United States District Court,
W.D. Washington.

KONINKLIJKE PHILIPS ELECTRONICS NV, et al,
Plaintiffs.
v.
DEFIBTECH LLC, et al,
Defendants.

No. C03-1322JLR

Dec. 21, 2005.

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Alexas D. Skucas, Khue Van Hoang, Steven Todd Snyder, King & Spalding, New York, NY, J. Thomas Richardson, Cairncross & Hempelmann, Seattle, WA, Melinda M. Riddle, Stephen P. Vanderhoef, Cairncross & Hempelmann, Seattle, WA, for Defendants.

ORDER

ROBART**, J.**

I. INTRODUCTION

This matter comes before the court on the parties' request for construction of disputed claim terms. At the court's direction, the parties selected ten claim terms for a "first round" of claim construction. After an October 11, 2005 *Markman* hearing, the court construed the first round of terms in an October 25 order (Dkt.# 119). The court directed the parties to narrow their disputes in light of the October 25 order, but they were largely unable to do so. The court held a second *Markman* hearing on all remaining terms on December 8, 2005, and now construes those terms.

II. BACKGROUND & ANALYSIS

This order should be read in conjunction with the court's October 25 order. That order contained an introduction to the technology and patents at issue as well as an overview of the law of claim construction. The court will not repeat that discussion here.

The remaining terms raise only one legal issue that did not arise in the October 25 order: the construction of means-plus-function claims. Section 112 of the Patent Act permits an inventor to draft claims in means-plus-function format. 35 U.S.C. s. 112; Micro Chem., Inc. v. Great Plains Chem. Co., 194 F.3d 1250, 1257-58 (Fed.Cir.1999). Once a court has identified a means-plus-function claim, it must clarify what the recited function is, and then must hunt in the specification for "structure" that fulfills the stated function. Id. at 1258. A court must interpret a means-plus-function claim to encompass "all structure in the specification corresponding to that element and equivalent structures." *Id*.

For each of the asserted means-plus-function terms in this action, the parties have agreed that the terms are in means-plus-function format, and have agreed on the recited function. The court's task in construing the terms is therefore limited to identifying corresponding structure in the specification. The court will address more particularized legal issues regarding the interpretation of means-plus-function claims as they arise.

The court now turns to the construction of the remaining terms. As in the October 25 order, it will begin with terms from the shock delivery patents and conclude with terms from the self-test patents.

A. Construing Terms in the Shock Delivery Patents

1. Terms appearing solely in the '212 Patent

a. "Timer" and "timing signal corresponding to the application of electrical energy"

At oral argument, the court proposed definitions for "timer," which appears in Claims 1 and 9, and "timing signal," which appears only in Claim 1. The court proposed that a "timer" is a "device or component capable of measuring time and capable of producing output corresponding to its time measurements," and that a "timing signal corresponding to the application of electrical energy" is a "signal that the timer produces corresponding to the elapsed time of a defibrillator shock pulse or phase of a pulse." These definitions are derived from the three paragraphs in the specification that discuss the timer. '212 Patent at 7:3-31. The parties seemed to accept these definitions when the court proposed them. In any event, they offer no compelling evidence in support of different definitions.

The court notes that the specification describes the timer as capable of cutting off a defibrillator pulse when it receives information from another device indicating that the pulse voltage or current has dropped below a threshold value. '212 Patent at 7:12-15, 7:29-31. Defibtech suggested at oral argument that the "timer" of Claims 1 and 9 requires such a capability, but the court finds no indication that the inventors intended such a limitation on the claimed timer.

b. "Plurality of electronic switches" and "means for selectively connecting the energy source to the electrodes in a first polarity and a second polarity"

The "plurality of electronic switches" of Claim 8 and the "means for selectively connecting the energy source to the electrodes in a first polarity and a second polarity" of Claim 1 refer to the same element of the defibrillator. This element is generally described as a "connecting mechanism" or "connector" that connects the defibrillator's energy source to the electrodes for shock delivery. '212 Patent at 6:44-50 & Fig. 10, element no. 34. Subsequently, the patent describes the connector in substantially greater detail as a specific five-switch configuration. '212 Patent at 6:61-7:52 & Fig. 11. The dispute over these terms is whether, as Defibtech contends, Claims 1 and 8 require this five-switch configuration. Philips contends that any of numerous configurations of two or more switches known to persons of skill in the art would satisfy Claims 1 and 8.

