

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

CARDSOFT, INC., ET AL.

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vs.

CASE NO. 2:08-CV-98-CE

VERIFONE HOLDINGS, INC., ET AL.

MEMORANDUM OPINION AND ORDER

I. INTRODUCTION

Plaintiffs CardSoft (Assignment for the Benefit of Creditors) LLC and CardSoft, Inc. (collectively “CardSoft” or “Plaintiffs”) brought this action against Verifone Holdings, Inc., Verifone Inc., Hypercom Corporation, Ingenico S.A., Ingenico Corp., Ingenico Inc., Way Systems, Inc., Shera International Ltd. and Blue Bamboo (USA), Inc.¹ (collectively “Defendants”), alleging infringement of CardSoft’s U.S. Patent Nos. 6,934,945 (“the ’945 Patent”) and 7,302,683 (“the ’683 Patent”).² The court held a *Markman* hearing on July 29, 2011. After considering the submissions and the arguments of counsel, the court issues the following order concerning the parties’ claim construction disputes.

II. THE PATENT-IN-SUIT

The patents-in-suit are entitled “Method and Apparatus for Controlling Communications” and are directed “to preparing and processing information to be communicated via a network or to or from other data carriers.” ’945 Patent at Abstract. The Abstract of the invention explains that:

¹ Defendants Shera International Ltd. and Blue Bamboo (USA), Inc. have been dismissed from this case. *See* Dkt. No. 226.

² The ’945 and ’683 Patent share a common specification, and therefore, for convenience purposes, all future citations will be to the specification of the ’945 Patent.

For implementation of a novel “virtual machine” of the present invention, a minimal amount of hardware is required. Prior art virtual machines tend to slow down operation of the device as they interface between an application program and device drivers. The novel virtual machine incorporates a virtual message processing means that is arranged to construct, deconstruct and compare messages and applied in the native code of the processor. The message instruction means directs and controls the message processor. Similarly, a protocol processor means governs and organs [sic] communications, under the direction of a protocol instruction means in the application. These elements of the novel virtual machine increase the speed and efficiency and allow implementation of a practical device for use in communications, able to be implemented on different hardware having different BIOS/OS.

Id. Claim 1 of the '945 Patent, which is representative of the claims of the patents-in-suit, recites:

1. A communication device which is arranged to process messages for communications, comprising a virtual machine means which includes

a virtual function processor and function processor instructions for controlling operation of the device, and

message induction [sic] means including a set of descriptions of message data;

a virtual message processor, which is arranged to be called by the function processor and which is arranged to carry out the message handling tasks of assembling the messages, disassembling messages and comparing the messages under the direction of the message instruction means that is arranged to provide directions for operation of the virtual message processor, whereby when a message is required to be handled by the communications device the message processor is called to carry out the message handling task,

wherein the virtual machine means is emulatable in different computers having incompatible hardwares or operating systems.

Id. at 50:49-67.

III. GENERAL PRINCIPLES GOVERNING CLAIM CONSTRUCTION

“A claim in a patent provides the metes and bounds of the right which the patent confers on the patentee to exclude others from making, using or selling the protected invention.” *Burke, Inc. v. Bruno Indep. Living Aids, Inc.*, 183 F.3d 1334, 1340 (Fed. Cir. 1999). Claim construction

is an issue of law for the court to decide. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970-71 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996).

To ascertain the meaning of claims, the court looks to three primary sources: the claims, the specification, and the prosecution history. *Markman*, 52 F.3d at 979. The specification must contain a written description of the invention that enables one of ordinary skill in the art to make and use the invention. *Id.* A patent's claims must be read in view of the specification, of which they are a part. *Id.* For claim construction purposes, the description may act as a sort of dictionary, which explains the invention and may define terms used in the claims. *Id.* "One purpose for examining the specification is to determine if the patentee has limited the scope of the claims." *Watts v. XL Sys., Inc.*, 232 F.3d 877, 882 (Fed. Cir. 2000).

