

United States District Court,
N.D. Illinois, Eastern Division.

ONLY THE FIRST, LTD,
Plaintiff.

v.

SEIKO EPSON CORPORATION,
Defendant.

July 8, 2009.

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MEMORANDUM OPINION AND ORDER

ROBERT M. DOW, JR., District Judge.

Plaintiff Only The First, Ltd. ("OTF") has sued Defendant Seiko Epson Corporation ("SEC") for infringement of United States Patent No. 7,058,339 (the "'339 patent"). On February 6, 2009, the Court held a tutorial and claim construction hearing, at which time it heard evidence and argument regarding the construction of various claim terms in the '399 patent. The claim construction issues also have been extensively briefed. Currently before the Court are OTF's Opening Brief on Claim Construction [57], SEC's Opening Claim Construction Brief [58], OTF's Response Brief on Claim Construction [64], and SEC's Reply Brief on Claim Construction [65]. The Court's construction of the disputed claim terms is set forth below.

I. Background

The '339 patent, entitled "Printing System," relates to a color printing system and devices and elements useful in that system. The abstract for the '339 patent describes the invention as:

A color printing system comprising a combination of at least four, and preferably six coloring materials, each of a different color, wherein these colors are selected from (1) an orange-red; (2) a violet-red; (3) a violet-blue; (4) a green-blue; (5) a green-yellow; and (6) an orange-yellow; as well as white and black. This system may be incorporated into a wide range of printing devices and provides a means of achieving a wide range of colors.

'339 Patent, Abstract.

Previous color printing technology was based on mixing the primary colors of red, blue and yellow. While printers using six colors were fairly common before the issuance of the '339 patent, those printers employed the primary color mixing process, and therefore could achieve only a limited range of colors. Using the colors in the '339 patent extends the gamut of achievable colors. For example, the '339 patent makes it possible to achieve a wide range of brighter oranges, violets, greens, and colored grays that are not possible using other printing systems.

II. Legal Standard

In a patent infringement case, the court must engage in a two step analysis. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed.Cir.1995) (en banc), *aff'd*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). First, the court determines the meaning and scope of the asserted patent claims. *Id.* Second, the court concludes whether the accused product or device infringes on the properly construed claims. *Id.* The first step-claim construction-is a legal determination to be made by the court. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 391, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). The Federal Circuit has explained that " '[t]he construction of claims is simply a way of elaborating the normally terse claim language in order to understand and explain, but not to change, the scope of the claims.' " *Terlep v. Brinkmann Corp.*, 418 F.3d 1379, 1382 (Fed.Cir.2005).

Claims must be construed through the eyes of "the person of ordinary skill in the field of the invention." *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed.Cir.1998); see also *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed.Cir.2005) ("The inquiry into how a person of ordinary skill in the art understands a claim term provides an objective baseline from which to begin claim interpretation."). With that mindset, courts "look to the intrinsic evidence, including the claim language, written description, and prosecution history, as well as to extrinsic evidence" in construing claims. *TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc.*, 529 F.3d 1364, 1369 (Fed.Cir.2008).

The Federal Circuit has directed courts to "look first to the intrinsic evidence of record, *i.e.*, the patent itself, including the claims, the specification and, if in evidence, the prosecution history." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed.Cir.1996). The analysis begins with the words of the claims themselves, which are generally given their ordinary and customary meaning. *Id.* "[T]he 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." *Phillips*, 415 F.3d at 1313.

The " 'heavy presumption' in favor of the ordinary meaning of claim language * * * is overcome * * * where the patentee has chosen to be his own lexicographer." *Bell Atlantic Network Servs., Inc. v. Covad Commc'n Group, Inc.*, 262 F.3d 1258, 1286 (Fed.Cir.2001). A patentee acts as his own lexicographer where he "has clearly set forth an explicit definition of [a claim] term different from its ordinary meaning." *Texas Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1204 (Fed.Cir.2002). The presumption in favor of the ordinary meaning is overcome only where the "special definition of the term is clearly stated in the patent specification or file history." *Vitronics*, 90 F.3d at 1582; *Phillips*, 415 F.3d at 1316 ("inventor's lexicography governs * * * [where] the specification * * * reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess"); *In re Paulsen*, 30 F.3d 1475, 1480-81 (Fed.Cir.1994) (where inventor seeks to "define the specific terms used to describe his or her invention, this must be done with reasonable clarity, deliberateness, and precision"). Even where the patentee acts as his own lexicographer, the court's focus remains on determining how a person of ordinary skill in the art would

understand the claim terms. Thus, "the inventor's lexicography * * * must be understood and interpreted by the court as they would be understood and interpreted by a person in that field of technology." Multiform Desiccants, Inc., 133 F.3d at 1477.

