IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

MASIMO CORPORATION,	:	
	:	
Plaintiff,	:	
	:	
v.	:	C. A. No. 09-080-LPS-MPT
	:	C. A. No. 11-742-LPS-MPT
PHILIPS ELECTRONICS NORTH AMERICA CORPORATION and PHILIPS MEDIZIN SYSTEME BÖBLINGEN GMBH,	:	Consolidated Cases
	:	
Defendants.	:	

REPORT AND RECOMMENDATION

I. INTRODUCTION

This is a patent infringement case. Plaintiff Masimo Corporation ("Masimo") and defendants Philips Electronics North American Corporation and Philips Medizin Systeme Böblingen GMBH (collectively, "Philips") manufacture competing products in the field of pulse oximetry. Pulse oximetry allows for non-invasive measurement of the oxygen levels in a medical patient's hemoglobin.

Generally, pulse oximetry operates via a sensor placed over a thin section of a patient's body, such as the fingertip or earlobe of an adult, or the foot of an infant. The sensor emits red and infrared light through a cross-section of the patient's tissue and measures the amount of light absorbed. Using various algorithms, a monitor then processes the signal and calculates the patient's oxygenation level. Pulse oximetry systems are standard equipment in many clinical settings, either as stand-alone devices, or more commonly, as components of integrated multi-parameter patient monitors which track pulse, temperature, and other physiological vital signs.

II. CLAIMS-AT-ISSUE

This litigation involves seven patents asserted by Masimo and one patent asserted by Philips.[1]

III. CLAIM CONSTRUCTION

"The words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history."[2] The Federal Circuit has stated "[t]here are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution."[3]

"To act as its own lexicographer, a patentee must 'clearly set forth a definition of the disputed claim term' other than its plain and ordinary meaning."[4] "It is not enough for a patentee to simply disclose a single embodiment or use a word in the same manner in all embodiments, the patentee must 'clearly express an intent' to redefine the

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[1] Masimo's asserted representative claims are claims 10, 22, 23, 26, and 48 of U.S. Patent No. 6,157,850 ("the '850 Patent"), claims 10, 12 and 14 of U.S. Patent No. 7,509,154 ("the '154 Patent"), claims 5 and 8 of U.S. Patent No. 7,530,955 ("the '955 Patent"), claims 3, 5, 8, 14, 16, 19, 22, and 23 of U.S. Patent No. 8,019,400 ("the '400 Patent"), claims 7, 15, 16, 20, 21, 24, 30, and 31 of U.S. Patent No. 8,128,572 ("the '572 Patent"), claims 4, 7, and 10 of U.S. Patent No. 7,530,949 ("the '949 Patent"), and claim 1 of U.S. Patent No. 6,002,952 ("the '952 Patent"). Philips asserts claims 10-13 of U.S. Patent No. 5,337,745 ("the '745 Patent"). There are no claim construction disputes regarding the '952 patent.

[2] *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (*en banc*)); *see also Phillips*, 415 F.3d at 1313 ("We have made clear . . . that 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." (citing *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)).

[3] *Thorner*, 669 F.3d at 1365 (citing *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1580 (Fed. Cir. 1996)).

[4] *Id.* (quoting *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)).

term."[5]

> The standard for disavowal of claim scope is similarly exacting. "Where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question." *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed. Cir. 2001). "The patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002).[6]

As with its explanation of a patentee acting as its own lexicographer, the Federal Circuit stated "[i]t is likewise not enough that the only embodiments, or all of the embodiments contain a particular limitation."[7] The court concluded: "[w]e do not read limitations from the specification into claims; we do not redefine words. Only the patentee can do that. To constitute disclaimer, there must be a clear and unmistakable disclaimer."[8]

A. Disputed Claim Terms in Masimo's Patents

1. *scan of a plurality of possible values for said physiological parameter* ('850 patent, claim 45)

Masimo's proposed construction is: "examination of more than one possible value for the physiological parameter."

Philips' proposed construction is: "examination of each of the plurality of possible values for the physiological parameter."

Claim 45 of the '850 patent recites:

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[5] *Id.* (quoting *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1381 (Fed. Cir. 2008)).

[6] *Id.* at 1366.

[7] *Id.*

[8] *Id.* at 1366-67.

A method of improving the determination of a physiological parameter based upon physiological signals, said method comprising the steps of:

> sensing a physiological signal indicative of the physiological parameter, said physiological parameter having a predetermined range of possible values;
>
> in response to said physiological signal, determining a plurality of possible indications of said physiological parameter based on a *scan of a plurality of possible values for said physiological parameter* within said predetermined range of possible values for said physiological parameter; and
>
> analyzing said plurality of possible indications to determine a resulting indication that likely most closely correlates to the physiological parameter.[9]

The dispute between the parties' is whether the claim requires examining more than one possible value of the recited physiological parameter or each of the possible values for the physiological parameter. The ordinary meaning of plurality is "more than one."[10] Masimo contends there was no disavowal of claim scope during prosecution, no clearly set forth definition altering the ordinary meaning, and that the specification never suggests that "each of the plurality of possible values" must be scanned. Philips argues the intrinsic record demonstrates the phrase "scan of a plurality of possible values" is a detailed examination of each of the plurality of possible values of the predetermined range of possible values of the physiological parameter.

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[9] '850 patent, claim 45 (emphasis added).

[10] *See York Prods., Inc. v. Cent. Tractor Farm & Family Ctr.*, 99 F.3d 1568, 1575 (Fed. Cir. 1996) ("The term [plurality] means, simply, 'the state of being plural.' *American Heritage Dictionary Second College Edition* 955 (2d ed. 1982). Thus, this term requires only at least two . . . ."); *see also ResQNet.com, Inc. v. Lansa,* Inc.. 346 F.3d 1374, 1382 (Fed. Cir. 2003) ("Claim 1 . . . recites 'each of a plurality of fields, which does not carry the same meaning as 'every field.' Rather, the recitation of 'plurality' suggests the use of 'at least two.' While 'at least two' may mean 'every' under some circumstances, the two terms are not synonymous. In sum, 'each of a plurality of fields' means 'each of at least two fields.'"); *Dayco Prods., Inc. v. Total Containment, Inc.*, 258 F.3d 1317, 1227-28 (Fed. Cir. 2001) (finding "no reason to give 'plurality . . . of projections' any definition other than its ordinary definition of 'two or more'").

Masimo maintains the specification describes embodiments that do not require a scan of each of the plurality of possible values. The saturation transform embodiment discloses "doing a scan of *many* possible coefficients."[11] Masimo states that embodiment could also execute a scan "for a good cross-section of possible values r_a and r_v (e.g., 20-50 values each corresponding to saturation values ranging from 30-105)."[12] It also argues the "Bank of Filters" embodiment, described as an alternative to the saturation transform embodiment,[13] involves only scanning some possible values and does not require a scan of each of the plurality of possible values.[14] Finally, Masimo contends the Complex FFT embodiment, described as another alternative to the saturation transform embodiment,[15] also scans only some possible values.[16]

Philips states Masimo's arguments focus on one portion of the disputed phrase in isolation, "a plurality of possible values," and ignore the remainder of the claim language including the leading word "scan." Philips states "scan" is a common word but its meaning is dependent upon the context in which it is used.[17] It contends the '850 patent explicitly states "a scan of a plurality of possible values" is a detailed examination of each of the plurality of possible values. According to Philips, in each instance the specification uses the word "scan," it is discussed in conjunction with the algorithm executed by the "Saturation Transform" module, illustrated in Figure 18.[18] Philips

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[11] '850 patent, 53:6-10 (emphasis added).
[12] *Id.*, 54:34-37.
[13] *Id.*, 51:29-31.
[14] D.I. 686 at 8 (citing '850 patent, Fig. 24, 52:13-52).
[15] '850 patent, 56:13.
[16] D.I. 686 at 8 (citing '850 patent, Fig. 24, 58:28-59).
[17] *Id.*
[18] *Id.*

discusses the description of that module and that "a master power curve" is generated where "the spectral content of the attenuated energy is examined by looking at *every possible saturation value* and examining the output value for the assumed saturation value."[19] According to Philips, the specification repeatedly emphasizes that a reference signal is generated for each of the predetermined values in the range:

> "In other words, the reference processor is provided with *each of the saturation values*, and a resultant reference signal is generated corresponding to the saturation value."[20]
>
> "This operation is completed for *each of the saturation scan values* (e.g., 117 possible values in the present embodiment)."[21]
>
> "The resulting data at a second output 540 of the bandpass filter 538, therefore, is 117 reference signal vectors of 270 data points each, *corresponding to each of the saturation axis values* . . . ."[22]

Philips contends one of ordinary skill in the art reading the '850 patent would understand the claimed "scan of a plurality of possible values" is the examination of each of the provided saturation scan values.[23] Since no other "scan" is described in the '850 patent, Masimo's proposed construction is contrary to what is disclosed and illustrated in the specification. Applying Masimo's proposed construction to the embodiment disclosed in column 43 of the patent would only require the examination of 2 of the 117 saturation scan values that constitute the predetermined range of values, a result, Philips argues, that is purportedly contrary to the explicit disclosure of the '850 patent.

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[19] *Id.* at 9-10 (quoting '850 patent, 45:34-52 (emphasis added)).
[20] '850 patent, 43:38-41 (emphasis added).
[21] *Id.*, 43:64-66 (emphasis added).
[22] *Id.*, 44:28-32 (emphasis added).
[23] D.I. 686 at 11.