Nonetheless, it is the function of the claims, not the specification, to set forth the limits of the patentee's invention. Otherwise, there would be no need for claims. *SRI Int'l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc). The patentee is free to be his own lexicographer, but any special definition given to a word must be clearly set forth in the specification. *Intellicall, Inc. v. Phonometrics, Inc.*, 952 F.2d 1384, 1388 (Fed. Cir. 1992). Although the specification may indicate that certain embodiments are preferred, particular embodiments appearing in the specification will not be read into the claims when the claim language is broader than the embodiments. *Electro Med. Sys., S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 1054 (Fed. Cir. 1994).

This court's claim construction decision must be informed by the Federal Circuit's decision in *Phillips v. AWH Corporation*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). In *Phillips*, the court set forth several guideposts that courts should follow when construing claims. In particular, the court reiterated that "the *claims* of a patent define the invention to which the

patentee is entitled the right to exclude.” 415 F.3d at 1312 (emphasis added) (*quoting Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). To that end, the words used in a claim are generally given their ordinary and customary meaning. *Id.* The ordinary and customary meaning of a claim term “is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Id.* at 1313. This principle of patent law flows naturally from the recognition that inventors are usually persons who are skilled in the field of the invention and that patents are addressed to and intended to be read by others skilled in the particular art. *Id.*

The primacy of claim terms notwithstanding, *Phillips* made clear that “the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.* Although the claims themselves may provide guidance as to the meaning of particular terms, those terms are part of “a fully integrated written instrument.” *Id.* at 1315 (*quoting Markman*, 52 F.3d at 978). Thus, the *Phillips* court emphasized the specification as being the primary basis for construing the claims. *Id.* at 1314-17. As the Supreme Court stated long ago, “in case of doubt or ambiguity it is proper in all cases to refer back to the descriptive portions of the specification to aid in solving the doubt or in ascertaining the true intent and meaning of the language employed in the claims.” *Bates v. Coe*, 98 U.S. 31, 38 (1878). In addressing the role of the specification, the *Phillips* court quoted with approval its earlier observations from *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998):

Ultimately, the interpretation to be given a term can only be determined and

confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.

Phillips, 415 F.3d at 1316. Consequently, *Phillips* emphasized the important role the specification plays in the claim construction process.

The prosecution history also continues to play an important role in claim interpretation. Like the specification, the prosecution history helps to demonstrate how the inventor and the PTO understood the patent. *Id.* at 1317. Because the file history, however, “represents an ongoing negotiation between the PTO and the applicant,” it may lack the clarity of the specification and thus be less useful in claim construction proceedings. *Id.* Nevertheless, the prosecution history is intrinsic evidence that is relevant to the determination of how the inventor understood the invention and whether the inventor limited the invention during prosecution by narrowing the scope of the claims. *Id.*

Phillips rejected any claim construction approach that sacrificed the intrinsic record in favor of extrinsic evidence, such as dictionary definitions or expert testimony. The *en banc* court condemned the suggestion made by *Texas Digital Systems, Inc. v. Telegenix, Inc.*, 308 F.3d 1193 (Fed. Cir. 2002), that a court should discern the ordinary meaning of the claim terms (through dictionaries or otherwise) before resorting to the specification for certain limited purposes. *Phillips*, 415 F.3d at 1319-24. The approach suggested by *Texas Digital*—the assignment of a limited role to the specification—was rejected as inconsistent with decisions holding the specification to be the best guide to the meaning of a disputed term. *Id.* at 1320-21. According to *Phillips*, reliance on dictionary definitions at the expense of the specification had the effect of “focus[ing] the inquiry on the abstract meaning of words rather than on the meaning of claim

terms within the context of the patent.” *Id.* at 1321. *Phillips* emphasized that the patent system is based on the proposition that the claims cover only the invented subject matter. *Id.* What is described in the claims flows from the statutory requirement imposed on the patentee to describe and particularly claim what he or she has invented. *Id.* The definitions found in dictionaries, however, often flow from the editors’ objective of assembling all of the possible definitions for a word. *Id.* at 1321-22.

Phillips does not preclude all uses of dictionaries in claim construction proceedings. Instead, the court assigned dictionaries a role subordinate to the intrinsic record. In doing so, the court emphasized that claim construction issues are not resolved by any magic formula. The court did not impose any particular sequence of steps for a court to follow when it considers disputed claim language. *Id.* at 1323-25. Rather, *Phillips* held that a court must attach the appropriate weight to the intrinsic sources offered in support of a proposed claim construction, bearing in mind the general rule that the claims measure the scope of the patent grant.