The second place to which a court looks in construing claims is the specification, in part to determine whether the inventor has redefined any claim terms. Vitronics, 90 F.3d at 1582. The Federal Circuit has explained that, because claims "are part of 'a fully integrated written instrument,' * * * [they] 'must be read in view of the specification[] of which they are a part.' " Phillips, 415 F.3d at 1315 (quoting Markman, 52 F.3d at 978-79). Therefore, "the specification is always highly relevant to the claim construction analysis." Vitronics, 90 F.3d at 1582. Indeed, the Federal Circuit has advised that the specification "is the single best guide to the meaning of a disputed term," and, therefore, "[u]sually, it is dispositive." *Id.*

Nevertheless, while "the claim language must be examined in light of the written description," the Federal Circuit repeatedly has admonished courts not to read "limitations * * *" into the claims from the written description." Prima Tek II, L.L.C. v. Polypap, S.A.R.L., 318 F.3d 1143, 1148 (Fed.Cir.2003). In the same vein, the Federal Circuit "has cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification." Texas Instruments, Inc. v. United States Int'l Trade Comm'n, 805 F.2d 1558, 1563 (Fed.Cir.1986). The line between reading a claim in light of the specification, and reading limitations into the claim from the specification is a fine one. Comark Commc'ns, Inc. v. Harris Corp., 156 F.3d 1182, 1186 (Fed.Cir.1998). To "discern[that line] with reasonable certainty and predictability[,] * * * the court's focus [must] remain[] on understanding how a person of ordinary skill in the art would understand the claim terms." Phillips, 415 F.3d at 1323.

The third type of intrinsic evidence the court may consider is the prosecution history. Phillips, 415 F.3d at 1323.

If, after reviewing the intrinsic evidence, ambiguity remains regarding the meaning of disputed claim terms, the court may consider extrinsic evidence, including dictionaries, treatises, and expert testimony. Phillips, 415 F.3d at 1317; see also Vitronics, 90 F.3d at 1584 ("[o]nly if there [is] still some genuine ambiguity in the claims, after consideration of all available intrinsic evidence, should the trial court * * * resort[] to extrinsic evidence"). However, extrinsic evidence generally is considered to be "less reliable" than intrinsic evidence and "unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence." Phillips, 415 F.3d at 1318-19.

III. Discussion

The parties dispute the construction of six color terms that appear in claim 2-orange-red, violet-red, violet-blue, green-blue, green-yellow, and orange-yellow. The parties agree that the inventor, Michael Wilcox, acted as his own lexicographer and defined the meaning of the claimed colors within the patent. However, they disagree on the scope of those definitions. Each of the six claimed colors is defined according to the same pattern, and the disputed issues are the same for each of the six terms. Therefore, the Court will limit its preliminary discussion to one of the six terms—"orange-red."

OTF proposes construing "orange-red" as "a color which, when analyzed spectroscopically, reflects in order of quantity or intensity, red followed by orange and then violet." SEC's proposed construction is identical to OTF's, but contains three additional elements. SEC proposes construing "orange-red" as "a color which, when analyzed spectroscopically, reflects in order of quantity or intensity, red followed by orange and then

violet, wherein red, orange, and violet have the three highest quantities or intensities, respectively. The relative quantities or intensities of each color are determined by comparing the areas under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified color. The wavelength occupied by each specified color is as follows: violet: 400-440 nm; blue: 420-490 nm; green: 490-550 nm; yellow: 550-590 nm; orange: 590-620 nm; red: 610-630 nm." The Court will address each of the three disputed elements in turn.