The means-plus-function term in Claim 1 presents the easier interpretation issue. Philips points to the general disclosure of a "connecting mechanism" as sufficient disclosure of the structure corresponding to the claimed function. The court disagrees. The patent's discussion of a "connecting mechanism" discloses no structure at all. As Defibtech noted in oral argument, the "connecting mechanism" corresponds to no more than a two-dimensional box in Figure 10 of the '212 Patent. This is insufficient, as a matter of law, to fulfill the inventors' duty to pinpoint a structure that corresponds to the function cited in a means-plus-function term. *See* Med. Instrumentation & Diagnostics Corp. v. Elekta AB, 344 F.3d 1205, 1211 (Fed.Cir.2003). FN1 The court cannot designate the "connector" in Figure 10 and the written description of a "connecting mechanism" as corresponding structure, because they serve merely as an introduction to the five-switch

configuration in Figure 11 and the accompanying disclosure of actual structure. *See* Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1212 (Fed.Cir.2002). Moreover, Philips cannot cure the lack of structure other than the five-switch configuration by noting that "[o]ther switches and switch configurations may be used, of course, without departing from the scope of the invention." '212 Patent at 7:48-49. An inventor cannot meet his obligation to disclose structure corresponding to a means-plus-function term merely by stating that the structure will be obvious to those of skill in the art. Med. Instrumentation, 344 F.3d at 1212 ("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 that structure."). Claim 1 sends the public on a search for structure corresponding to a "means for selectively connecting." It would be incongruous to conclude that the inventors satisfied their obligation to reward that search by disclosing nothing more than a "connecting mechanism." The only disclosure of structure corresponding to the "means for selectively connecting ..." is the five-switch configuration noted above, and the court interprets the means-plus-function claim accordingly. FN2

FN1. *Med. Instrumentation* and other Federal Circuit precedent focus on an inventor's duty to "clearly link[ ]" structure in the specification to a means-plus-function term. 344 F.3d at 1211. Philips did not fail to "clearly link" the "connecting mechanism" to its means-plus-function term; it failed instead to pinpoint any structure for the connecting mechanism other than the five-switch configuration.

FN2. The court notes that Claim 7, which depends from Claim 1, discloses the five-switch configuration. Claim differentiation compels the presumption that the terms have different scope. In this case, however, because the "means for selectively connecting" has no corresponding structure other than the five-switch configuration, Defibtech has overcome the presumption. Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538 (Fed.Cir.1991) ("A means-plus-function limitation is not made open-ended by the presence of another claim specifically claiming the disclosed structure which underlies the means clause or an equivalent of that structure.").

The "plurality of electronic switches" in Claim 8 presents a closer question. Freed from the strictures of means-plus-function format, the inventors arguably signaled their intent to permit other switch configurations by noting that such configurations would be apparent to those of skill in the art. '212 Patent at 7:48-49. In addition, because Claim 11 depends from Claim 8 and discloses the five-switch configuration explicitly, claim differentiation requires the court to presume that Claim 8 encompasses other configurations.

Defibtech insists that Philips disavowed all but the five-switch configuration as a "plurality of switches" in the prosecution of the patent. Defibtech points to an office action in which the examiner rejected Claims 1 and 8 as obvious in light of the Swanson Patent, which also disclosed a five-switch configuration in an internal defibrillator, although not the same configuration as in the '212 Patent. J.A. 02692. Defibtech correctly notes that the inventors disavowed Swanson's five-switch configuration. J.A. 02692, 02697. The inventors did not, however, expressly limit the invention to the five-switch configuration that they disclosed in their patent application. The inventors explained that it would take undue experimentation to implement Swanson's five-switch configuration in an external defibrillator because the configuration would not work with high voltage. J.A. 02692. In an affidavit accompanying the response to the office action, inventor Daniel Powers stated that Swanson's five-switch configuration would not work in an external defibrillator, and that "[d]eveloping a circuit design that protects the [external defibrillator] circuit from load faults is a major design challenge." J.A. 02701.

The interpretation of the "plurality of switches" term, for which the intrinsic evidence does not provide an unambiguous definition, requires the court to consider extrinsic evidence for the first time. FN3 In a rebuttal report, Philips expert Dr. Leslie Geddes reviewed a different prior art reference and noted that it did not disclose "what types of switches" should be used, and that one skilled in the art would have "extensive

difficulty" designing an external defibrillator switching circuit based on that reference. Snyder Decl. Ex. 12 (Geddes Rebuttal Report at 23). Unlike Dr. Powers, Dr. Geddes does not even mention the configuration of the switches. The court cannot draw conclusions regarding his views on the ease of configuring an appropriate switch array. The court concludes that Dr. Geddes' testimony lends some support to the notion that designing an appropriate switch array was no simple task for one skilled in the art.

FN3. In its prior order, the court stated that the only extrinsic evidence before it was a set of dictionary definitions. October 25 order at 5. That was true for the first round of asserted terms, but the parties have introduced inventor and expert testimony in support of some of the remaining terms. The court is mindful of the Federal Circuit's cautious approach to extrinsic testimony, *id.,* and has considered the evidence accordingly.