The patents-in-suit include claim limitations that are alleged to fall within the scope of 35 U.S.C. § 112, ¶ 6. “An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure. . . in support thereof, and such claim shall be construed to cover the corresponding structure . . . described in the specification and equivalents thereof.” 35 U.S.C. § 112, ¶ 6. The first step in construing a means-plus-function limitation is to identify the recited function. *See Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999). The second step in the analysis is to identify in the specification the structure corresponding to the recited function. *Id.* The “structure disclosed in the specification is ‘corresponding’ structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.”

Medical Instrumentation and Diagnostics Corp. v. Elekta AB, 344 F.3d 1205, 1210 (Fed. Cir. 2003) (citing *B. Braun v. Abbott Labs*, 124 F.3d 1419, 1424 (Fed. Cir. 1997)). The patentee must clearly link or associate structure with the claimed function as part of the quid pro quo for allowing the patentee to express the claim in terms of function pursuant to § 112, ¶ 6. *See id.* at 1211; *see also Budde v. Harley-Davidson, Inc.*, 250 F.3d 1369, 1377 (Fed. Cir. 2001). The “price that must be paid” for use of means-plus-function claim language is the limitation of the claim to the means specified in the written description and equivalents thereof. *See O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1583 (Fed. Cir. 1997). “If the specification does not contain an adequate disclosure of the structure that corresponds to the claimed function, the patentee will have ‘failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112,’ which renders the claim invalid for indefiniteness.” *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1382 (Fed. Cir. 2009) (quoting *In re Donaldson Co.*, 16 F.3d 1189, 1195 (Fed. Cir. 1994) (en banc)). It is important to determine whether one of skill in the art would understand the specification itself to disclose the structure, not simply whether that person would be capable of implementing the structure. *See Atmel Corp. v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1382 (Fed. Cir. 1999); *Biomedino*, 490 F.3d at 953. Fundamentally, it is improper to look to the knowledge of one skilled in the art separate and apart from the disclosure of the patent. *See Medical Instrumentation*, 344 F.3d at 1211-12. “[A] challenge to a claim containing a means-plus-function limitation as lacking structural support requires a finding, by clear and convincing evidence, that the specification lacks disclosure of structure sufficient to be understood by one skilled in the art as being adequate to perform the recited function.” *Budde*, 250 F.3d at 1376-77

IV. CLAIM TERMS IN DISPUTE

a. “virtual machine means”

| Plaintiffs’ Proposed Construction | Defendants’ Proposed Construction |
|---|--|
| A computer programmed to emulate a hypothetical computer for applications relating to transport of data, including payment terminal devices in which message processing and communication comprise a significant proportion of the operation of the device. | A computer programmed to emulate a hypothetical computer, which hypothetical computer processes instructions expressed in a hardware/operating system-independent language on the communications device, including function processor instructions and message instructions. |

Claim 1 of the ’945 Patent, which is representative of the use of the term “virtual machine means” in the patents-in-suit, recites as follows:

1. A communication device which is arranged to process messages for communications, comprising a *virtual machine means* which includes

a virtual function processor and function processor instructions for controlling operation of the device....

’945 Patent at 50:49-67 (emphasis added). CardSoft argues that the claimed “virtual machine means” should be construed to mean “a computer programmed to emulate a hypothetical computer for applications relating to transport of data, including payment terminal devices in which message processing and communication comprise a significant proportion of the operation of the device.” Defendants, on the other hand, argue that the term should be construed to mean “a computer programmed to emulate a hypothetical computer, which hypothetical computer processes instructions expressed in a hardware/operating system-independent language on the communications device, including function processor instructions and message instructions.” The parties’ only dispute concerning the term is whether the claimed virtual machine must “process instructions expressed in a hardware/operating system-independent language.”