A. Three Highest Quantities or Intensities

Every color reflects a certain amount of each of the six basic colors. FN1 ' 339 Patent, col. 2, ll. 30-33; [58 at 3]. For example, red reflects red, orange, yellow, green, blue, and violet light in varying degrees. Id. A red object appears red to the human eye because it reflects mostly red wavelength light. [57, at 6; 58 at 3].

FN1. In this opinion, the term "basic colors" refers to red, orange, yellow, green, blue, and violet.

The parties agree that each claimed color is defined by the order (measured in terms of "quantity or intensity") in which it reflects three specific basic colors. For example, "orange-red" is defined as "a color which, when analyzed spectroscopically, reflects in order of quantity or intensity, red followed by orange and then violet." Like every color, orange-red also reflects some amount of the other basic colors-yellow, green, and blue. The parties dispute whether the three component colors-in the case of orange-red, the colors red, orange, and violet-must have the three highest quantities or intensities out of all six basic colors.

1. The Parties' Positions

SEC argues that the three basic colors comprising any claimed color must have the three highest quantities or intensities. Therefore, according to SEC, an orange-red must reflect more red than orange, more orange than violet, and more violet than yellow, green, or blue. By contrast, OTF contends that the patent merely requires that the three constituent colors appear in the proper order. Thus, under OTF's construction, a color that reflects red, followed by orange, followed by green, followed by violet is properly considered an orange-red. [57, at 13].

In support of its proposed construction, SEC relies primarily on the fact that, under OTF's construction, the same color could properly be characterized as two different claimed colors. For example, suppose a color reflects the six basic colors in the following order: red, orange, blue, violet, yellow, green. Because that color reflects "red followed by orange and then violet," it would be an "orange-red." FN2 But it also would be a "violet-blue" because it reflects "blue followed by violet and then green." SEC argues that such a result is "nonsensical," and therefore OTF's proposed construction should not be adopted by the Court. [58 at 15].

FN2. Indeed, OTF used this color as an example of an orange-red during the claim construction hearing. See P's Markman Booklet at p. 9.

SEC finds support for its proposed construction in the specification. For example, according to the specification, " 'violet-blue * * * reflect[s] a 'lot' of violet.' '339 Patent, col. 7, ll. 54-55. According to SEC, this statement illustrates that the color described above-reflecting red, then orange, then blue, then violet, then yellow, then green-should not be considered a violet-blue because it cannot accurately be described as reflecting "a lot of violet." SEC claims that its construction is further corroborated by histograms illustrating

the claimed colors that appear in the inventor's book, "Blue and Yellow Don't Make Green," all of which show the three component colors having the three highest quantities or intensities.

OTF responds that SEC's proposed inclusion of the "three highest quantities or intensities" language would improperly import a limitation from the specification into the claims. OTF also argues that SEC's construction would exclude an embodiment of the invention that is set forth in the specification.

Specifically, Figure 1A, which is identified in the '399 Patent as an example of an "orange-red," shows red followed by orange followed by yellow and then violet.FN3 Because red, orange, and violet are not the three highest in Figure 1A, it would not be an orange-red under SEC's construction.

FN3. SEC argues that Figure 1A is only excluded under the "peak reflectance" method of determining "quantity or intensity," as opposed to the area method. [65 at 15]. However, as OTF demonstrated at oral argument, yellow has a greater intensity than violet in Figure 1A under the area method as well. See Tr. at 110-11.

2. Analysis

As an initial matter, OTF argues that its proposed construction of the claim terms track the specific definitions provided by the inventor in his patent specification, and that no further construction or definition is necessary. It is true that where "a patent applicant has elected to be a lexicographer by providing an explicit definition in the specification for a claim term [,] * * * the definition selected by the patent applicant controls." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1249 (Fed.Cir.1998). However, the patentee's lexicography only controls where it "appear[s] 'with reasonable clarity, deliberateness, and precision.' " *Id.* at 1249 (quoting *In re Paulsen*, 30 F.3d 1475, 1480 (Fed.Cir.1994)); see also *Merck & Co., Inc. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364, 1370 (Fed.Cir.2005) (holding that where patentee's lexicography was amenable to more than one reasonable interpretation, patentee failed to act as its own lexicographer).