Philips also states Masimo's construction is at odds with the rest of claim 45.[24] It points to the following part of claim 45:

> sensing a physiological signal indicative of the physiological parameter, *said physiological parameter having a predetermined range of possible values*;
>
> in response to said physiological signal, determining a plurality of possible indications of said physiological parameter based on a scan of a plurality of possible values for said physiological parameter *within said predetermined range of possible values for said physiological parameter*.[25]

Philips states Masimo's construction would encompass a scan of *any* two or more possible values. Philips contends, however, the surrounding claim language makes explicit what values must be examined–the values that are within the predetermined range of possible values. It concludes, once a range of potential values is determined (e.g., the 117 possible values contemplated in the preferred embodiment), the claim requires a scan of each value within that range. Contrary to Masimo's contention, Philips states its construction would not require examination of an infinite number of values. In response to Masimo's citation that the patent discloses examining cross-sectional samples of possible values, Philips maintains the patent identifies that series of cross-sectional samples as a "saturation axis scan": "In addition, a plurality of possible saturation values (the 'saturation axis scan') are provided as input to the saturation reference processor 530."[26] Philips states those lines specifically recite a "plurality of possible saturation values" are provided as an input to reference processor

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[24] *Id.* at 17 (citing *Kara Tech. inc. v. Stamps.com Inc.*, 582 F.3d 1341, 1348 (Fed. Cir. 2009) ("When construing claims, . . . the intrinsic evidence and particularly the claim language are the primary resources.").

[25] '850 patent, claim 45 (emphasis added).

[26] *Id.*, 43:28-47.

530. The "plurality of possible values" is a known quantity of values that establishes a predetermined range; it is not infinite or otherwise unclear. Philips notes in the preferred embodiment, 117 values are used as the predetermined range, but the specification recognizes that a different number than 117 could be chosen, such that there could be greater or fewer values; in each instance, there would be a finite and known number of values. Philips reiterates it is not suggesting the claim requires examination of every one of the infinite values between two endpoints, rather, its construction requires that once a predetermined range is established, the "scan" must examine each one of the plurality of possible values within that predetermined range.

Philips also contends the "Bank of Filters" and "Complex FFT" embodiments are not relevant as they have nothing to do with the meaning of the phrase "scan of a plurality of possible values," and nowhere in the description of those alternate embodiments does the patent refer to either as a "scan"; each are described as "Alternative to Saturation Transform." In contrast, the Saturation Transform module is consistently referred to as a "scan." Philips further points out the Bank of Filters embodiment includes the histogram of Figure 24, which is described as "similar" to the saturation scan output of Figure 22.[27] Also, Figure 22 is captioned "Saturation Scan Values," while the title of Figure 24 is simply "Saturation Values." Philips, concludes the specification, therefore, is clear that the Bank of Filters and Complex FFT embodiments are *alternatives* to the scan embodiment recited in claim 45, not further examples of a scan.

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[27] D.I. 686 at 19-20 (citing '850 patent 52:16-19 and 58:48-53).

The court agrees with Philips that claim 45 of the '850 patent is directed at the saturation transform embodiment, and not the alternative embodiments discussed in the specification. Claim 45 recites "a scan of a plurality of possible values for said physiological parameter . . . ." A "scan" is only discussed in conjunction with the saturation transform embodiment and, as noted above, the specification makes clear that each of the saturation values is examined. Philips' proposed construction does not improperly import limitations from preferred embodiments. Its construction merely requires that, regardless of the number of possible values of the physiological parameter, each is examined.[28] Consequently, the court construes "scan of a plurality of possible values for said physiological parameter" to mean: "examination of each of the plurality of possible values for the physiological parameter."

2. *said scan* ('850 patent, claim 25)

Masimo's proposed construction is: "the analysis to qualify the plurality of indication values to be considered as possible resulting indications for the physiological parameter."

Philips contends this phrase is indefinite under 35 U.S.C. § 112.

Claim 25 of the '850 patent recites:

> A physiological monitor which receives physiological signals indicative of at least one physiological parameter, said physiological parameter having a predetermined range of possible values, comprising:
>
> a physiological indication calculation module which responds to

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[28] The court notes the specification recites "[i]n order to obtain arterial oxygen saturation, the peak in the power curves corresponding to the highest saturation value could be selected. However, to improve confidence in the value, further processing is completed." '850 patent, 46:25-28. In order to identify the peak in the power curve corresponding to the highest saturation value, examination of each of the possible values would be necessary.

> said physiological signals to determine a plurality of possible physiological indication values based upon alternative determination methods;
>
> an analysis module responsive to said plurality of indication values to qualify said plurality of indication values to be considered as a possible resulting indications for said physiological parameter; and
>
> a selection module responsive to the result of *said scan* to identify at least one resulting indication as representative of said physiological parameter.[29]

Philips argues claim 25 patent is invalid for indefiniteness, pursuant to 35 U.S.C. § 112, ¶ 2, due to a lack of antecedent basis for "said scan" and that the metes and bounds of the claim are indeterminate even after considering all of the intrinsic evidence.[30]

"'[T]he failure to provide explicit antecedent basis for terms does not always render a claim indefinite.'"[31] "When the meaning of the claim would reasonably be understood by persons of ordinary skill when read in light of the specification, the claim is not subject to invalidity upon departure from the protocol of 'antecedent basis.'"[32] In order for the claim to be found indefinite, Philips must "'demonstrate by clear and convincing evidence that one of ordinary skill in the relevant art could not discern the boundaries of the claim based on the claim language, the specification, the prosecution history, and the knowledge in the relevant art.'"[33] "'By finding claims indefinite only if

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[29] '850 patent, claim 25 (emphasis added).

[30] D.I. 686 at 23.

[31] *In re Skvorecz*, 580 F.3d 1262, 1268-69 (Fed. Cir. 2009) (quoting MPEP § 2173.05(e)).

[32] *Energizer Holdings, Inc. v. Int'l Trade Comm'n*, 435 F.3d 1366, 1370 (Fed. Cir. 2006).

[33] *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1366 (Fed. Cir. 2011) (quoting *Haemonetics Corp. v. Baxter Healthcare Corp.*, 607 F.3d 776, 783 (Fed. Cir. 2010)); *see also Young v. Lumenis, Inc.*, 492 F.3d 1336, 1346 (Fed. Cir. 2007) ("Claims are considered indefinite when they are 'not amenable to construction or are insolubly ambiguous. . . . Thus, the definiteness of claim terms depends on whether those terms can be given any reasonable meaning.'" (omission in original) (quoting *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347 (Fed. Cir. 2005)).

reasonable efforts at claim construction prove futile, [courts] accord respect to the statutory presumption of patent validity . . . and . . . protect the inventive contribution of patentees, even when the drafting of their patents has been less than ideal.'"[34]

During prosecution, application claim 66 (which issued as claim 25), was amended as follows:

> 66. A physiological monitor which receives physiological signals indicative of at least one physiological parameter, said physiological parameter having a predetermined range of possible values, comprising:
>
> > a physiological indication calculation module which responds to said physiological signals to determine [calculate] a plurality of possible physiological indication values based upon alternative determination methods;
> >
> > [a scan] an analysis module responsive to said plurality of indication values to [scan] qualify said plurality of indication values to be considered as a possible resulting indications for said physiological parameter [within a range of said predetermined possible values]; and
> >
> > a selection module responsive to the result of said scan to [select] identify at least one resulting indication [value] as representative of said physiological parameter.[35]

Philips states that originally the claim required the performance of a "scan" similar to the scan recited in claim 45. The claim recited "a scan module responsive to said plurality of indication values to scan said plurality of indication values within a range of said predetermined possible values." The amendment replaced the "scan" module with an "analysis" module that qualifies values calculated by "alternative determination methods." According to Philips, the patentee removed the "scan" of

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[34] *Wellman, Inc.* 642 F.3d at 1366 (first omission in original) (quoting *Exxon Research & Eng'g Co. v. United States*, 265 F.3d 1371, 1375 (Fed. Cir. 2001)).

[35] D.I. 689, Ex. 8 ('850 patent file history) at MASP0466096-97 (9/22/1999 Amendment at 3-4). Underlines indicate additions and brackets indicate deletions.

values "within a range of said predetermined possible values" and replaced it with something else (a "qualification"), making it unclear to one of ordinary skill in the art whether "said scan" is the scan explicitly disclosed in the specification or something completely different. Philips concludes, therefore, the phrase "said scan" renders claim 25 indefinite because the phrase is ambiguous.

Masimo notes that at the time of the examiner's rejection, the third paragraph of the claim recited "a scan module . . . to scan said plurality of indication values . . ." and the last paragraph recited "a selection module responsive to the result of said scan." Masimo states the phrase "said scan" was referring to the result of the scan module. When amended, the claim renamed the "scan module" to be "an analysis module." Masimo argues, therefore, "said scan" was still referring to the result from this same module, even though the name of the module was amended. Masimo concludes, therefore, that one of skill in the art would understand that "said scan" refers to "the analysis to qualify the plurality of indication values to be considered as possible resulting indications for the physiological parameter."

The court determines Philips has not established by clear and convincing evidence that "said scan" is insolubly ambiguous. Examination of the prosecution history supports Masimo's position that "said scan" refers to the result of the "analysis module." Consequently, the court construes "said scan" to mean: "the analysis to qualify the plurality of indication values to be considered as possible resulting indications for the physiological parameter."