In a theme that recurs throughout all of their proposed constructions, Defendants seek to limit the claimed virtual machine to a hypothetical computer that “processes instructions expressed in a hardware/operating system-independent language on the communications device....” Defendants argue that this proposed limitation is required by the language of the claims, the common specification’s description of the “virtual machine,” and the prosecution history of the patents-in-suit. Defendants note that all of the independent claims of the patents-in-suit require that the “virtual machine means” be “emulatable in different computers having incompatible hardwares or operating systems.” *Id.* at 50:65-67; 52:13-15; 52:34-36; ’683 Patent at 58:8-10. Thus, Defendants argue that the virtual machine’s emulation of the hypothetical computer must somehow overcome incompatibility between both different operating systems and different hardware (processors) that can only understand and process its own specific native code. Defendants contend that the only way that the claimed “virtual machine means” can overcome these incompatibilities is if the virtual machine is programmed and receives instructions in a language that is independent of both the hardware processor and the operating system. Furthermore, Defendants argue that this conclusion is supported by the common specification, which consistently emphasizes the importance of the virtual machine and its components being independent of the specific hardware processor. *See, e.g., id.* at 2:3-3:8, 3:40-45, 5:4-8, 9:37-45, at 9:66-10:21, 17:24-47. For example, the common specification explains that:

In conventional devices, each time a message is constructed or deconstructed, the operation of the machine will be handled by the application program. To change operation of the machine, the application must be changed. This is laborious, and gives rise to problems, as discussed above.

The technique of creating a virtual processor (or in this case microprocessor) is well known and referred to as an interpreter. This allows programs to operate

independent of [sic] processor. With the newer technique of also creating virtual peripherals then the whole is referred to as a “virtual machine”.

A virtual machine is computer programmed to emulate a hypothetical computer. Different incompatible computers may be programmed to emulate the same hypothetical computer. Any computer programmed to emulate the hypothetical computer will thus be capable of executing programs for the virtual computer. This creates a complete portable environment for program operations.

A problem with virtual machines is emulation is slower than normal program execution. For some applications this performance penalty is a significant problem.

The above problems and disadvantages which have been discussed specifically in relation to devices configured to process payment transactions also would apply to devices configured to prepare and process any information to be sent or received via a network, not restricted to payment transaction information.

A virtual machine is computer programmed to emulate a hypothetical computer. Different incompatible computers may be programmed to emulate the same hypothetical computer. *Any computer programmed to emulate the hypothetical computer will thus be capable of executing programs for the virtual computer. This creates a complete portable environment for program operations.*

Id. at 3:40-46.

Defendants also contend that the during prosecution of the patents-in-suit, CardSoft made several clear disclaimers of claim scope by repeatedly stressing the importance of the virtual machine’s compatibility and portability. First, Defendants argue that, in making the following statements, the applicant was explaining that the virtual machine of the patents-in-suit is coded using a language independent of both the hardware processor and the operating system of the device:

As discussed in the Specification page 6, lines 2-3 of the present application, a virtual machine is a computer, which is programmed to emulate a hypothetical computer. *This means that different incompatible computers (incompatible hardware and operating systems) may be programmed to emulate the same hypothetical computer. Applications may then be written for the hypothetical computer, which are therefore portable to the previously incompatible computers....*

The present invention ... does not describe a conventional virtual machine, but an addition to a conventional virtual machine.... There is a conventional virtual machine processor, being the “function processor”, which together with the HAL and the instructions to operate it (“primitives”), controls the overall operation of the communications device. In addition, however, a separate virtual processor, the virtual message processor, is provided, the specific function of which is to disassemble, assemble, and compare messages.

The virtual machine architecture of the present invention, therefore, is not conventional. It includes two virtual processors (and three in the preferred embodiment where a protocol processor is also provided).

Ex. C at 3-4, attached to Defendants’ Responsive Claim Construction Brief, Dkt. No. 210 (original emphasis omitted, emphasis added); *see also* Ex. D at 2-4 (applicant explaining that the prior art does not teach the claimed virtual machine that is portable and not dependent on particular hardware). Defendants also argue that the following prosecution history statements operate as a clear disclaimer of claim scope:

Applicant respectfully points out that Stern fails to teach the claimed “virtual machine means” that is emulatable in different computers having incompatible hardware or operating systems.” The cited Stern col 6, lines 18-23, describes merely JavaOS being operable on different processors supporting the Java Virtual Machine.