The patentee's lexicography at issue here- "in order of quantity or intensity, red followed by orange and then violet"-is open to more than one reasonable interpretation. That phrase could be read as OTF interprets it-to mean that red, orange, and violet must appear in that order, regardless of where the three other basic colors (yellow, green, and blue) appear in the sequence. However, it could also be read-as SEC claims it should be-to mean that red, orange, and violet must appear in that order and come first in the sequence.

The Federal Circuit has directed courts to focus on how the inventor's lexicography would be understood by a person of ordinary skill in the field of the invention. *Multiform Desiccants, Inc.*, 133 F.3d at 1477. Because "the person of ordinary skill in the art is deemed to read the claim term * * * in the context of the entire patent, including the specification," the Court will look to the specification to resolve the ambiguity in the lexicography. *Phillips*, 415 F.3d at 1313.

Nowhere does the specification state that a claimed color's three constituent colors must have the three highest quantities or intensities. To the contrary, Figure 1A is identified as an orange-red despite the fact that red, orange, and violet do not have the three highest quantities or intensities, which indicates that the patentee did not intend to limit his invention in the way that SEC suggests. The Federal Circuit has consistently held that claim terms should not be construed to exclude a preferred embodiment. See *Primos, Inc. v. Hunter's Specialties, Inc.*, 451 F.3d 841, 848 (Fed.Cir.2006); *Vitronics*, 90 F.3d at 1583 (stating that a

claim interpretation that excludes a preferred embodiment is "rarely, if ever, correct"). Here SEC's proposed construction would exclude Figure 1A, and must therefore be rejected.

At the same time, reading the lexicography through the eyes of a person of ordinary skill in the field of color science and in the context of the specification indicates that OTF's proposed construction must be rejected as well. Under OTF's proposed construction, a color that reflects mostly red, then orange, then blue, then violet, then yellow, and then green is an orange-red. See P's Markman Booklet at 9. However, as noted above, that color also would be properly characterized as a violet-blue because it reflects "blue followed by violet and then green." Such a result, whereby a single color can be characterized as two different colors, is illogical, particularly given that the two colors in this example-orange-red and violet-blue-are not commonly understood to resemble one another. For example, one would hardly say a brick (generally considered to be orange-red) is the same color as a blueberry (generally considered to be violet-blue). And there is no evidence that a person of ordinary skill in the field of color science would read the invention in the idiosyncratic way that OTF advocates.

OTF's proposed construction also is inconsistent with various statements in the specification. According to the specification, the six claimed colors were chosen because of their various biases toward and away from the secondary colors. '339 Patent, col. 5 and Fig. 2. For example, orange-red is biased towards orange and away from purple. Id. at Fig. 2. The specification further explains that each claimed color is "an efficient reflector" of the secondary color that it is biased towards, meaning that it "will 'leave behind' a high 'quantity' or intensity of th[at] particular secondary colour." Id. at col. 5, ll. 5-9. Conversely, "it is an inefficient 'reflector' " of the secondary color that it is biased away from, and will therefore " 'leave behind' a small 'quantity' or low intensity of th[at] particular secondary colour." Id. at col. 5, ll. 10-15. The specification also states that "both the orange-red and the orange-yellow reflect a 'lot' of orange," such that using these colors will help create "a range of bright oranges" because of the "large amounts" of orange they leave behind. '339 Patent, col. 7, ll. 23-34.

These statements in the specification indicate that a claimed color must reflect a relatively high amount of the second of its three component colors. For example, orange-red must reflect a relatively large amount of orange, the secondary color towards which it is biased. Moreover, we know that red reflects more red wavelength light than any other color. Because orange-red is a type of red, it should reflect mostly red wavelength light. From these observations, the Court concludes that a person of ordinary skill reading the claims in the context of the specification would interpret the invention as requiring the first two component colors to have the highest quantity or intensity, while the third component color can fall anywhere thereafter in the sequence. For example, orange-red must reflect the most red, followed by orange; violet can fall anywhere thereafter in the sequence. This construction is consistent with Figure 1A and the other examples provided by OTF.

