.

[146] Trial Tr. 3295:24-3296:3.

patented technology so as to give rise to a duty continually to monitor Universal's products. In *Wanlass,* the accused infringer attacked the validity of the patent itself, while openly acknowledging its intent to rely on the technology. By contrast, Universal had explicitly disclaimed any reliance on or use of the technology described in the '943 Patent. This court concludes that laches does not apply to either the CVS+ or the PSV.

B. Equitable Estoppel

Equitable estoppel requires three elements: (1) the patentee, who usually must have knowledge of the true facts, communicated in a misleading way; (2) the accused infringer relies on that conduct; and (3) the accused infringer would suffer material prejudice if the patentee asserts a claim inconsistent with his earlier conduct. A party raising equitable estoppel as a defense must prove these elements by a preponderance of the evidence. *A.C. Aukerman Co,* 960 F.2d at 1041.

The first element of equitable estoppel requires statements or conducts by the patentee that communicate "something." In the patent context, the "something" is that the patentee will not disturb the accused infringer's current activities. *Id.* at 1042. The Federal Circuit has stated that to support a finding of equitable estoppel, a patentee's silence will not alone create estoppel unless there was a clear duty to speak or the patentee's silence is somehow misleading based on the parties' prior dealings. *Id.* at 1043-44.

Universal asserts that plaintiffs' silence in response to the June 1995 letter was misleading because that letter specifically stated: "in the absence of any response [Universal]

will consider this matter closed." In the letter, however, Universal provided an inaccurate description of the CVS+. The party to be estopped must have knowledge of true facts. *Id.* at 1041. Plaintiffs' silence was based on misinformation that Universal provided as to how the CVS+ functioned. Equitable estoppel does not apply to the CVS+.

As to the PSV, Universal also relies on the plaintiffs' failure to respond to the June 1, 1995 letter. Universal argues that it relied on the plaintiffs' silence after the June 1, 1995 letter in its development of the PSV product. According to Universal, it believed that plaintiffs agreed with its understanding the scope of the '943 Patent claims because plaintiffs never responded to its June 1, 1995 letter setting forth that understanding.[147] Before making and selling the PSV product, Universal obtained an opinion from counsel that the product would not infringe the claims of the '943 Patent. The noninfringement opinion of its counsel explained that Universal could be confident in its understanding of the scope of the '943 Patent claims in part because of plaintiffs' silence.

The legal advice Universal obtained does not estop plaintiffs. The parties had no course of dealing as to the PSV product; the June 1995 letter was limited to the CVS+. To show reliance, the infringer must have had communication with the plaintiff that lulls the infringer into a sense of security to proceed with its plans. *A.C. Aukerman Co.,* 960 F.2d at 1042-43. The record shows that Universal relied on its own efforts to design around the '943 Patent when it manufactured and sold the PSV, not on plaintiffs' lack of response to

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[147] Docket Entry No. 323, p. 3.

Universal's written – and incorrect – denial of infringement as to the CVS+. This court concludes that plaintiffs are not equitably estopped to assert infringement as to the PSV.

VII. The Issue of Royalties for CVS+ and PSV Units Sold to Motorola

Plaintiffs assert that they are entitled to recover royalties for units that Universal sold to Motorola. Plaintiffs sued Motorola, alleging that its reel verification system infringed the '943 Patent claims. After the court entered an invalidity judgment, plaintiffs and Motorola settled and entered into a license agreement. Motorola paid plaintiffs a lump sum in exchange for the worldwide, nonexclusive right for it and its third-party contractors to use "any apparatus" covered by the '943 Patent. It is undisputed that Motorola paid a license fee of $20,000 per unit. Universal sold Motorola 65 units subject to the license agreement.

In the present case, the jury assessed a reasonable royalty rate for individual units of both the CVS+ and the PSV, not a total royalty amount. The jury determined that $2,000 per unit was a reasonable royalty rate for both devices; neither party challenges this award. The issue is whether plaintiffs are entitled to this reasonable royalty rate for the 65 units Motorola purchased, which were subject to the license from plaintiffs.

A patentee is entitled to "damages adequate to compensate for the infringement but in no event less than a reasonable royalty for the use made of the invention by the infringer." 35 U.S.C. § 284. The focus is on the economic injury to the patentee. The appropriate measure of compensatory damages may be determined by one of three methods: (1) lost profits; (2) an established royalty; or (3) a reasonable royalty. A determination of lost profits

and an established royalty are methods of assessing the actual damages suffered by the patentee. *Trell v. Marlee Elec. Corp.*, 912 F.2d 1443, 1445 (Fed. Cir. 1990). If, as here, there is neither lost profit nor an established royalty, the fact finder may determine a "reasonable royalty" based on hypothetical negotiations between a willing licensor and licensee. *Wang Labs., Inc. v. Toshiba Corp.*, 993 F.2d 858, 870 (Fed. Cir. 1993) (citations omitted). A patentee's damages are determined without regard to the defendant's profits. The Federal Circuit has held that a patentee's damages are limited to full recovery for a particular unit even if there is a subsequent infringement by another with respect to the same unit. *Stickle v. Hueblein*, 716 F.2d 1550, 1562 (Fed. Cir. 1983). "[W]hen damages must be based on a reasonable royalty . . . *Aro II* instructs us that a reasonable royalty is not to be separately calculated against each successive infringer. Once full recovery is obtained from one infringer with respect to a particular infringing device, at most nominal additional damages may be awarded against another with respect to the same device." *Id.* (citing *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 84 S.Ct. 1526, 12 L.Ed.2d 457 (1964)); *see also General Motors Corp. v. Devex Corp.*, 461 U.S. 648, 103 S.Ct.2058, 76 L.Ed.2d. 211 (1983) (in awarding interest, the objective is to place the patent owner "in as good a position as he would have been in had the infringer entered into a reasonable royalty agreement").