The court has also considered Mr. Powers' deposition, in which he testified that he knew of no functional switch configurations other than the five-switch configuration when the inventors first filed a shock delivery patent application. Powers Dep. at 85 (DM 034). Defibtech has not provided enough of the deposition transcript to provide full context for his testimony. The court determines that, like Dr. Geddes' testimony, Mr. Powers' testimony slightly strengthens the evidence in favor of a limited construction of "plurality of switches," because it shows that they, as persons of skill in the art, had no actual alternative configuration to back up their statement in the '212 Patent that other switch configurations would be apparent to those of skill in the art.

Based on all of the evidence before it, the court concludes that the "plurality of switches" is limited to the five-switch configuration disclosed in the specification. Philips cannot deny that it disavowed the Swanson five-switch configuration. Thus, the construction of "plurality of switches" is not as broad as the claim language would suggest. At best, the court could construe the term to mean "a plurality of switches, but not the plurality of switches disclosed in Swanson." Even this interpretation, however, would be unreasonable in light of the inventors' statements during prosecution. Mr. Powers admitted in prosecuting the patent that designing an appropriate switch configuration was difficult. In light of that admission, the statement in the specification that "other switches and switch configurations may be used" rings hollow, at least as a statement of what one of skill in the art could accomplish without undue experimentation. Although the inventors' five-switch configuration might be equivalent to other configurations, the term "plurality of switches" must be limited to the disclosed five-switch configuration and those equivalents. The court therefore construes the "plurality of switches" in Claim 8 in the same manner it construed the "means for selectively connecting" in Claim 1. FN4 The term requires the five-switch configuration from the '212 Patent or its equivalent.

FN4. Philips suggests, without explanation, that the presence of the "plurality of switches" term in Claim 17 of the '454 Patent (which neither party has offered for construction) should affect the court's construction. Phillips Opp'n at 29. As the court previously noted, the '454 Patent incorporates the specification of the '212 Patent (October 25 order at 6), and the court finds no new disclosure in the '454 specification that would alter its construction of "plurality of switches."

2. Terms appearing only in the '879 Patent

a. "The electrodes being electrically connected in a first polarity to an energy source external to the patient"

The "electrodes being electrically connected" term appears in one step of the method disclosed in Claim 1 of the '879 Patent. That method comprises these steps:

placing two electrodes on a patient, the electrodes being electrically connected in a first polarity to an energy source external to the patient;

charging the energy source to an energy level corresponding to a first start amplitude;

discharging the energy source across the electrodes;

adjusting the discharge parameter based on the measured patient impedance;

reversing the polarity of the connection of the energy source to the electrodes to a second polarity;

discharging the energy source across the electrodes.

'879 Patent Claim 1. The parties agree that the disputed term requires an electrical connection such that current flows in only one direction. Their dispute is over the term "being." Defibtech contends that the term "being electrically connected" is in present tense, and that when read in context of the claim, it means that the circuit between the defibrillator energy source and the patient must be complete at the moment the two electrodes are placed on the patient. Philips would have the court interpret the term to mean that the electrodes are placed such that they "will be" electrically connected during discharge. FN5

FN5. Philips cites Alitris, Inc. v. Symantec Corp., 318 F.3d 1363, 1369-71 (Fed.Cir.2003), for the proposition that the steps of a method claim need not be performed in the order in which they are written, but the concept is irrelevant here. Regardless of the order in which one performs the steps of Claim 1, Defibtech's interpretation of "being" would require that the electrical connection between the energy source and the patient exist when the electrodes are placed on the patient. Altering the order of the steps does not alter the meaning of the language describing a single step.

The court rejects Defibtech's limitation. It is apparent, even to one not of skill in the art, that the electrical connection between the energy source and the patient need not exist from the moment the electrodes are placed on the patient. The patent envisions that discharge is initiated not by placing the electrodes on a patient's chest, but rather by the user manually initiating discharge or the defibrillator automatically initiating discharge in response to heart activity measured through the electrodes. '879 Patent at 5:8-9. There is no suggestion in the patent (beyond a literal reading of the tense of the verb "being") that having the electrical connection exist at the instant the electrodes are placed on the patient is important, necessary, or in any way relevant to the claimed defibrillator method. Claim construction is not a "gotcha" game in which an imprecisely used word invariably dooms the inventor, but rather a process where a court must interpret terms "in the context in which they were used by the inventor, considered by the examiner, and understood in the field of the invention." Toro Co. v. White Consol. Indus., 199 F.3d 1295, 1299 (Fed.Cir.1999). In this case, a review of the patent shows that "being electrically connected in a first polarity" means "connected such that, during discharge, current will flow from the energy source through the patient in only one direction."

3. Other Shock Delivery Terms.

a. "Based on," "dependent on," "depends on," and "function of"

The terms "based on," "dependent on," "depends on," and "function of" appear in many claims within the shock delivery patents. In each instance, the term is used to describe how the defibrillator incorporates a patient-dependent electrical parameter to adjust shock delivery. *E.g.,* '612 Patent Claim 1 ("adjusting the discharge parameter ... as a *function of* the value of the electrical parameter"); '454 Patent Claim 15 ("adjusting the tilt of the waveform *based on* the value of the monitored electrical parameter"); '905 Patent

Claim 4 ("shaping the waveform so that an initial parameter of a waveform phase *depends on* a value of the electrical parameter"). The parties agree that each term means that the shock adjustment is based on the measured parameter; their dispute is over whether the terms require the shock adjustment to be based *solely* on the measured parameter.