B. Quantity or Intensity

The parties agree that the claimed colors are defined in terms of the "quantity or intensity" in which they reflect three constituent basic colors. The second dispute between the parties centers on the phrase "quantity or intensity." As an initial matter, the parties dispute whether the phrase "quantity or intensity" should be construed by the Court at all. To the extent that the Court concludes that the phrase must be construed, the parties propose conflicting constructions.

1. The Parties' Positions

OTF contends that the Court should not interpret "quantity or intensity" as part of the claim construction process because the terms concern how reflectance is measured-a matter that OTF insists is an infringement issue that should not be addressed at this stage of the litigation. To the extent that the Court does construe the phrase, however, OTF proposes that the terms "quantity" and "intensity" be given distinct meanings. In particular, OTF submits that "quantity" refers to area under the reflectance curve and "intensity" refers to the peak reflectance of a color on the reflectance curve. According to OTF, the use of the word "or" indicates that quantity and intensity are *alternative* methods of measurement, not equivalent terms.

In response, SEC counters that the use of the term "or" is not dispositive, as it can be used to introduce synonyms. SEC argues that the patentee, acting as lexicographer, defined "quantity or intensity" as interchangeable terms that both refer to the area under the reflectance curve.

OTF concedes that the specification states that "[t]he relative quantities or intensities of each colour can be determined by comparing the areas under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified colour." However, OTF claims that this language explains the meaning of the term "quantity" only. According to OTF, no explanation of "intensity" was provided because that term is commonly understood by those skilled in the art to mean peak reflectance. SEC counters that "intensity" does not have an accepted meaning to a person of ordinary skill in the art. [65 at 19]; Supp. Hunt Decl. para. 5.

SEC also argues that if the Court declines to adopt the specification's definition for the "quantity or intensity" of a color, the patent claims will be invalid for indefiniteness because the same color may fall within the scope of the claims if "quantity or intensity" is defined one way, and fall outside the scope of the claims if "quantity or intensity" is defined in a different way.

2. Analysis

As a threshold matter, the Court must determine whether to construe the phrase "quantity or intensity" during the claim construction phase, or whether such a limitation would be extraneous. A claim limitation is "extraneous" if it is not necessary "to interpret what the patentee meant by a particular term or phrase in a claim." *Renishaw PLC*, 158 F.3d at 1249. Therefore, if the way in which "quantity or intensity" is measured is "necessary to an understanding of what the [claimed colors] mean," then a claim limitation based on that language would not be extraneous. *Alza Corp. v. Mylan Labs., Inc.*, 349 F.Supp.2d 1002, 1014 (N.D.W.Va.2004). For example, in *Honeywell Int'l, Inc. v. Int'l Trade Comm'n*, 341 F.3d 1332, 1340 (Fed.Cir.2003), the Federal Circuit held indefinite a claim that included a specified melting parameter of a polymeric yarn because the claim did not state which of four known sample preparation methods should be used, and "knowing the proper sample preparation method [was] necessary to practice the invention."

Conversely, if the methodology for measuring "quantity or intensity" "is solely an issue of infringement," then the Court should "refuse[] to apply any claim limitation that mandates certain" procedures for determining "quantity or intensity." *Alza*, 349 F.Supp.2d at 1014. For example, *Alza* concerned a patent disclosing an extended release version of the drug oxybutynin. The patent claims did not mention any methodology for measuring the claimed release rates of oxybutynin. Nevertheless, the defendant argued that the court should construe the claims to require all methods of in vitro testing to determine oxybutynin release rates. *Id.* at 1013. The court noted that, "unlike the sample preparation method in the *Honeywell* patent, no particular dissolution test is required to manufacture the claimed drug," meaning "a skilled artisan could read the * * * patent, create an infringing drug (assuming enablement), and never employ any testing

to determine the release rates of that drug." *Id.* at 1014. Therefore, the court refused to include a claim limitation mandating certain testing procedures. *Id.*

Here, each claimed color is defined by comparing the "quantity or intensity" in which it reflects the basic colors. In order to create a printing system featuring the six claimed colors, one must be able to measure the "quantity or intensity" with which a given color reflects the basic colors. For example, in order to select an "orange-red," one would need to be able to measure the "quantity or intensity" with which a given color reflects the basic colors to select one that reflects "red followed by orange and then violet." Because the method for measuring "quantity or intensity" is necessary to practice the invention, a claim limitation construing that phrase is not extraneous. Honeywell, 341 F.3d at 1340.