3. *analysis to determine which of the plurality of possible oxygen saturation values corresponds to the oxygen saturation of the pulsing blood* ('154 patent, claim 9)

Masimo's proposed construction is: "analysis to determine an oxygen saturation value that corresponds to oxygen saturation of the pulsing blood."

Philips' proposed construction is: "determination of a resulting oxygen saturation value based on the likelihood that it is the closest of the possible oxygen saturation values to the actual oxygen saturation of the pulsing blood."

Claim 9 of the '154 patent recites:

> A pulse oximeter comprising:
>
> an input for receiving from a detector information about light of first and second wavelengths attenuated by body tissue carrying pulsing blood over a period of time;
>
> a processor configured to perform a method comprising:
>
> > transforming first and second signals into the frequency domain, wherein the first and second signals are representative of the light of first and second wavelengths attenuated by body tissue carrying pulsing blood;
> >
> > calculating a plurality of possible oxygen saturation values using a plurality of values of each of the transformed first and second signals that correspond to non-zero frequencies; and
> >
> > selecting one of the plurality of possible oxygen saturation values as an oxygen saturation measurement based upon an *analysis to determine which of the plurality of possible oxygen saturation values corresponds to the oxygen saturation of the pulsing blood*; and
>
> an output for outputting the oxygen saturation measurement.[36]

Masimo contends the intrinsic record supports applying the ordinary meaning of this phrase as reflected in its proposed construction. It argues Philips attempts to improperly narrow the invention by construing the relatively broad word "corresponds" to

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[36] '154 patent, claim 9 (emphasis added).

mean "based on the likelihood that it is the closest of the possible oxygen saturation values." Masimo maintains there is no support for such an interpretation because the specification discloses multiple ways to determine a resulting oxygen saturation from a plurality of possible oxygen saturation values. For instance, Masimo contends the Bank of Filters and Complex FFT embodiments described in the '154 patent select values that correspond to arterial saturation, without knowing which one is closest to the actual value.[37] It states each of those embodiments: (1) transforms red and infrared signals into the frequency domain, and then uses the frequency-domain signals to calculate saturation values at a plurality of frequency ranges;[38] (2) determines a resulting saturation value using the plurality of saturation values that were calculated at different frequency ranges;[39] and (3) discloses two different ways of analyzing the values, based on a histogram, to select "one of the plurality of possible oxygen saturation values as an oxygen saturation measurement" as recited in claim 9.[40]

Referencing Figure 24, Masimo states some points on the histogram correspond to arterial saturation and others correspond to venous saturation.[41] Therefore, multiple values in the histogram correspond to arterial saturation, and multiple values correspond to venous saturation. Further, the patent provides different ways of selecting values that correspond to arterial saturation. For instance, one embodiment selects the highest histogram peak corresponding to the higher saturation values: "the arterial saturation can be calculated from the histogram by selecting the peak (greatest

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[37] D.I. 686 at 27.
[38] *Id.* (citing '154 patent, 50:58-64, 51:3-25, 56:27-47, 57:25-40).
[39] *Id.* at 28 (citing '154 patent, 51:23-60, 57:41-58).
[40] *Id.* (citing '154 patent, Figure 24, 51:38-49, 57:47-57).
[41] *Id.* (citing '154 patent, Figure 24, 51:38-49, 57:47-57).

number of occurrences in the area of interest) corresponding to the highest saturation value . . . ";[42] "a histogram similar to the histogram of FIG. 22 can be generated in which the number of saturation values at different frequencies (points) are summed to form a histogram of the number of occurrences for each particular saturation value."[43] Another embodiment simply selects the value corresponding to the highest saturation value: "as an alternative to the histogram, the output saturation (not necessarily a peak in the histogram) corresponding to the highest saturation value could be selected as the arterial saturation with the corresponding ratio representing r_a";[44] "the arterial saturation value can be selected simply as the point corresponding to the largest saturation value for all points output from the saturation equation module 672 for a packet."[45] Masimo argues both ways determine an oxygen saturation value that "corresponds" to the oxygen saturation of the pulsing blood, as recited by the claim. Where arterial oxygen saturation is desired, the values corresponding to venous saturation are not selected and, because the peak and highest saturation value both correspond to arterial saturation, the patent explains either value would provide a result that could be displayed: "[i]n either method, the arterial saturation can be obtained and provided as an output . . . ."[46] Masimo explains that, although similar, Figure 24 illustrates that the two results are different values for saturation. It contends neither analysis involves a determination based on which value is the "closest" to the actual value and that the specification does not disclose attempting to choose between them to select the

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[42] '154 patent, 51:40-43.
[43] *Id.*, 57:47-51.
[44] *Id.*, 51:50-54.
[45] *Id.*, 57:44-47.
[46] *Id.*, 57:51-58.

"closest."

Philips states the disputed phrase refers to the selection of a single value by performing an "analysis" of many possible calculated values. It criticizes Masimo's contention that the selected value need not be the closest value as illogical, as it would be undesirable to select a value that is not the best representative–or closest to–the actual value. It also states Masimo's construction attempts to read out the requirement that the selected value is one of the previously calculated "plurality of possible oxygen saturation values" based on that construction changing the recitation of "determi[ing] *which of the plurality of possible oxygen saturation values* corresponds to the oxygen saturation" to "determin[ing] *an oxygen saturation value that* corresponds to the oxygen saturation." Philips maintains the claim requires calculating a plurality of possible oxygen saturation values, and then determining *which one* of those values is the resulting oxygen saturation value but, under Masimo's construction, a new value could be determined.

Masimo reiterates the specification does not discuss selecting a single best value. Masimo acknowledges Philips contention that its construction does not, in and of itself, require "the selected value be one of the values calculated in the prior claim step," but notes other limitations of the claim require the selected value be one of the previously calculated values. Because claim 9 recites "selecting one of the plurality of possible oxygen values as an oxygen saturation measurement," Masimo contends its construction does not remove that limitation from the claim.

The court adopts Masimo's proposed construction. First, the court agrees Masimo's construction does not remove the requirement that the selected value be one

of the values calculated in the prior claim step due to the limitation Masimo cites. Second, the specification does describe an embodiment that selects the highest histogram peak corresponding to the highest saturation value, arguably the value that is "closest" to the actual oxygen saturation, as Philips' proposed construction requires. However, the specification also discloses an embodiment that selects the value corresponding to merely the highest saturation value, i.e. not necessarily a peak, thus demonstrating that Philips' proposed construction is unduly narrow. Consequently, the court construes "analysis to determine which of the plurality of possible oxygen saturation values corresponds to the oxygen saturation of the pulsing blood" to mean: "analysis to determine an oxygen saturation value that corresponds to oxygen saturation of the pulsing blood."

4. *calculating a plurality of ratios of values of the transformed first signal to corresponding values of the transformed second signal* ('154 patent, claim 12)

Masimo's proposed construction is: "calculating more than one ratio of values of the transformed first signal and the transformed second signal on a frequency-consistent, or a point-by-point, basis."

Philips' proposed construction is: "calculating point-by-point ratios of the transformed first and second signals."

Claim 12 depends from claim 9 and recites:

> The pulse oximeter of claim 9, wherein the processor is configured to calculate the plurality of possible oxygen saturation values by *calculating a plurality of ratios of values of the transformed first signal to corresponding values of the transformed second signal.*[47]

[47] '154 patent, claim 12 (emphasis added).

Masimo contends the parties' dispute centers on whether the construction should include "frequency-consistent" as a synonym for "point-by-point." The '154 patent specification is the same as the specification for Masimo's U.S. Patent No. 5,632,272 ("the '272 patent"). In its opinion explaining its claim construction for the '272 patent, the court stated:

> [T]he specification does not require that every point in the first series be compared to every point in the second series. Rather, the specification states that where a comparison is done, that comparison must be done *on a frequency-consistent, or* a point-by-point, basis.[48]

Masimo notes that Philips previously agreed that the court treated "frequency-consistent" and "point-by-point" as synonyms.[49] Masimo states Philips further elaborated that it viewed "frequency consistent" to encompass a range of frequencies, as described in Masimo's Bank of Filter's embodiment:

> The Bank of Filters embodiment by definition performs comparisons on a frequency-consistent (or "point by point") basis. Indeed, each filter in the "bank" of filters is designed to isolate only a single frequency component *or range*. Thus, every comparison that is done is <u>necessarily</u> on a frequency-consistent basis.[50]

Masimo accuses Philips of seeking to disavow its prior statements and the court's analysis equating "point-by-point" with "frequency-consistent." Masimo argues including the court's actual explanation of "point-by-point" will remove any ambiguity that might allow either party to incorrectly treat the two adjectives as having different meanings.

Philips states disputed phrases the court construed in the '272 patent are

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[48] D.I. 210 at 7 (emphasis added).

[49] D.I. 686 at 35-36 (citing D.I. 230 at 7 n.8 (Philips arguing to Judge Stark: "Judge Thynge correctly equates the terms 'point-by-point' and 'frequency-consistent.' Philips uses these terms equivalently as well.")).

[50] *Id.* at 36 (citing D.I. 230 at 8) (italics added by Masimo; underlining in original).

virtually identical to the '154 patent phrase at issue here. The court construed the phrases in the '272 patent to mean "calculating point-by-point comparisons of the first and second transformed signals."[51] Philips argues for the same reasons the court came to that construction for the '272 patent, its proposed construction should be adopted. Philips states Masimo is attempting to have the court revisit its previous analysis and change its construction of this phrase. Philips contends the issue has already been decided, and altering the meaning of a claim term already decided will only invite inconsistency. Philips also comments that Masimo seems concerned Philips will attempt to argue the court's previous construction is inapplicable, a concern it contends is unfounded, and Philips will not, and cannot, argue it is not bound by the court's previous ruling.