The court finds no reason to limit these terms to require adjustment based solely on the cited parameter. Defibtech points to numerous disclosures in the specification of shock delivery aspects that are "determined by" a measured electrical parameter. It fails, however, to point to a single location where the inventors required that shock delivery be "determined *only* by" the measured parameter. For that reason, the court declines to impose such a limitation on these terms. Employing Philips' proposed definition ("using") defines these terms just as well as Defibtech's ("determined by"). Neither phrase requires that the patient-dependent electrical parameter be the sole influence on the shock modification, and neither do the asserted claim terms.

b. "Electrical parameter" and "patient-dependent electrical parameter"

As the discussion of the previous terms suggests, the terms "electrical parameter" and "patient-dependent electrical parameter" also appear frequently in the claims of the shock delivery patents. In each instance, the claims require "monitoring a patient-dependent electrical parameter" or "monitoring an electrical parameter" during defibrillator discharge. The parties agree that electrical parameters are measurements like voltage, current, charge, resistance, or inductance. They disagree over whether time can serve as an electrical parameter in these patents.

The patents themselves provide support for the notion that time is, at least by proxy, an electrical parameter. In several disclosures in the specification, the inventors seem to indicate that the defibrillator can monitor time as an indirect method of monitoring an electrical parameter. For example, the patents teach that one can measure patient impedance by measuring the time it takes for a fixed amount of charge to discharge through the patient. '454 Patent Claim 55, 7:7-9.

The prosecution history, however, creates substantial confusion over whether time can serve as an electrical parameter. Responding to a rejection of several claims in light of the prior art Pless Patent (United States Patent No. 5,352,239), the inventor's attorney argued to the PTO that Pless taught the monitoring of time, not of an electrical parameter. J.A. 02879 ("Attorney stated that while the Pless reference measures a patient-dependent parameter, it does not measure a patient-dependent electrical parameter (i.e.charge)."). The PTO's statement is difficult to explain, however, in light of Pless. Pless appears to repeatedly disclose a defibrillator that monitors time *and* voltage. *E.g.,* Pless Patent at 4:8-16, 4:42-53, 5:64-66. Pless also notes that the purpose of the measurements is to compensate for differences in patient impedance. Pless Patent at 2:1-6 (discussing how patient impedance may change due to build-up of scar tissue), 2:29-31 (noting that prior art did not provide "therapeutic flexibility"), 3:24-26, 6:56-57. Pless discloses the determination of a second pulse width by measuring by the length of time required for the defibrillator capacitor to decay to a selected decay voltage. Pless Patent at 5:64-66. This is strikingly similar to the disclosures of the '454 Patent noted above. In both patents, the defibrillator monitors time *and* an electrical parameter. In Pless, the electrical parameter is voltage. In the '454 Patent, it is charge. In both patents, the purpose of monitoring these parameters is to compensate for differences in patient impedance. It is unclear to the court how the inventors could disclaim Pless's teaching without disclaiming their own method of monitoring time and an electrical parameter.

The references to the Bach Patent (U.S. Patent No. 4,850,357) during prosecution are also troubling, although less so. The inventors distinguished their invention from Bach for two reasons: that Bach disclosed a fixed-tilt defibrillator, and that Bach taught the measurement of time, not an electrical parameter. J.A. 01441. In the same page, however, the inventors note that Bach teaches voltage measurements, but not the adjustment of voltage based on a patient-dependent parameter. Id. In other words, Bach does teach

monitoring time and an electrical parameter, but it does not teach the adjustment of the waveform based on the electrical parameter. Moreover, although Bach does not explicitly teach that the monitored voltage is patient-dependent, it would appear to be patient-dependent in the sense that the length of time it takes the voltage to decay to the threshold level depends on patient impedance. The court has no difficulty concluding that the variable-tilt defibrillator in the patents-in-suit differ from the fixed-tilt defibrillator in Bach, but it is not apparent why Bach's measurement of voltage is not a measurement of a patient-dependent electrical parameter.

Neither party has provided a compelling explanation of the impact of the prosecution history on the construction of "electrical parameter." Pless appears to teach the monitoring of time and voltage as proxies for patient impedance, and also teaches modifying a second phase of a multiphasic wave form based on those measurements. Bach appears to teach the monitoring of time and a patient-dependent voltage. Yet the inventors, whose own application disclosed an invention that contains all or part of these teachings, seemed to indicate that these similarities were points of distinction.