Turning to the proper construction of that phrase, the Court assumes, *arguendo*, that the term "intensity" has an ordinary and accepted meaning among persons of ordinary skill in the field of color science, as OTF contends. The Court nevertheless "must look at the intrinsic evidence to determine whether the patentee has given the term an unconventional meaning." Bell Atlantic, 262 F.3d at 1269-70 (affirming district court's narrow construction of claim term "mode" despite recognizing that "the ordinary meaning of the word 'mode' [may] support[] a broader meaning than the construction ascertained by the district court," where "patentees defined the term 'mode' [narrowly] by implication * * * [in the] specification"). If the patentee "clearly" used the term 'intensity' "in the specification * * * in a manner inconsistent with its ordinary meaning," then the presumption that that term should be construed according to its ordinary meaning is overcome. ResQNet.com, Inc. v. Lansa, Inc., 346 F.3d 1374, 1378 (Fed.Cir.2003) ("a patent applicant may consistently and clearly use a term in a manner either more or less expansive than its general usage in the relevant community, and thus expand or limit the scope of the term in the context of the patent claims").

The specification states that "[t]he relative quantities or intensities of each colour can be determined by comparing the areas under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified colour." '399 patent, col. 3, ll. 8-11. The most natural reading of that sentence is the one proposed by SEC-for purposes of the patent, the terms "quantity" and "intensity" refer to the area under the spectroscopic graph. If the patentee had intended to provide only a definition of "quantity," as OTF contends, he would have done so by stating that "the relative quantities of each colour can be determined by comparing the areas under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified colour." By including the term "intensities" in the definitional sentence, the patentee acted as his own lexicographer and provided an unconventional definition of that term--namely, the area under the spectroscopic graph.

Other statements in the specification confirm that the patentee elected to use the term "intensity" as a synonym for the term "quantity" meaning the areas under the spectroscopic graph. For example, the terms "quantity" and "intensity" appear together in the specification nine times, and in each instance they appear to be interchangeable. '399 patent, col. 3, ll. 7-27; *id.* at col. 5, l. 8; *id.* at col. 5, l. 13. The words "intensity" and "intense" are used elsewhere in the specification to describe various colors. See, e.g., *Id.* at col. 1, ll. 58-59 ("Magenta, Cyan and a mid intensity Yellow are felt to be as close to the 'pure' primaries as possible."); *id.* at col. 5, ll. 41-42 ("Pigment Violet 19 is a transparent, intense pigment, possessing a high violet content."). However, nothing in the specification suggests that quantity and intensity are not synonyms, or that intensity means peak reflectance, as OTF claims.

Rather, it appears to the Court that OTF is seeking to "proffer an interpretation [of the term intensity] for the purposes of litigation that would alter the indisputable public record consisting of the claims, the

specification and the prosecution history." Southwall Tech., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1578 (Fed.Cir.1995). But the public and OTF's competitors were entitled to rely on that public record, including the specification, to ascertain the scope of OTF's claimed invention. Vitronics, 90 F.3d at 1583. Allowing OTF to alter the meaning of "intensity" now would defeat the public notice function of patent claims, the importance of which has been recognized by the Federal Circuit and the Supreme Court. See Superior Fireplace Co. v. Majestic Products Co., 270 F.3d 1358, 1371-72 (Fed.Cir.2001). Therefore, the Court must apply the definition of "quantity or intensity" set forth in the specification.

C. Wavelengths

1. The Parties' Positions

The parties agree that the patentee defined the claimed colors in terms of the six basic colors. SEC contends that the construction of each claimed color must specify the particular wavelength range occupied by each of those six colors. The wavelength ranges SEC proposes are as follows: violet: 400-440 nm; blue: 420-490 nm; green: 490-550 nm; yellow: 550-590 nm; orange: 590-620 nm; red: 610-630 nm. The same wavelength ranges appear in a table in column 6 of the specification. '339 Patent, col. 6, ll. 32-44.