Universal asserts that plaintiffs are not entitled to a royalty fee for the 65 units Motorola purchased because the license fee compensated plaintiffs for those units.[148] Universal asserts that even if Motorola did not pay a reasonable royalty, plaintiffs could not recover damages based on Motorola's purchase and use of the units because to do so would interfere with Motorola's license rights. *Jordan Spencer Jacobs v. Nintendo of America, Inc.*, 370 F.3d 1097, 1101 (Fed. Cir. 2004). Plaintiffs respond that the single recovery rule applies only to joint tortfeasors. Plaintiffs claim that Universal must pay for the 65 units because, as an upstream supplier, Universal infringed before and separately from any infringement by Motorola's downstream use of those units.

In the usual case, the manufacturer or upstream user has obtained a license to make and sell a patented product, and the license operates to protect downstream users who buy and use that product. In this case, the downstream user paid for a license to use the product, and the upstream manufacturer allegedly infringed by selling the product to that user. Plaintiffs acknowledge that they would be precluded from recovering against Universal if it was using Motorola's products, but assert that they are not precluded from recovering against Universal for Motorola's use of products purchased from Universal. Plaintiffs assert that the license did not grant Motorola the right to sell units and that obtaining damages against Universal is consistent with Motorola's license from plaintiffs. According to plaintiffs, there is no evidence that the plaintiffs or Motorola considered the CVS+ or PSV systems in

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[148] Docket Entry No. 325.

determining the amount of the prepaid license.

Plaintiffs note that Motorola and Universal produced two different infringing products. Plaintiffs sued Motorola for making and using its own verification system that allegedly infringed the '943 Patent. Plaintiffs claim that the license did not contemplate or cover infringing devices made and sold by other manufacturers, such as Universal, even if the sales were to Motorola. Plaintiffs currently point out that their license agreement with Motorola does not mention the CVS+ or PSV and argue that Universal has failed to present any evidence that the license agreement fully compensated them for sales of such devices.

The threshold issue is whether the plaintiffs' license to Motorola covers the units Universal sold to Motorola. Plaintiffs' argument – that its license to Motorola was limited to Motorola's use of units that it manufactured – is not supported by the plain language of the license. The license grants Motorola, its affiliates, and its third-party contractors "a fully paid, nonexclusive, irrevocable worldwide license to use, repair, or reconstruct any Apparatus (whether manufactured by Motorola or acquired by Motorola from a third party . . .) claimed or covered in the ['943 Patent]." The license explicitly refers to units Motorola manufactured and used *and* to units that Motorola did not manufacture but acquired from third-parties. Motorolla did not manufacture the CVS+ or PSV, but acquired them from Universal. The license, by its terms, covers these units. The reference to "any" apparatus manufactured and sold to Motorola by third parties undermines plaintiffs' argument that the license agreement's failure to mention the CVS+ or the PSV shows that the license did not

cover Motorola's purchase and use of these units. The license covers Motorola's use of allegedly infringing devices, including devices obtained from third-party manufacturers. The license, by its terms, covers Motorola's acquisition and use of the 65 units at issue.

"Once full recovery is obtained from one infringer with respect to a particular infringing device, at most nominal additional damages may be awarded against another with respect to the same device." *H. M. Stickle,* 716 F.2d. at 1562. The license does not release Universal from liability or from injunctive relief, but precludes plaintiffs from collecting damages for the units covered by the license agreement.

Plaintiffs imply that the fee paid by Motorola did not compensate them because the license only granted Motorola the right to use, as opposed to the more valuable right exercised by Universal – the right to make and sell infringing units.[143] In this case, the hypothetical negotiations were based on the right to make and sell. The jury was instructed to determine a reasonable royalty rate "for the use Universal made of the invention."[144] Plaintiffs presented evidence as to how much Universal should have paid per unit. Plaintiffs' damages expert calculated a per unit reasonable royalty as ranging from $15,000 to $20,000.[145] The expert explained that the reasonableness of such rates was supported by the

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[143] The license agreement did grant Motorola the right to make the invention as long as it was for its own use. Docket Entry No. 190, Ex. C.

[144] Docket Entry No. 311, p. 27.

[145] Trial Tr. (James Nawrocki, expert damages witness for plaintiffs) 2567:15-20.

license agreement that set a $20,000 fee per unit.[146] The jury knew that Universal had sold the units for a profit and determined that $2,000 was a reasonable royalty per unit. Even if plaintiffs had shown infringement and Universal had not shown invalidity, plaintiffs could not recover damages for the units sold to Motorola.

XIII. Conclusion

This court enters judgment as a matter of law that the PSV does not infringe the '943 Patent and that all the asserted claims of the '943 Patent are invalid. Universal is instructed to submit a proposed form of final judgment no later than **February 25, 2005**.

SIGNED on February 10, 2005.

Lee H. Rosenthal
United States District Judge

[146] Universal's witness testified that Universal would not have been willing to pay that much for a license because the amount was more than the selling price of the CVS+ or the PSV. Trial Tr. (Evans) 3066: 14-3067:7.