Masimo contends Philips merely relies on the court's construction for the '272 patent, and never addresses the court's explanation for the claim construction where the court treated "frequency-consistent" as a synonym for "point-to-point." It argues to prevent any deviation for the court's analysis that "frequency-consistent" and "point-to-point" are synonyms, the court should adopt its proposed construction.

The court declines to expand its construction of this term to include language explaining its construction of very similar terms in the '272 patent. For the sake of consistency, therefore, the court construes "calculating a plurality of ratios of values of the transformed first signal to corresponding values of the transformed second signal" to mean: "calculating point-by-point ratios of the transformed first and second signals."

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[51] *Id.* at 37 (citing D.I. 210 at 6-8).

5. *potential of said physiological parameter* ('955 patent, claim 8)

6. *said physiological parameter* ('955 patent, claim 8)

Masimo contends no construction is necessary for "potential of said physiological parameter." It maintains if the court deems construction to be necessary, the court should construe the entire limitation containing the disputed phrase: "said window is increased for potential of said physiological parameter having a lower confidence of accuracy and decreased for potential values of said physiological parameter having a higher confidence of accuracy." Masimo suggests construing that entire phrase to mean: "the averaging window is increased where there is lower confidence of accuracy of pulse rate and decreased where there is higher confidence of accuracy of pulse rate." Masimo's proposed construction for "said physiological parameter" is: "the pulse rate."

Philips contends each of these phrases is indefinite under 35 U.S.C. § 112.

Claim 8 recites:

A method of determining pulse rate comprising:

> sensing physiological signals resulting from the attenuation of light of at least first and second wavelengths by body tissue carrying pulsing blood;
>
> electronically determining using one or more signal processing devices of a patient monitor, at least two values corresponding to pulse rate based upon at least two alternative methods of processing the sensed physiological signals from at least one of the first and second wavelengths;
>
> and electronically determining using one or more signal processing devices of a patient monitor, a resulting value for pulse rate from the at least two values corresponding to pulse rate, wherein determining a resulting value comprises averaging the at least two values and wherein said step of averaging comprises averaging

> over a time window, wherein said window is increased for potential of said physiological parameter having a lower confidence of accuracy and decreased for potential values of said physiological parameter having a higher confidence of accuracy.[52]

Philips argues the dispute over the indefiniteness of both phrases should be considered together. It sets forth two independent reasons these phrases are indefinite under § 112, ¶ 2. First, it argues a person of ordinary skill in the art would have no idea what the "potential" of a physiological parameter is and, thus, the phrase is insolubly ambiguous. It contends there is no dispute that this term, left alone, makes no sense.

Second, "said physiological parameter" lacks antecedent basis and is therefore invalid for indefiniteness. Philips states the claim does not reference a "physiological parameter," and a number of physiological parameters, including blood pressure, pulse rate, oxygen saturation, and respiration rates are disclosed in the specification.[53] Philips contends because the specification does not make clear what parameter is being referred to, the claim is insolubly ambiguous for that reason as well. It concludes when both issues with this claim term are viewed together, the phrase "potential of said physiological parameter" is meaningless.

With regard to "potential of said physiological parameter," Masimo notes Philips merely avers that a person of ordinary skill in the art would "have no idea" what is "the potential of said physiological parameter." It states Philips provided no evidence, from an expert or otherwise, to support that position. Masimo submits a declaration from Dr. Baura explaining what one of ordinary skill in the art would understand the claim to

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[52] '955 patent, claim 8.
[53] D.I. 686 at 41 (citing '955 patent, 2:8-30, 5:59, and 65:5-17).

mean.[54]

Philips insists one of skill in the art would not understand what this phrase means. The court, however, again determines Philips has not established this phrase is insolubly ambiguous. The claim recites: "wherein said window is increased for *potential of said physiological parameter* having a lower confidence of accuracy and decreased for *potential values of said physiological parameter* having a higher confidence of accuracy." It is apparent the patent applicant merely omitted "values" from the phrase at issue. Although Philips contends one of skill in the art would not understand what "potential values" means, it has not presented adequate justification to support that contention.

Rather than accept Masimo's proposed construction, containing additional phrases in dispute, the court construes "potential of said physiological parameter" to mean: "potential values of said physiological parameter."

With regard to "said physiological parameter," Masimo points out that Philips states several physiological parameters are disclosed in the specification, and argues the "claim does not reference a 'physiological parameter.'" Masimo notes the claim recites "pulse rate" four times and does not mention any other physiological parameter. It contends the preamble leaves no question that the claim is for a "method of determining pulse rate." Therefore, the court should adopt its proposed construction of "said physiological parameter" to mean "the pulse rate." The court agrees with Masimo's analysis and construes "said physiological parameter" to mean: "the pulse

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[54] *Id.* at 42 (citing D.I. 689, Ex. 15 (Baura Decl.) ¶ 20).

rate."[55]

7. *determination of confidence in the accuracy of physiological signals* ('955 patent, claim 5; '572 patent, claim 20); *signal confidence determination* ('400 patent, claim 7); *confidence measurement* ('400 patent, claim 11); *determination of signal confidence* ('400 patent, claims 15, 22)

Masimo's proposed construction for these terms is: "determination of confidence that the signal accurately represents a physiological parameter."

Philips' proposed construction for these terms is: "determination of whether noise due to patient motion exists in the intensity signals."

Each of these phrases concern the concept of "confidence." Masimo contends "confidence" simply reflects the degree to which the value, measurement, or signal is believed to be accurate.[56] Masimo criticizes the inclusion of "patient motion" in Philips' construction, noting these claims recite nothing about patient motion. Masimo asserts many factors affect the confidence in a value, measurement or signal, including noise. Motion is one type of noise discussed in the patents-at-issue. Those patents also explain that respiration causes noise in the signal.[57] Masimo contends, therefore, that even where the patents disclose determining confidence where noise is present, the type of noise is not limited to patient motion, and the claims are not limited to methods or devices where patient noise is detected or determined.

It also argues claim differentiation establishes the independent claims are not limited as Philips proposes. Dependent claims 8, 15 and 23 of the '400 patent add the

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[55] The court also notes Philips conceded at the *Markman* hearing that "said physiological parameter" means "the pulse rate." May 22, 2013 Hearing Tr. at 68:18-22.

[56] D.I. 686 at 44.

[57] *Id.* at 45 (citing '955 patent, 4:38-45, 45:51-58; '572 patent, 4:43-50, 45:4-11; '400 patent, 5:4-11, 45:5-12).

requirement that "determination of signal confidence is based on a determination of the presence of motion induced noise." Masimo argues, therefore, Philips' construction improperly limits the independent claims to the scope of the narrower dependent claims.

Philips agrees that while different types of noise may cause a deterioration in detected pulse oximetry signals, the focus of the patents-at-issue is eliminating noise due to patient motion.[58] It contends the specification explicitly equates high "confidence" with no patient motion: "[d]uring high confidence (no motion), the smoothing filter is a simple one-pole or exponential smoothing filter."[59]

Philips notes claim differentiation argument is not an absolute rule, and cannot trump a claim construction otherwise required by the specification. It maintains even if claim differentiation suggests a broader construction, claims must be construed based upon the specification, and cannot be broader than what was contained in the specification and original claims.[60]

The court concludes the doctrine of claim differentiation is determinative of the dispute.

> While . . . the doctrine of claim differentiation is not a hard and fast rule of construction, it does create a presumption that each claim in a patent has a different scope. . . . That presumption is *especially strong* when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent

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[58] *Id.* at 49 (citing '955 patent at 2:52-57, 3:6-9 (Background of the Invention), and 4:30-38 (Summary of the Invention).

[59] '955 patent, 47:57-58.

[60] D.I. 686 at 50 (citing *Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1305 (Fed. Cir. 2011) (finding claim differentiation to be rebutted where "the specifications do not disclose a body that consists of multiple pieces or indicate that the body is anything other than a one-piece body")).

claim.[61]

Asserted claims 7, 11, and 22 of the '400 patent each contain disputed phrases referencing "confidence." Claims 8, 15, and 23 of depend, respectively, from those asserted claims.

> 8. The physiological monitoring system of claim 7, wherein the signal confidence determination is based on a determination of the *presence of motion induced noise*.[62]
>
> 15. The physiological monitoring system of claim 11, wherein the determination of signal confidence is based on a determination of the *presence of motion induced noise*.[63]
>
> 23. The physiological monitoring system of claim 22, wherein the determination of signal confidence is based on a determination of the *presence of motion induced noise*.[64]

Here, the only difference, not merely the only meaningful difference, between claims 8, 15, and 23 and the claims from which each depends is that the "signal confidence" determination is "based on a determination of the presence of motion induced noise."[65] Philips' proposed construction would make each of these dependent claims superfluous. Although such a result is sometimes required, the court finds Philips' arguments do not rebut the presumption that "'different claims are of different scope.'"[66]

The court construes each of these disputed phrases to mean: "determination of

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[61] *SunRace Roots Enter. Co., Ltd. v. SRAM Corp.*, 336 F.3d 1298, 1302-03 (Fed. Cir. 2003) (emphasis added) (internal quotation marks and citations omitted).