Because the parties have not addressed these issues, the court reserves its ruling on the construction of "electrical parameter." The parties shall either stipulate to a construction, or shall each provide a supplemental brief of no more than five pages explaining the prosecution history regarding this term. If they cite the Bach Patent, they must provide a copy of it to the court. The parties shall file the supplemental briefs within 15 days of this order.

c. "Controller" and "controlling"

Several method claims of the shock delivery patents require "controlling" the duration of a waveform phase, while several apparatus claims require a "controller" that operates a connecting mechanism between the energy source and the electrodes. Philips offers straightforward definitions: "controlling" means "regulating," and a "controller" is a circuit or component that controls. Defibtech, on the other hand, believes that "controlling" means "operating switches or other connecting mechanism to adjust the shape of the waveform delivered to a patient in response to a patient-dependent electrical parameter measured during the delivery of the waveform."

The court adopts Philips' definition. Defibtech correctly notes that in many instances, the inventors described their "invention" (as opposed to an embodiment) as "provid[ing] a defibrillator method and apparatus for adjusting the characteristics of the defibrillator waveform in response to a real-time measurement of a patient-dependent electrical parameter." '927 Patent at 5:56-58. Defibtech does not, however, point to a single instance in which the term "controlling" or "controller" is employed inconsistently with this description of the invention. In the claims, the language surrounding the term "controller" or "controlling" is uniformly consistent with this object of the invention. *E.g.,* '927 Patent Claim 1 ("controlling duration of the truncated exponential biphasic waveform"), Claim 6 ("a controller operating the connecting mechanism to deliver electrical energy ..."); '454 Patent Claim 3 ("controlling the duration of a waveform phase based on a value of the electrical parameter"). Thus, Defibtech's proposed definition is surplusage. The claim language places limitations on "controlling" or the "controller" that are consistent with the purpose of the invention. There is no need for the definitions of "controller" and "controlling" to contain those limitations.

d. "Energy source"

Where the term "energy source" appears in a claim in the shock delivery patents, the patent invariably describes it as connected to the defibrillator electrodes and/or discharged across the electrodes. Thus, whatever the energy source is, it must be a source that is capable of delivering a therapeutic shock to a patient. The court therefore construes "energy source" to mean "a source of energy that is capable of delivering a therapeutic shock to a patient." The parties' main dispute seems to be whether a battery is such an energy source. The patent indicates that a battery can be part of such an energy source. *E.g.,* '454 Patent

Claim 23 ("the energy source comprises a battery"). However, if a battery is incapable of delivering a therapeutic shock, it is also incapable of serving as an "energy source" on its own. At oral argument, Defibtech claimed (without evidence) that a battery is incapable of delivering enough shock in a short enough period of time to have therapeutic use, and that only a capacitor or set of capacitors could accomplish the task. The court need not resolve this issue. The claimed "energy source" is one capable of delivering a therapeutic shock. Determining which sources of energy meet this requirement is a question for another day.

e. "Patient"

"Patient" appears throughout the claims of the shock delivery patents. Even this most basic term gives the parties cause to argue. Philips contends that a patient is a person. Defibtech contends that a patient is any "recipient of a waveform." Philips queries whether, under Defibtech's construction, a "watermelon" could serve as a patient. Defibtech responds that a watermelon does not have a heart. The court wonders if it has accidentally wandered into a junior high school debate meet.

The patents uniformly discuss defibrillation of human patients. The court must construe the term "patient" accordingly, absent some indication that the inventors intended a broader scope. Prior art references that discuss defibrillation of other animals might bear on the validity of the patents-in-suit, but the inventions before the court are not intended for use on anyone but humans.

B. Construing Terms in the Self-Test Patents

1. Terms in the '059 Patent

a. "Patient simulator"

The parties' key dispute over the term "patient simulator" in Claims 1, 8, and 9 is whether the patient simulator is necessarily electrically connected to the defibrillator's electrode interface. Defibtech argues that this electrical connection is present in the preferred embodiment ('059 Patent at 3:15-65), and thus must be read into the claims.

The court cannot adopt Defibtech's proposed limitation. Defibtech seeks to import a limitation from the preferred embodiment into claims that do not require the limitation. The court declines to do so, for many of the same reasons it rejected Defibtech's construction of "through electrodes" and "indication of the condition of the defibrillator" in its first *Markman* order. October 25 order at 16-17, 23-25. The court construes "patient simulator" to mean "components or circuitry that simulate a patient."

b. "Performing a defibrillator **self test" and "providing an indication of the result of the** defibrillator **self-test"**

As with many other self-test patent terms, Defibtech insists that the generic claim language "performing a defibrillator self-test" and "providing an indication of the result" of this test somehow includes limitations relating to the electrodes. '059 Patent Claim 5.

The court's discussion of the term "indication of the condition of the defibrillator" in its first *Markman* order demonstrates that Defibtech's limitations are inappropriate. October 25 order at 23-25. The court construes "performing a defibrillator self-test" to mean "carrying out a defibrillator self-test." "Providing an indication of the result" of this self-test means precisely what it says-no definition is necessary. Philips suggests that the indication must be whether the defibrillator "passed or failed" the self-test, but the '059 Patent does not require a binary indication.