The presently claimed virtual machine means *is not just a JavaOS or a Java Virtual Machine*. As recited in Claim 1 (now further amended), the claimed Virtual Machine Means comprises, inter alia, (1) the virtual function processor, (2) the message instruction means, and (3) the virtual message processor that performs several tasks, one of which being “comparing [of] the messages under the direction of the message instruction means that is arranged to provide directions for operation of the virtual message processor.”

Ex G at 8-9, attached to Defendants’ Responsive Claim Construction Brief, Dkt. No. 210 (emphasis added). Defendants contend that, since the applicant repeatedly argued that the virtual machine of the patents-in-suit eliminate dependence on the hardware of the device, the applicant clearly disavowed any claim scope where the virtual machine is dependent on the hardware.

Having carefully reviewed Defendants’ arguments, the court is not convinced that the patentee clearly limited the scope of his invention to “virtual machines” that “process[]

instructions expressed in a hardware/operating system-independent language on the communications device, including function processor instructions and message instructions.” First, Defendants’ proposed limitation runs contrary to the language of the claims. For example, Claim 5 of the ’945 Patent recites that the message processor is implemented in the native software code of the microprocessor in the device. *See* ’945 Patent at 51:18-22. Furthermore, Claim 6 recites the same for the function processor. *See id.* at 51:23-25. If both the message processor and the function processor, which are part of the virtual machine, can be implemented in the native software code of the microprocessor, then they do not have to be expressed in “a hardware/operating system-independent language” as Defendants’ proposed construction would require.

Second, the specification sections on which Defendants rely do not compel Defendants’ proposed limitation. For example, column 3, lines 29-55 of the specification, which is quoted above, criticizes prior art virtual machines for requiring applications written in hardware-specific code since such applications would not be portable to different devices. ’945 Patent at 3:37-54. It does not, however, discuss whether the virtual machine itself can be written in hardware-specific code – indeed, the cited portion is silent on the topic of the code used to implement the claimed virtual machine. Likewise, none of the other specification language to which Defendants cite states that the virtual machine, or any part thereof, must necessarily be written in a hardware/operating system independent language in order to be emulatable in different computers.

Finally, Defendants’ contention that the doctrine of prosecution disclaimer supports their proposed limitation is rejected. For prosecution disclaimer to apply, there must be a clear and unequivocal disavowal of a particular construction or scope of a claim term. *See, e.g.,*

Honeywell Int'l, Inc. v. Universal Avionics Sys., 493 F.3d 1358 (Fed. Cir. 2007). The portions of the prosecution history cited and relied upon by Defendants, however, do not make any such clear disclaimer of virtual machines written in hardware-specific code. For example, Defendants allege that the applicant argued to the PTO that the claimed virtual machine was not conventional because it was coded using language independent of hardware. To the contrary, the passages on which Defendants rely demonstrates that the applicant argued that the claimed virtual machine was not conventional because “[i]t includes two virtual processors [the virtual message processor and the virtual function processor]... .” Ex. C at 3-4, attached to Defendants’ Responsive Claim Construction Brief, Dkt. No. 210; *see also* Ex G at 8-9, attached to Defendants’ Responsive Claim Construction Brief, Dkt. No. 210 (explaining that the “claimed virtual machine means is not just a JavaOS or a Java Virtual Machine” because it is comprised of the virtual function processor, the message instruction means, and the virtual message processor). Accordingly, the court rejects Defendants’ argument that the “virtual machine means” must “process[] instructions in a hardware/operating system-independent language on the communication device.”

In contrast to Defendants’ proposed construction, the court finds that CardSoft’s proposed construction of “virtual machine means” – i.e., “a computer programmed to emulate a hypothetical computer for applications relating to transport of data, including payment terminal devices in which message processing and communication comprise a significant proportion of the operation of the device” – is supported by the common specification of the patents-in-suit. For example, the specification states that “[a] virtual machine is [a] computer programmed to emulate a hypothetical computer.” *See, e.g.*, ’945 Patent at 3:40-41. However, although the specification states that “[t]he virtual machine therefore lends itself particularly to applications