OTF argues that it would be improper for the Court to read the wavelength limitations into the claims from the specification. OTF notes that the table setting forth the wavelengths SEC proposes including in the claim construction is prefaced by the following statement: "[g]enerally speaking, individual colours reflect light in a particular wavelength range, which is summarised in the following Table." '339 Patent, col. 6, ll. 32-34 (emphasis added). According to OTF, the qualifier "generally speaking" indicates that the patentee did not intend to limit his invention to the wavelengths set forth in the table, but to provide them as examples only.

OTF further contends that Seiko's proposed wavelength range excludes embodiments of the claimed colors because Figures 1A-F set forth different wavelength ranges. Specifically, the table in column 6 identifies red as occupying a wavelength range of 610-630 nm, while Figures 1A-F shows the wavelength range for red as extending to 700 nm.

SEC responds that if the wavelength ranges set forth in column 6 are not adopted by the Court, the claims will be invalid for indefiniteness. SEC correctly points out that the wavelength range used to define a particular basic color affects the area under the reflectance curve-and thus the "quantity or intensity"-for that color.FN4 By extension, the wavelength ranges can affect the order of "quantity or intensity" of the basic colors in any given claimed color. Because the claimed colors are defined by the order of "quantity or intensity" of the basic colors they reflect, the wavelength ranges used will determine whether a color falls within the scope of the patent

FN4. The parties agree that one way to determine the relative quantities of the basic colors in any composite color is by comparing the areas occupied by those basic colors under a spectroscopic graph, where reflectance is plotted on the y-axis and wavelength is plotted on the x-axis. Because wavelength is along the x-axis, it is a variable in the area calculation.

2. Analysis

The parties agree that color is the portion of the electromagnetic spectrum that is visible to the human eye. [57 at 5, 58 at 9]. In other words, it is the range wavelengths of light that can be detected visually by

humans. "[I]ndividual colours reflect light in a particular wavelength range." '339 Patent, col. 6, ll. 32-33. However, because the spectrum is a continuum, there are no clear boundaries between the colors, and the same color can be described using different wavelength ranges.FN5

FN5. For example, SEC points to six different scientific texts, which identify six different wavelength ranges for each of the six basic colors. [58 at 10]. OTF agrees that there are no clear boundaries between the colors. Indeed, OTF claims that the patent sets forth two different wavelength ranges for the color red.

The parties' experts agree that different people perceive colors differently. FN6 See Wilcox Tr. at 23 (explaining that "because color takes place within our brain[,] * * * it will vary on our age, our health, the part of the world we were raised," and therefore "color * * * is going to vary from one person to another"); Hunt Tr. at 54 ("different people don't have exactly the same color vision so different people may perceive the same color differently and may use different words to describe the same color"). Therefore, "red" is a subjective term that means different things to different people.

FN6. The Federal Circuit has authorized trial courts to "hear expert testimony for background and education on the technology implicated by the presented claim construction issues," noting that "trial courts have broad discretion in this regard." Key Pharm. v. Hercon Laboratories Corp., 161 F.3d 709, 716 (Fed.Cir.1998); see also Vitronics, 90 F.3d at 1585 (stating that the district court would not have erred had it "relied on the expert testimony and other extrinsic evidence solely to help it understand the underlying technology").

SEC argues that the claims are invalid for indefiniteness without a specific wavelength range limitation. Definiteness is a statutory requirement set forth in 35 U.S.C. s. 112, para. 2, which requires "claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." The Federal Circuit has explained that "the purpose of the definiteness requirement is to ensure that the claims delineate the scope of the invention using language that adequately notifies the public of the patentee's right to exclude." *Datamize*, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1347 (Fed.Cir.2005). "Indefiniteness is * * * a legal determination arising out of the court's performance of its duty construing the claims." *BJ Servs. Co. v. Halliburton Energy Servs., Inc.*, 338 F.3d 1368, 1372 (Fed.Cir.2003). If, in attempting to construe patent claims, "the court determines that a claim is not 'amenable to construction,' then the claim is invalid as indefinite." *Honeywell Int'l, Inc. v. Int'l Trade Comm'n*, 341 F.3d 1332, 1338 (Fed.Cir.2003). However, "[b]ecause a claim is presumed valid, [it] is indefinite only if [it] 'is insolubly ambiguous, and no narrowing construction can properly be adopted.'" Id. at 1338-39 (quoting *Exxon Research & Eng'g Co. v. United States*, 265 F.3d 1371, 1375 (Fed.Cir.2001)). Here, SEC suggests that the Court adopt a narrowing construction of the claim terms-one that incorporates specific wavelength ranges for the six basic colors-in order to prevent the claims from being indefinite.