[62] '400 patent, claim 8 (emphasis added).

[63] *Id.*, claim 15 (emphasis added).

[64] *Id.*, claim 23 (emphasis added).

[65] Although the '955 and '572 patents do not have similar dependent claims, the parties agree that each of the disputed terms reciting "confidence" should be given the same meaning.

[66] *SunRace Roots*, 336 F.3d at 1302-03 (quoting *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1326 (Fed. Cir. 2003) ("Our court has made clear that when a patent claim 'does not contain a certain limitation and another claim does, that limitation cannot be read into the former claim in determining either validity or infringement.' . . . There is a rebuttable presumption that different claims are of different scope.")).

the level of certainty that the signal accurately represents a physiological parameter."

8. *based upon at least two alternative methods of processing the sensed physiological signals from at least one of the first and second wavelengths* ('955 patent, claims 5, 8); *based upon at least two alternative methods of processing the physiological signals* ('572 patent, claim 1); *based upon at least two different methods of processing the intensity signals* ('572 patent, claim 10); *based upon at least two alternative methods of processing the sensed physiological signals from at least one of the first and second wavelengths and the signals corresponding to ambient light* ('572 patent, claim 19)

Masimo's proposed construction for these terms is: "using at least two alternative methods of processing the sensed physiological signals from at least one of the first and second wavelengths."

Philips' proposed construction for these terms is: "using at least two alternative methods of processing the signals in the frequency domain."

The claims at issue here concern determining at least two alternative calculations for pulse rate. The primary dispute between the parties is whether the processing of signals must be signals in the frequency domain.

Philips states the only methods of calculating pulse rate disclosed in the specification are described with respect to Figures 20-21 and 25A-C, and each of those methods calculate pulse rate in the frequency domain. Philips insists there is no disclosure or suggestion that the inventors possessed any methodology for calculation of pulse rate using time-domain techniques. In Figures 20-21, the "Pulse Rate Calculation" module 410 uses "spectral estimation" which "comprises a Chirp Z transform that provides a frequency spectrum of heart rate information."[67] In Figures

[67] D.I. 686 at 52 (citing '955 patent, 48:66-49:6 ("the frequency spectrum is provided to a spectrum analysis module 590 which selects the first harmonic from the spectrum as the pulse rate")).

25A-C, the detected signals are transformed into the frequency domain using a complex FFT ("fast fourier transform").[68] Philips concludes the claims must be limited to calculation of pulse rate in the frequency domain, because Masimo did not invent any pulse rate techniques that do not use frequency-domain processing.[69]

Masimo argues Philips is attempting to limit the claims to a preferred embodiment by excluding time-domain embodiments from the claims, even though the claims make no mention of either time or frequency domain. It contends the patents describe generally processing signals in both the time and frequency domain, and the claimed inventions were never limited, either in the specifications or during prosecution, to frequency-domain processing. As support, Masimo points to Figure 14 of the '955 patent showing parallel calculation of saturation using two time-domain embodiments, Statistics 404 and Saturation Transform Module 406, and cites the specification's description of using frequency-domain "Bank of Filters" as an alternative to time-domain Saturation Transform Module 406.[70] Masimo concludes nothing in the specification or file history disclaims or disavows claim scope to justify deviating from the plain and ordinary meaning of the claims at issue.

Philips states the time-domain embodiments cited by Masimo are not used to calculate pulse rate. Philips notes Masimo admits the embodiment illustrated in Figure

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[68] *Id.* at 53 (citing '955 patent, 57:20-22 ("The complex FFT modules 652, 654 perform complex FFTs on respective infrared and red channels on the data snapshots"); '955 patent, 59:23-31 ("the spectrum analysis module determines the pulse rate by determining the first harmonic in the frequency spectrum.")).

[69] *Id.* (citing *Alloc, Inc. v. ITC*, 342 F.3d 1361, 1370 (Fed. Cir. 2003) (claims should be limited where the "specification read as a whole suggests that the very character of the invention requires the limitation to be a part of every embodiment")).

[70] *Id.* at 52 (citing '955 patent Figure 14, 51:22-52:37).

14 is a parallel calculation of *saturation* using two time-domain embodiments. Philips explains the Bank of Filters embodiment, illustrated in Figure 23, does not calculate pulse rate, and the section of the specification Masimo cites indicates it is used for calculation of arterial or venous oxygen *saturation*.[71]

Each of these claims is directed to a "method of determining [a] pulse rate." It is undisputed that none of the embodiments describe determining a pulse rate using time-domain processing. The Federal Circuit has cautioned, however, that:

> although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments. In particular, we have expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment.[72]

There is no express disavowal of determining a pulse rate using time-domain processing. In fact, at the *Markman* hearing, Masimo pointed out the following statement in the specification:

> Accordingly, by using a complex FFT and windowing functions, the noise can be suppressed from the plethysmographic waveform in order to obtain the arterial saturation, the *pulse rate*, and a clean plethysmographic waveform. *It should be understood that although the above description relates to operations primarily in the frequency domain, operations that obtain similar results could also be accomplished in the time domain.*[73]

As a result of that statement, and the Federal Circuit's admonition regarding limiting claims to preferred embodiments, the court construes these phrases to mean: "using at least two alternative methods of processing the sensed physiological signals from at

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[71] *Id.* at 54 (citing '955 patent, 52:15-24).

[72] *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (*en banc*) (internal citations omitted).

[73] '955 patent, 59:40-47 (emphasis added).

least one of the first and second wavelengths."

9. *adjustably smooth the plurality of resulting values indicative of the at least one physiological characteristic* ('400 patent, claim 1); *adjustably smooth the plurality of values* ('400 patent, claim 11); *adjustably smoothing the plurality of values* ('400 patent, claim 18)

Masimo's proposed construction for "adjustably smooth the plurality of resulting values indicative of the at least one physiological characteristic" is: "adjustably average the plurality of resulting values indicative of the at least one physiological characteristic." Its proposed construction of "adjustably smooth the plurality of values" is: "adjustably average the plurality of values." Its proposed construction of "adjustably smoothing the plurality of values" is: "adjustably averaging the plurality of values."

Philips' proposed construction for these terms is: "reduce short term fluctuations in the physiological characteristic by combining the newest measurement and previous values with a weight assigned to each, where the weights are adjusted based on a determined property of the intensity signals."

The parties' dispute centers on the meaning of "adjustably smoothing" a plurality of values. There is no dispute that "smoothing" means averaging, but Philips maintains the '400 patent describes "adjustable smoothing" as a specific type of averaging: the application of different weights to the saturation values based upon the detection of motion or absence thereof.[74] Masimo maintains Philips' proposed construction improperly limits the disputed phrases.

The specification includes a broad description of adjustably smoothing.

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[74] At the *Markman* hearing, Philips agreed the language of its proposed construction, "reduce short term fluctuations in the physiological characteristic" could be replaced with "averaging." May 22, 2013 Hearing Tr. at 120:19-121:18.

> The clip and smooth operation 566 basically performs averaging with a low pass filter. The low pass filter provides *adjustable smoothing* as selected by a Select Smoothing Filter module 568. The Select Smoothing Filter module 568 performs its operation based upon a confidence determination performed by a High Confidence Test module 570. The high confidence test is an examination of the peak width for the bin power curves. The width of the peaks provides some indication of motion by the patient–wider peaks indicating motion. Therefore, if the peaks are wide, the smoothing filter is slowed down. If the peaks are narrow, the smoothing filter speed is increased. Accordingly, the smoothing filter 566 is adjusted based on the confidence level. The output of the clip and smooth module 566 provides the oxygen saturation values in accordance with the present invention.[75]

The specification then describes a specific way to making adjustments to the smoothing in "a presently preferred embodiment" including switching between filters and adjusting the weight as a result.[76]

The court declines to import limitations from that embodiment contained in Philips' proposed construction. The court notes that claim 11 recites assigning differing weights to certain measurements:

> the signal processing device is configured to speed up the adjustable smoothing by *giving a higher weight to the newest measurement* and wherein if a determination is made that the confidence measure is low, the signal processing device is configured to slow down the adjustable smoothing by *giving a higher weight to older measurements*.[77]

Claims 1 and 18 do not include similar limitations, at least suggesting that "adjustable smoothing" does not have to occur by assigning differing weights to particular measurements. Consequently, the court construes "adjustably smoothing" in these phrases to mean: "variably averaging."

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[75] '400 patent, 46:50-64 (emphasis added).
[76] *Id.*, 46:65-47:33.
[77] *Id.*, claim 11 (emphasis added).

10. *speed up the adjustable smoothing* ('400 patent, claim 11); *the smoothing filter is sped up* ('400 patent, claim 16)

11. *slow down the adjustable smoothing* ('400 patent, claim 11)

Masimo's proposed construction for "speed up the adjustable smoothing" and "the smoothing filter is sped up" is: "use less averaging." Its proposed construction for "slow down the adjustable smoothing" is: "use more averaging."

Philips' proposed construction for "speed up the adjustable smoothing" and "the smoothing filter is sped up" is: "give higher weight to the newest measurement." Its proposed construction for "slow down the adjustable smoothing" is: "give lower weight to the newest measurement."

The parties each propose the same construction for "speed up the adjustable smoothing" and "the smoothing filter is sped up." Each proposes essentially the opposite construction for "slow down the adjustable smoothing."