2. Terms in the '374 Patent

a. "System monitor"

The term "system monitor" appears in Claims 22, 24, 25, and 26. In each of these claims, the "test signal generator" from independent Claim 1 comprises a "system monitor." FN6 Claim 22 discloses a "system monitor" without qualification. A series of dependent claims that includes Claims 24 through 26 places limitations on the system monitor. The term first appears in the description of the preferred embodiment:

FN6. In its prior order, the court stated that in Claim 22, "the 'test signal generator' *is limited to* the 'system monitor'...." October 25 order at 16 (emphasis added). The court should have stated that "the 'test signal generator" *comprises* the 'system monitor'...."

A system monitor mediates the external defibrillator's self-testing functions by watching for scheduled test times and unscheduled power-on events. The system monitor generates test signals periodically at scheduled times and in response to specified events. The system monitor is also responsible for operating a fail-safe defibrillator status indicator or display.
'374 Patent at 4:60-66. The '374 Patent makes no mention of a "system monitor" except in describing its function in the preferred embodiment.
Although the court must look to the preferred embodiment in construing "system monitor," it need not limit the term according to the preferred embodiment. In particular, where claims depending from Claim 22 disclose a limitation on the system monitor, the doctrine of claim differentiation compels a presumption that the term "system monitor" does not contain that limitation. Thus, the "system monitor" presumably need not comprise an application specific integrated circuit as disclosed in Claim 23, need not comprise a separate power supply as disclosed in Claim 24, need not comprise means for generating periodic test signals as disclosed in Claim 25, and need not comprise means for generating test signals in response to specified events or conditions as disclosed in Claim 26.

These disclosures reveal more than what "system monitor" does not mean, they also provide a guide to interpreting "system monitor" in light of the specification. The specification discloses a host of specific capabilities for a system monitor, but when the inventors intended to *require* the system monitor to perform a specific function, they drafted a dependent claim corresponding to the function. For example, Defibtech insists that the "system monitor" must at least watch for scheduled test times or unscheduled power-on events, as disclosed in the first sentence of the specification describing the element. '374 Patent at 4:60-62. The ability to watch for scheduled test times, however, is necessary only when conducting periodic self-tests. That function is ascribed to the system monitor in dependent Claim 25. Another illustrative example is the "System Watchdog Verify" self-test. '374 Patent at 8:9-17. A defibrillator that ran only this self-test on battery insertion would have no need to monitor for scheduled test times or unscheduled power-on events.

The court thus finds that the bare term "system monitor" refers to a device that performs only the necessary functions that the specification ascribes to the system monitor. Those necessary functions are receiving information from other components regarding at least one self-test, and operating a fail-safe defibrillator status indicator or display corresponding to that information. As noted in the court's discussion of the term "prior to any attempted use" in its prior order, the '374 Patent does not require any particular self-test or group of tests, but merely requires at least one such test. October 25 order at 17-20. The information that the system monitor receives, and the source within the defibrillator from which it receives that information, necessarily depends on the type of self-test. Thus, absent any suggestion from the parties of information or information sources that are required in any randomly selected self-test, the court declines to impose a more specific limitation. The term "system monitor" thus means "a circuit, component, or device for receiving information regarding at least one self-test and operating a fail-safe defibrillator status indicator or display

to correspond to that information."

b. "Means for operating the defibrillator **status indicator and the test signal generator prior to any attempted use of the** defibrillator**"**

Claims 1 and 41 require a "means for operating the defibrillator status indicator and the [periodic] FN7 test signal generator prior to any attempted use of the defibrillator." The parties agree that this term is written in means-plus-function format. They also agree that the "system monitor" is a structure disclosed in the specification that performs the indicated function. Philips contends, however, that "structure for generating signals used to perform a self-test" also corresponds to the recited function. FN8 Philips Br. at 14.

FN7. The term "periodic" appears in Claim 41, but not in Claim 1.

FN8. A means-plus-function term generally encompasses all "distinct and alternative described structures for performing the claimed function." Creo Prods., Inc. v. Presstek, Inc., 305 F.3d 1337, 1346 (Fed.Cir.2002).

As the court has already noted, the structure for generating signals used to perform a self-test is the claimed "test signal generator," not the "means for operating ... the test signal generator." October 25 order at 15. Philips improperly conflates the two terms, and thus improperly points to structure for generating test signals (i.e., a controller or CPU in combination with a system gate array). This structure does not fulfill the function of operating the test signal generator.