Masimo argues Philips' construction is unduly limiting and has no basis in the claim language. Philips argues Masimo's construction, like its construction for "adjustably smoothing," does not provide any clarification as to how the "speed" of the adjustable smoothing is increased or decreased.

For similar reasons set forth with regard to "adjustably smoothing," the court again rejects Philips' proposed constructions. Masimo explains its proposed constructions, "more averaging" and "less averaging," could entail increasing or decreasing the window of time over which measurements are taken, as well as, varying the weights assigned to particular measurements. Masimo again notes claim 11 specifies the way adjustable smoothing is sped up or slowed down: "by giving a higher

weight to the newest measurement" and "by giving a higher weight to older measurements." It also points out claim 16, which is multi-dependent from claim 11, adds the limitation: "[t]he physiological monitoring system of claim 15, wherein during high confidence, the smoothing filter *is sped up by using a simple one-pole filter.*"[78]

Finally, accepting Philips' proposed construction of "speed up the adjustable smoothing" would create the following redundancy in claim 11: "the signal processing device is configured to ~~speed up the adjustable smoothing~~ *give higher weight to the newest measurement* by giving a higher weight to the newest measurement."

Consequently, the court construes "speed up the adjustable smoothing" and "the smoothing filter is sped up" to mean: "use less averaging," and "slow down the adjustable smoothing" to mean: "use more averaging."

12. *first inactive time period* ('572 patent, claim 1); *second inactive time period* ('572 patent, claim 1)

13. *second time where it is responsive to said ambient light* ('572 patent, claim 10)

14. *inactive portions of a drive cycle where none of said plurality of light sources are active* ('572 patent, claim 19)

Masimo's proposed construction for "first inactive time period" is: "first period of time where no light sources in the probe are active." Its proposed construction for "second inactive time period" is: "second period of time where no light sources in the probe are active." Its proposed construction for "second time where it is responsive to said ambient light" is: "second period of time where the light-sensitive detector measures ambient light." Its proposed construction for "inactive portions of a drive

[78] '400 patent, claim 16 (emphasis added).

cycle where none of said plurality of light sources are active" is: "portions of a drive cycle where no light sources are active."

Philips' proposed construction of "first inactive time period" is: "period of time where no light sources in the probe are active immediately following the first active time period that acts to compensate for ambient light detected during the first active time period." Its proposed construction for "second inactive time period" is: "period of time where no light sources in the probe are active immediately following the second active time period that acts to compensate for ambient light detected during the second active time period." Its proposed construction for "second time where it is responsive to said ambient light" is: "period of time immediately following the first time that acts to compensate for ambient light detected during the first time." Its proposed construction for "inactive portions of a drive cycle where none of said plurality of light sources are active" is: "at least two periods of time during which the light sources are inactive, each period immediately following an active portion and acting to compensate for ambient light detected during the active portion."

The dispute with these terms centers on the phrase "inactive time period." The parties' constructions are in agreement that "inactive time period" is a "period of time where no light sources in the probe are active." The parties disagree as to whether the inactive portions must immediately follow an active portion, and whether the inactive time period is used to compensate for ambient light detection.

Masimo argues Philips' requirement that in each of the disputed phrases the inactive time period must "immediately follow" an active time period is improper because neither the claims nor the specification require temporal restrictions on when

the inactive time period occurs.

The court agrees with Philips that the phrases at issue should be construed to require the "inactive" time periods to immediately follow an "active" time period.

Claim 1 of the '572 patent recites:

> A method of determining a pulse rate of a patient using a patient monitoring device that includes a non-invasive optical probe and signal processing components capable of processing signals received from the non-invasive optical probe and capable of determining the pulse rate, the method comprising:
>
> > activating a first light source of said optical probe for a first active time period;
> >
> > deactivating said first light source of said optical probe for *a first inactive time period*, said first inactive time period having no light sources of said optical probe activated;
> >
> > activating a second light source of said optical probe for a second active time period;
> >
> > deactivating said second light source of said optical probe for *a second inactive time period*, said second inactive time period having no light sources of said optical probe activated;
> >
> > receiving physiological signals representative of attenuation of light during at least said first and said second active and said first and second inactive time periods, said attenuated light comprising at least first and second wavelengths, said attenuation caused at least by body tissue carrying pulsing blood; and
> >
> > with one or more processors of said patient monitoring device, determining at least two values corresponding to pulse rate based upon at least two alternative methods of processing the physiological signals, and determining a resulting value for pulse rate from the at least two values corresponding to pulse rate.[79]

The language of this claim recites a cycling of a first active time period followed by a

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[79] '572 patent, claim 1 (emphasis added).

first inactive time period followed, in turn, by a second active time period followed by a second inactive time period. Claim 1 does not include any steps between the deactivation of the light sources and subsequent inactive time periods. This implies the inactive time periods immediately follow the respective active time periods.

Claim 10 recites:

A method of determining pulse rate comprising:

> receiving first and second intensity signals from a light-sensitive detector which detects light of at least first and second wavelengths attenuated by body tissue carrying pulsing blood, said first and second intensity signals each including a first time where it is responsive to ambient light and a respective one of said first and second wavelengths of light and *a second time where it is responsive to said ambient light*;
>
> electronically determining with a processor at least two values corresponding to pulse rate based upon at least two different methods of processing the intensity signals; and
>
> electronically determining with said processor a resulting value for pulse rate from the at least two values corresponding to pulse rate.[80]

Claim 10, in reciting a "first time" where a light-sensitive detector is responsive to ambient light and one of the first and second wavelengths of light and a "second time" responsive to only ambient light, again suggests "a second time where it is responsive to said ambient light" immediately follows "a first time where it is responsive to ambient light and a respective one of said first and second wavelengths of light."

Claim 19 recites:

A method of determining pulse rate comprising:

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[80] *Id.*, claim 10 (emphasis added).

> driving a plurality of light sources of a noninvasive optical sensor to include *inactive portions of a drive cycle where none of said plurality of light sources are active*;
>
> sensing physiological signals resulting from the attenuation of light of said light sources of at least first and second wavelengths by body tissue carrying pulsing blood and signals corresponding to ambient light;
>
> determining with a signal processor at least two values corresponding to pulse rate based upon at least two alternative methods of processing the sensed physiological signals from at least one of the first and second wavelengths and the signals corresponding to ambient light; and
>
> determining with a signal processor a resulting value for pulse rate from the at least two values corresponding to pulse rate.[81]

Although claim 19 is not as suggestive of requiring "inactive portions of a drive cycle where none of said plurality of light sources are active" to immediately follow an active portion, the specification leads to the conclusion that such requirement exists. The specification recites:

> *In the present invention*, the red and infrared light emitters are modulated as follows: for one complete 625 Hz red cycle, the red emitter 301 is activated for the first quarter cycle, and off for the remaining three-quarters cycle; for one complete 625 Hz infrared cycle, the infrared light emitter 302 is activated for one quarter cycle, and is off for the remaining three-quarters cycle. *In order to only receive one signal at a time, the emitters are cycled on and off alternatively, in sequence, with each only active for a quarter cycle per 625 Hz cycle and a quarter cycle separating the active times.*[82]

The court reads the statement that "*[i]n the present invention* . . . the emitters are cycled on and off alternatively, in sequence, with each only active for a quarter cycle per 625 Hz cycle and *a quarter cycle separating the active times*" as confirming the inactive

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[81] *Id.*, claim 19 (emphasis added).
[82] *Id.*, 36:28-38 (emphasis added).

times immediately follow the active times.[83]

The court disagrees with Philips that these disputed phrases must be interpreted to require the inactive time period to be used to compensate for ambient light detected during an active portion. The court notes, the word "compensate" does not appear in any of these claims.

In claim 1, not only is the word "compensate" not recited, it does not include the words "ambient light." Thus, nothing in the language of claim 1 supports a construction requiring compensation.

Claim 10 recites "receiving" intensity signals which each include "a first time where [a light-sensitive detector] is responsive to ambient light and a respective one of said first and second wavelengths of light and a second time where it is responsive to said ambient light." The court agrees with Masimo that being "responsive to" is broader than Philips' proposed "compensate for." Also, neither of the two following "determining" limitations include any information as to what use is made of the ambient light.

Claim 19 recites "sensing physiological signals . . . corresponding to ambient light" and "determining . . . at least two values corresponding to a pulse rate *based upon* . . . the signals corresponding to ambient light." The claim does not state that the

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[83] In describing the embodiment illustrated in Figure 15, the specification similarly states: "FIG. 15 illustrates the operation of the demodulation module 400. The modulated signal format is depicted in FIG. 15. One full 625 HZ cycle of the composite signal is depicted in FIG. 15 with *the first quarter cycle being the active red light plus ambient light signal, the second quarter cycle being an ambient light signal, the third quarter cycle being the active infrared plus ambient light signal, and the fourth quarter cycle being an ambient light signal.* As depicted in FIG. 15, with a 20 KHz sampling frequency, the single full cycle at 625 Hz described above comprises 32 samples of 20 KHz data, eight samples relating to red plus ambient light, eight samples relating to ambient light, eight samples relating to infrared plus ambient light, and finally eight samples related to ambient light." *Id.*, 39:52-58 (emphasis added).

inactive portions are used to "compensate" for ambient light.

In opposition to Philips' argument the inactive periods must be defined to compensate for ambient light, Masimo cites three statements from the specification regarding ambient light.

> It should be understood, however, that the current could be adjusted for changes in the ambient room light and other changes which would effect the voltage input to the front end analog signal conditioning circuitry 330.[84]
>
> As will be understood, the attenuated signal contains a component representing ambient light as well as the component representing the infrared or the red light as the case may be in time. If there is light in the vicinity of the sensor 300 other than the red and infrared light, this ambient light is detected by the photodetector 320. Accordingly, the gain of the preamplifier is selected in order to prevent the ambient light in the signal from saturating the preamplifier under normal and reasonable operating conditions.[85]
>
> The gain of the amplifier 346 would be increased if the gain of the preamplifier 342 is decreased to compensate for the effects of ambient light.[86]

The court agrees with Masimo that the language in the first two citations does not equate the actions described with compensating, and the third citation does not provide a definition creating a requirement that the claims compensate for ambient light.

The court also concludes the prosecution history does not mandate Philips' proposed compensation requirement. Philips notes during prosecution, an examiner's amendment was made to application claim 13, which issued as claim 19. The examiner noted the amendment was authorized by the applicant, and the "Applicant agreed to amend claim 13 to provide similar amendments to those made in the other

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[84] *Id.*, 36:24-28.
[85] *Id.*, 36:61-37:2.
[86] *Id.*, 37:23-25.

independent claims, namely to indicate that ambient light is measured and the measurement result is used as part of the processing."[87] Masimo points out the examiner stated the measurement result of ambient light is "*used* as part of the processing"; "compensation" was not mentioned. Moreover, Masimo insists its silence regarding the examiner's amendment does not limit claim scope. Although Philips stated at the *Markman* hearing it was not arguing estoppel by pointing to the examiner's statement, merely that the statement supports its proposed construction, the court agrees with Masimo, the prosecution history does not mandate Philips' proposed construction.[88]

Because none of the claims recite a compensation requirement and the intrinsic record fails to establish such a requirement, the court rejects that portion of Philips' proposed construction. Therefore, court construes the disputed phrases as follows: "first inactive time period" means "period of time where no light sources in the probe are active immediately following the first active time period"; "second inactive time period" means "period of time where no light sources in the probe are active immediately following the second active time period"; "second time where it is responsive to said ambient light" means "period of time immediately following the first time where the light-sensitive detector measures ambient light"; and, "inactive portions of a drive cycle where none of said plurality of light sources are active" means "at least two periods of time during which the light sources are inactive, each period immediately following an

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[87] D.I. 689, Ex. 12 ('572 patent file history) at MASP0642030.

[88] *See, e.g., Salazar v. Procter & Gamble Co.*, 414 F.3d 1342, 1345 (Fed. Cir. 2005) ("[A]n applicant's silence regarding statements made by the examiner during prosecution, without more, cannot amount to a 'clear and unmistakable disavowal' of claim scope.").

active portion."

15. *docking station . . . configured to mate with the portable physiological measurement device* ('949 patent, claims 1, 5, 8)

Masimo's proposed constructions of both "docking station also configured to mate with the portable physiological measurement device" (claims 1, 8) and "docking station is configured to mate with the portable measurement apparatus" (claim 5) is: "an apparatus that mechanically accepts and removably retains a portable physiological measurement device."

Philips' proposed construction of "docking station" (claims 1, 5, 8) is "a singular device physically distinct from both the portable device and the patient monitoring system that is capable of becoming physically and electrically connected to a patient monitoring system and to a portable device."

Each of the asserted claims require the docking station measure a physiological parameter separate and distinct from a physiological parameter measured by a portable physiological measurement device.[89] At the *Markman* hearing, Philips insisted that the "docking station" covered by those claims is the docking station, identified by the number 660, in Figure 6 because that is the only docking station embodiment described in the specification as having the ability to measure physiological parameters separate

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[89] *See*, '949 patent, claim 1 ("a docking station forming a patient monitoring system when combined with the portable physiological measurement device, *said docking station configured to measure an additional physiological parameter by at least processing measurement data other than measurement data obtained from said portable physiological measurement device*") (emphasis added); *id.*, claim 5 ("[docking station] performing a third physiological measurement, *said third physiological measurement processing measurement data unavailable to said standalone apparatus*") (emphasis added); *id.*, claim 8 ("a docking station forming a patient monitoring system, *said docking station configured to measure a physiological parameter by at least processing signals other than signals from said portable physiological measurement device*") (emphasis added).

from those measured by the portable device.[90] The specification, however, suggests the docking station is not necessarily a "separate and distinct" item: "in one embodiment, *the docking station 660 is intended to be associated with a fixed (non-transportable) host instrument*, such as a multiparameter patient monitoring instrument in a hospital emergency room."[91]

The court also disagrees with Philips' position that the proper construction requires the docking station to be "electrically connected to a patient monitoring system and to a portable device." None of the claims recite the docking station be electrically connected to a patient monitoring system, and the court declines to inject that requirement into its construction. With regard to the docking station being electrically connected to a portable device, claims 1 and 5 each recite "the portable physiological measurement device is *in electrical communication* with the docking station," while claim 8 recites "the portable physiological measurement device is *in communication* with the docking station." The difference in language among the claims also leads the court to reject the requirement that the docking station be electrically connected to the portable device.[92]

Having rejected Philips' proposed construction, the court adopts Masimo's proposed construction and defines these disputed phrases to mean: "an apparatus that

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[90] May 22, 2013 Hearing Tr. at 214:19-216:19 (citing '949 patent, 16:49-37).

[91] '949 patent, 13:2-5 (emphasis added).

[92] In briefing, Philips argued "being electrically connected and in electrical communication with another device are two distinct things." D.I. 686 at 86. The court agrees with Masimo, if those are "two distinct things," that is another reason to reject that portion of Philips' proposed construction. Furthermore, each of the asserted claims recites the docking station is configured to mate with a portable device, and the specification suggests "mate" and "electrically connects" are separate terms: "[a] module connector 1750 (FIG. 17B) mates *and* electrically connects with a corresponding backplane connector (not shown) within an MPMS slot 292 (FIG. 2)." '949 patent, 19:12-15 (emphasis added).

mechanically accepts and removably retains a portable physiological measurement device."[93]

16. *patient monitoring system* ('949 patent, claims 1, 2, 3, 5, 8, 11, 13)

Masimo's proposed construction is: "a system that monitors a patient."

Philips' proposed construction is: "a system that monitors a patient, the system having a visual display."[94]

In light of Philips' modification of its proposed construction, the parties' dispute centers on whether the phrase "patient monitoring system" must be construed to include a "visual display." At the *Markman* hearing, Masimo acknowledged "to have a patient monitoring system, you need a visual display," but argued "the claims already require a display for both the portable and the docking station."[95] Philips contends the "docking station" recited in the claims does not have a visual display, and the claims demonstrate there are three separate items: a portable measurement device, a docking station, and a second visual display.

The court disagrees with Masimo and determines the docking station is not, in and of itself, a patient monitoring system.

Claims 1, 5, and 8 are independent claims. Claim 1 recites:

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[93] This construction is also consistent with the specification's description of the docking station 660 Philips maintains is the docking station of the asserted claims: "FIG. 12A depicts the front side 1210 of the *docking station 660.* The front side 1210 has a docking compartment 1220, a pole clamp recess 1230, pivots 1242, a catch 1244, a plug connector 972 and LED status indicators 982. *The docking compartment 1220 accepts and retains the portable 610 (FIGS 11A-B), as shown in FIG. 13.*" '949 patent, 15:56-61 (emphasis added).

[94] This construction was offered by Philips during the *Markman* hearing. May 22, 2013 Hearing Tr. at 219: 8-10. In briefing, Philips previously suggested construing this phrase to mean "a system having a visual display and a processor that measures, calculates, and displays multiple physiological parameters." D.I. 686 at 87, 89, 90-92.

[95] May 22, 2013 Hearing Tr. at 209:16-21.

> a portable physiological measurement device comprising a first local display and a first processor . . . ; and a docking station forming a *patient monitoring system* when combined with the portable physiological measurement device . . . wherein the portable physiological measurement device is in electrical communication with the docking station, and further wherein the docking station is in electrical communication with a second local display, and wherein a docking station processor is associated with said docking station.[96]

Here, the separate physiological measurement device and docking station are in electrical communication with one another. The portable physiological measurement device *comprises* a first local display, whereas the docking station is in electrical communication with a second local display. Thus, the "patient monitoring system" of claim 1 includes a portable physiological measurement device, having a first local display, in electrical communication with a docking station that is in electrical communication with a second local display.

Claim 5 recites:

> performing a first physiological measurement to obtain values of one or more physiological parameters with a portable measurement apparatus physically and electrically isolated from a docking station forming a standalone *patient monitoring system* . . . and . . . the docking station is in electrical communication with a second local display . . . ; presenting information related to said first measurement on a display portion of said standalone apparatus.[97]

In this claim, the portable measurement apparatus again has a display, information related to the first measurement is presented on "a display portion of said standalone apparatus," and the docking system is again in electrical communication with a second local display. In claim 5, "a portable measurement apparatus physically and electrically

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[96] '949 patent, claim 1 (emphasis added).
[97] *Id.*, claim 5 (emphasis added).

isolated from a docking station" forms "a standalone patient monitoring system."

Claim 8 recites:

> a portable physiological measurement device comprising a first local display and a first processor . . . ; and a docking station forming a *patient monitoring system* . . . wherein the portable physiological measurement device is in communication with the docking station, and further wherein the docking station is in communication with a second local display, and wherein a docking station processor is associated with the docking station.[98]

Once again, the portable physiological measurement device has a first local display and the docking station is in communication with a second local display. The patient monitoring system of claim 8 includes a docking station in communication with the portable physiological measurement, having a first local display, and the docking station in communication with a second local display.