Although the "system monitor" is part of the structure that operates the test signal generator, it is not the entire structure. The court has already noted in construing the term "system monitor" that the specification describes a system monitor with many capabilities. The question is what capabilities the system monitor must have to perform the functions recited in Claims 1 and 41. In Claim 1, the function is "operating the defibrillator status indicator" and the "test signal generator" prior to any attempted use of the defibrillator. The parties have not specified what portions of the system monitor structure are necessary to perform this function. The court finds that the low-power gate array (or, alternatively, a low-power CPU and/or discrete logic components) described in the specification is necessary structure. '374 Patent at 5:14-20. The gate array is "preprogrammed to perform the functions of the system monitor," and the court thus finds that it is necessary structure to perform the function recited in Claim 1. The structure corresponding to the term "means for operating the defibrillator status indicator and the test signal generator prior to any attempted use of the defibrillator" is a " 'system monitor,' as the court has already defined the term, including a gate array or CPU and/or discrete logic."

Claim 41 refines the recited function by requiring means for operating the "*periodic* test signal generator." In order to operate the test signal generator periodically, the system monitor requires a crystal oscillator or its equivalent to generate timing signals. '374 Patent at 5:21-27. Thus, the structure corresponding to this means-plus-function term is a " 'system monitor,' as the court has already defined the term, including a crystal oscillator and a gate array or CPU and/or discrete logic."

c. "Status information"

The term "status information" appears in Claims 61 and 64, both of which depend from Claim 44. "Status information" appears as an additional limitation on the "indicating step" of Claim 44. The indicating step is "indicating the operational status of the defibrillator based on the result of the self-test." The court already construed this term to mean "providing a visible or audible alert of whether the defibrillator is capable of treating a patient and possibly other indications of operational status." October 25 order at 23. FN9 Claim 61

requires the defibrillator to display the "status information" on a "visible display." Claim 64 requires the defibrillator to provide the "status information" audibly.

FN9. The court reiterates its implicit holding from the October 25 order that "operational status" is broader than "operable" (or "inoperable") status.

Given the relationship between these claims, the court concludes that "status information" is simply any subset of the information required in Claim 44. There is no indication that the inventors intended Claims 61 and 64 to introduce a novel concept of "status information" that differs from "operational status." Instead, these claims were intended to limit the method of indicating status to a user-visually or audibly. The use of "status information" instead of "operational status" means simply that the visual or audible displays of Claims 61 and 64 need not be responsible for displaying all operational status information. For example, a defibrillator according to Claim 61 could indicate a "stuck button" indicator visually, while indicating the inoperable/operable status with an audible alarm, a vibration, or some other means. Likewise, a defibrillator according to Claim 61 could indicate an inoperable/operable status audibly, while using other means to indicate other operational statuses. "Status information" is thus "any subset of information related to whether the defibrillator is treating a patient or other indications of operational status."

d. "Reference voltage source," "using a voltage source within a defibrillator **as a reference value" and "using a clock within the** defibrillator **as a reference value," and "means for using the reference voltage source as a reference standard"**

It appears that the parties now concur that a "reference voltage source" is a "component with a known or expected voltage." At oral argument, Philips abandoned its contention that a "reference voltage source" can be merely a "voltage value." Even if it had not, the court concludes that neither the claim language nor the specification supports this construction. *E.g.,* '374 Patent at 10:1-14, 13:19-36 (describing use of various components as reference voltage sources in calibration self-tests).

Both parties seek additional limitations on the term. Philips claims that the reference voltage source must be "used to calibrate other components," whereas Defibtech argues a reference voltage source is one "against which other component(s) are compared in order to determine whether those component(s) are within specification."

Neither parties' additional limitations are necessary. After oral argument, the parties agreed that "using a clock within the defibrillator as a reference value" in Claim 59 means "comparing a timing signal produced by a clock located inside the defibrillator to determine whether one or more defibrillator components are within specification." Claim 57, which includes the term "using a voltage source within the defibrillator as a reference value," should be interpreted similarly. It means "comparing a voltage from a reference voltage source inside the defibrillator to determine whether one or more defibrillator components are within specification."

The parties also agreed, after oral argument, on the structure corresponding to the "means for using the reference voltage source as a reference standard" in Claim 19. The corresponding structure is "a CPU or a gate array, or discrete logic, or a combination of a gate array and discrete logic, and a CPU A/D converter."

e. "Means for using the high voltage delivery system resistor as a reference standard"

Claim 12 includes a "means for using the high voltage delivery system resistor as a reference standard." The specification describes how to perform this function. '374 Patent at 11:55-12:20. The parties agree that the corresponding structure is at least a CPU or an equivalent consisting of a gate array, discrete logic, or a combination of a gate array and discrete logic. Defibtech, however, contends that the corresponding

structure also contains a "comparator."