In each of these claims, the patient monitoring system has a display, and in none of those claims is the docking station a patient monitoring system in and of itself. Consequently, the court construes "patient monitoring system" to mean: "a system that monitors a patient, the system having a visual display."

B. Disputed Claim Term in Philips' Patent

1. *concentration* ('745 patent, claim 10)

Masimo's proposed construction is: "the determined quantity of a dissolved material relative to the determined quantity of the substance in which the material is dissolved."

Philips' proposed construction is: "the quantity of an absorptive substance in the

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[98] *Id.*, claim 8 (emphasis added).

blood relative to the quantity or volume of solvent in the blood."

Philips describes the '745 patent as directed to non-invasively measuring the blood stream concentration of colored blood components.[99] Like traditional pulse oximetry, the '745 patent relies upon the absorbance or scattering of light of different wavelengths to perform these measurements.[100] Unlike traditional pulse oximetry, however, the device of the '745 patent measures concentration in quantitative terms, such as grams/deciliter, rather than in the unitless percentage of standard pulse oximetry (e.g., an SpO2 of 86%).[101] Such information is different than standard pulse oximetry because it provides "quantitative measurements upon which medical decisions can be based."[102]

According to Philips, the parties agree the term "concentration" as used in the '745 patent means an actual quantitative measurement of a blood constituent, as opposed to the unitless percentages of SpO2 measurements.[103] Philips maintains the dispute is whether Masimo's proposed inclusion of the term "determined" as a modifier for the quantities of both the blood component and the solvent is proper.[104] Philips argues Masimo's proposed construction improperly limits the claim.[105]

Philips states the '745 patent expressly states the device need not "determine" the quantity of either the dissolved material or the substance in which the material is dissolved: "[f]urthermore, the absolute concentration of water would not always need to

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[99] '745 patent, 3:3-14.
[100] *Id.*, 3:51-55 and 4:3-24.
[101] *See, e.g., id.*, 2:42-52.
[102] '745 patent, 2:65-68.
[103] D.I. 686 at 92.
[104] *Id.* at 92-93.
[105] *Id.* at 93.

be measured in the order to determine a concentration,"[106] and the relative amounts the solvent and solute are all that are needed to provide the claimed concentration: "[i]n this case, the *relative amount* of bilirubin is divided by the *relative amount* of water, and multiplied by an estimate of the concentration of water in the blood, to produce quantitative bilirubin concentration."[107] Consequently, Philips concludes the proper construction of "concentration" does not require a "determination" of either component.[108]

Masimo contends that even if the specification originally supported a broader interpretation, the patentee surrendered such subject matter during prosecution. In response to a rejection of certain claims as being anticipated by U.S. Patent No. 5,078,136 ("Stone"), the patentee stated:

> Applicant observes that in Webster's New International Dictionary, Second Edition, concentration is defined as follows:
>
> > 3. Of a solution, the relative content of dissolved material; It may be expressed in percentage by weight or by volume, in parts per million, or in grams per liter.
>
> Since the method of Stone does not disclose a procedure neither for *determining* the *actual quantity* of a chromophore substance within the blood nor of the quantity of water within a given volume of blood, it is *incapable* of providing a result expressed as "a percentage by weight or by volume", or expressed in "parts per million" or in "grams per liter". Referring to the above definition, in order to find the relative quantity of dissolved material", whether the dissolved material be oxygen or some other absorptive chromophore substance, it will typically be necessary to *determine*:
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> > (i) the *quantity of the substance*, e.g., water, in which the material is

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[106] '745 patent, 6:6-8.
[107] *Id.*, 5:58-60 (emphasis added).
[108] D.I. 686 at 93.

dissolved, and

(ii) the *quantity of the dissolved material*.

> Applicant respectfully submits that the patent to Stone does not disclose a technique for making either of these determinations, and hence does not teach a method for the *determination* of *concentration*.[109]

According to Masimo, by the above argument, including distinguishing Stone "does not disclose a technique for making either of these determinations [of solvent and solute], and hence does not teach a method for the determination of concentration," the patentee was clear and unequivocal that a "concentration" requires a determination of the actual quantity of the solute and the actual quantity of the solvent.

The court disagrees with Masimo. The patentee's response to the examiner concerning Stone began by explaining:

> [T]he Stone method is not directed towards the *determination of concentration* of substances in the blood, but rather is concerned with *evaluating arterial oxygen saturation*, i.e., the oxygen carrying capacity of hemoglobin. . . . Calculation of oxygen saturation involves finding the percentage of blood that carries oxygen, and hence the method of Stone yields a *saturation percentage* rather than a *concentration*.[110]

As noted by Philips, the specification states concentration can be determined using relative amounts of the solute and solvent. The patentee likewise explained to the examiner that "Stone does not disclose a technique allowing for the determination of the quantity of an absorptive substance within the blood *relative* to the quantity or volume of water within the blood."[111] The patentee concluded: "[a]ccordingly, the method of Stone is incapable of generating a result expressed in, for example, the

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[109] D.I. 689, Ex. 14 ('745 Patent File History) at PHIL03210614 (emphasis added).
[110] *Id.*, Ex. 14 at PHIL03210613-14 (emphasis added).
[111] *Id.*, Ex. 14 at PHIL03210614 (emphasis added).

concentration units of mols/liter. In contrast the present invention is capable of producing a concentration value (see, e.g., that result 151a in Applicant's FIG. 3 is expressed in terms of 'mmol/L')."[112]

The court does not view the portion of the response cited by Masimo as a clear and unmistakable disclaimer. The patentee distinguished Stone as "not directed towards the determination of concentration of the substances in the blood, but rather is concerned with evaluating . . . the oxygen carrying capacity of hemoglobin. . . . [T]he method of Stone yields a saturation percentage rather than a concentration." The patentee's recitation of a dictionary definition of "concentration" and related discussion can be read as in support of the basic argument distinguishing Stone as determining a "saturation percentage" rather than "teach[ing] a method for the determination of concentration."

Consequently, the court construes "concentration" to mean: "the quantity of an absorptive substance in the blood relative to the quantity or volume of solvent in the blood."

IV. RECOMMENDED DISPOSITION

For the reasons set forth above, I recommend the disputed terms be construed as follows:

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[112] *Id.*, Ex. 14 at PHIL03210614.

Disputed Claim Language	Recommended Construction
scan of a plurality of possible values for said physiological parameter	examination of each of the plurality of possible values for the physiological parameter
said scan	the analysis to qualify the plurality of indication values to be considered as possible resulting indications for the physiological parameter
analysis to determine which of the plurality of possible oxygen saturation values corresponds to the oxygen saturation of the pulsing blood	analysis to determine an oxygen saturation value that corresponds to oxygen saturation of the pulsing blood
calculating a plurality of ratios of values of the transformed first signal to corresponding values of the transformed second signal	calculating point-by-point ratios of the transformed first and second signals
potential of said physiological parameter	potential values of said physiological parameter
said physiological parameter	the pulse rate
determination of confidence in the accuracy of physiological signals; signal confidence determination; confidence measurement; determination of signal confidence	determination of the level of certainty that the signal accurately represents a physiological parameter

Disputed Claim Language	Recommended Construction
based upon at least two alternative methods of processing the sensed physiological signals from at least one of the first and second wavelengths; based upon at least two alternative methods of processing the physiological signals; based upon at least two different methods of processing the intensity signals; based upon at least two alternative methods of processing the sensed physiological signals from at least one of the first and second wavelengths and the signals corresponding to ambient light	using at least two alternative methods of processing the sensed physiological signals from at least one of the first and second wavelengths
adjustably smooth the plurality of resulting values indicative of the at least one physiological characteristic; adjustably smooth the plurality of values; adjustably smoothing the plurality of values	variably averaging
speed up the adjustable smoothing; the smoothing filter is sped up	use less averaging
slow down the adjustable smoothing	use more averaging
first inactive time period	period of time where no light sources in the probe are active immediately following the first active time period
second inactive time period	period of time where no light sources in the probe are active immediately following the second active time period

Disputed Claim Language	Recommended Construction
second time where it is responsive to said ambient light	period of time immediately following the first time where the light-sensitive detector measures ambient light
inactive portions of a drive cycle where none of said plurality of light sources are active	at least two periods of time during which the light sources are inactive, each period immediately following an active portion
docking station . . . configured to mate with the portable physiological measurement device	an apparatus that mechanically accepts and removably retains a portable physiological measurement device
patient monitoring system	a system that monitors a patient, the system having a visual display
concentration	the quantity of an absorptive substance in the blood relative to the quantity or volume of solvent in the blood

Pursuant to 28 U.S.C. § 636(b)(1)(B), Fed. R. Civ. P. 72(b)(1), and D. Del. LR 72.1, any objections to the Report and Recommendation shall be filed within fourteen (14) days limited to ten (10) pages after being served with the same. Any response shall be limited to ten (10) pages.

The parties are directed to the Court's Standing Order In Non-Pro Se Matters For Objections Filed Under Fed. R. Civ. P. 72, dated November 16, 2009, a copy of which is available on the District Court's website, located at http://www.ded.uscourts.gov.

August 29, 2013
Wilmington, Delaware

/s/ Mary Pat Thynge
Thynge, U.S. Magistrate Judge