The court agrees that an additional element is required to use the high voltage delivery system resister as a reference standard. The specification consistently recites "current and charge measurement device 116" as the element that obtains current and charge measurements that are essential in using the resistor as a reference standard. *E.g.*, '374 Patent at 11:55-64 (describing how to obtain time measurements necessary in using the resistor as a reference standard by using a measurement device to determine when the current falls to a threshold value). The court also notes that the patent also describes the element 116 as "preferably a comparator that trips when a preset charge amount has been transferred" from a capacitor. '374 Patent at 10:57-59. The use of the term "preferably" demonstrates that the inventors did not intend to limit the corresponding structure to a comparator. The court therefore concludes that the structure that corresponds to the "means for using the high voltage delivery system resistor as a reference standard" is a "CPU, which can be alternatively implemented with a gate array, or discrete logic, or combination thereof" plus a "current and charge measurement device or a comparator."

f. "Relay having an operational position and a test position"

Claim 5 requires a "relay having an operational position and a test position." The court begins by construing "operational position" and "test position." As the parties agreed, the claimed relay is the element that separates the high voltage delivery system from the rest of the defibrillator. In one position, which is referred to in the specification as the "normally closed" or "closed" position ('374 Patent at 9:13-14, 10:24-25), the high voltage delivery system is capable only of self-tests in which it sends a current through a test load. '374 Patent at 11:30-42. In this position, the defibrillator cannot shock a patient. '374 Patent at 8:34-38.

In another position, which is referred to as "normally open" or "open," the high voltage delivery system can deliver a shock to a patient, as the parties agree. In addition, however, the defibrillator can conduct other self-tests with the relay in open position. *E.g.*, '374 Patent at 9:4-21 (describing the "Defibrillator Connector/Relay self-test"), 10:14-22 (describing the "HV Isolation Relay self-test").

The "test position" of Claim 5 is the relay position in which the high voltage delivery system can only perform self-tests and cannot shock a patient. The "operational position" is the relay position in which the high voltage delivery system can deliver shock to the patient, although the defibrillator can perform other relay self-tests in this position as well.

The parties' dispute over this term centers on whether the relay may consist of a combination of relays and can have more than two positions, as Philips contends, or whether the relay is a single relay with only two positions, as Defibtech contends.

Philips can point to no intrinsic evidence that discloses more than one relay or more than two positions. Instead, it relies on three arguments: that the specification does not exclude such relays, that dictionary definitions of "relay" do not exclude such relays, and that the inventors' decision to claim a "relay *having* an operational position and a test position" is no different than using the open-ended terms "comprising" or "including."

The court finds Philips' first two arguments unavailing. The specification speaks only of a relay with two positions.FN10 It does not state that such positions are preferred, and it does not suggest that a relay with more than two positions could have any function in this invention. As for Philips' dictionary definitions, the court declines to rely on them for the reasons stated in its prior order. October 25 order at 5.

FN10. The specification also teaches that the relay may become stuck in a position between the open and closed position. '374 Patent at 10:26-28 (discussing possibility that relay could "fail[ ] to move completely to the normally closed position").

As to Philips' third argument, the term "having" does not carry the presumption of open-ended interpretation that accompanies the term "comprising." Crystal Semiconductor Corp. v. Tritech Microelectronics Int'l, Inc., 246 F.3d 1336, 1348 (Fed.Cir.2001). Instead, a court must look to the specification to determine what the inventors intended. Lampi Corp. v. Am. Power Prods., Inc., 228 F.3d 1365, 1376 (Fed.Cir.2000). As already noted, if the inventors intended "having" to be non-limiting,FN11 they left no hint in the specification. The specification speaks uniformly of a single two-state relay. The court construes the term accordingly. A "relay having an operational position and a test position" is a single relay with only an operational position and a test position," where "operational position" and "test position" have the meanings the court provided above.

FN11. As Defibtech noted at oral argument, the inventors used the term "having" only twice in the 73 claims of the '374 Patent, whereas they used the presumptively open-ended term "comprising" more than 60 times.

III. CONCLUSION

This order completes the court's construction of the asserted terms. As stated at oral argument, the parties must file all dispositive motions within 30 days of this order, and must file the stipulation or supplemental briefing that the court requested in Section II.A.3.b, *supra,* within 15 days. In preparing their dispositive motions, the parties shall prepare a joint glossary of asserted claim terms that memorializes the court's construction of the asserted terms as well as any stipulated definitions, and shall file the joint glossary concurrently with the motions.

The court has indicated its intent to begin trial no later than April 2006, but it declines to set a trial date until the parties have filed their dispositive motions. The large number of patents and asserted claims make this action unwieldy, to say the least. Despite more than 160 pages of briefing devoted to claim construction, many terms received little attention from the parties. Neither the parties nor the court benefit in an action so broad that no single issue receives the attention it requires. Moreover, the court finds it exceedingly unlikely that every one of the dozens of asserted claim terms must play a role in determining whether Defibtech has infringed or whether Philips' claims are invalid. The court urges the parties to work together before filing dispositive motions to develop an efficient means for resolving this dispute. The parties' success in this process, along with the number of dispositive motions they file, will have a substantial impact on the trial date.

W.D.Wash.,2005.
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