The Federal Circuit's decision in *Datamize* is instructive here. In *Datamize*, the parties disputed the meaning of the claim language "aesthetically pleasing." 417 F.3d at 1345. The plaintiff proposed a subjective construction of "aesthetically pleasing" that depended on only the subjective opinion of the person practicing the invention. Id. at 1349. The court concluded that such a subjective construction would render the phrase indefinite, explaining that "[t]he scope of claim language cannot depend solely on the unrestrained, subjective opinion of a particular individual purportedly practicing the invention" because "[a] purely subjective construction of [a claim term] would not notify the public of the patentee's right to exclude." Id.

at 1350. Rather, "[s]ome objective standard must be provided in order to allow the public to determine the scope of the claimed invention." *Id.* Therefore, the Federal Circuit held that, "when faced with a purely subjective phrase like 'aesthetically pleasing,' a court must determine whether the patent's specification supplies some standard for measuring the scope of the phrase." *Id.* at 1351.

Here, OTF's proposed construction is subjective because, as the parties' experts agree, the basic colors are subjective. The Court must therefore look to the specification for a standard by which to measure the scope of the terms red, orange, yellow, green, blue, and violet. If no such standard can be found, the claims will be invalid for indefiniteness.^{FN7}

FN7. OTF's contention that because "Wilcox provided a specific definition of the various claimed colors, those claim terms cannot be indefinite" is not well-taken. [64 at 24]. As the Federal Circuit has explained, "[i]n and of itself, a reduction of the meaning of a claim term into words is not dispositive of whether the term is definite." *Star Scientific, Inc. v. R.J. Reynolds Tobacco Co.*, 537 F.3d 1357, 1371 (Fed.Cir.2008). Moreover, the construction provided by Wilcox (and proposed by OTF) is "completely subjective * * *" [and] would * * * render the * * * patent invalid." *Datamize*, 417 F.3d at 1350-51.

The specification provides wavelength ranges, which may be used to measure the scope of the terms red, orange, yellow, green, blue, and violet. As noted above, the table in column 6 sets forth the following wavelength ranges: violet: 400-440 nm; blue: 420-490 nm; green: 490-550 nm; yellow: 550-590 nm; orange: 590-620 nm; red: 610-630 nm. Figures 1A-F also include wavelength ranges. Those figures show the red wavelength ranges as extending to 700 nm. The Court construes 700 nm to be the upper limit of the red wavelength range so as not to exclude the embodiments in the figures.

IV. Conclusion

In sum, the Court construes "orange-red" as "a color which, when analyzed spectroscopically, reflects in order of quantity or intensity, red followed by orange and then violet, wherein red and orange have the two highest quantities or intensities, respectively. The relative quantities or intensities of each color are determined by comparing the areas under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified color. The wavelength occupied by each specified color is as follows: violet: 400-440 nm; blue: 420-490 nm; green: 490-550 nm; yellow: 550-590 nm; orange: 590-620 nm; red: 610-700 nm." The Court construes the other claimed colors according to the same pattern, as set forth in the table below.

Orange-Red	A color which, when analyzed spectroscopically, reflects in order of quantity or intensity, red followed by orange and then violet, wherein red and orange have the two highest quantities or intensities, respectively. The relative quantities or intensities of each color are determined by comparing the areas under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified color. The wavelength occupied by each specified color is as follows: violet: 400-440 nm; blue: 420-490 nm; green: 490-550 nm; yellow: 550-590 nm; orange: 590-620 nm; red: 610-700 nm.
Violet-Red	A color which, when analyzed spectroscopically, reflects in order of quantity or intensity, red followed by violet and then orange, wherein red and violet have the two highest quantities or intensities, respectively. The relative quantities or intensities of each color are determined by comparing the areas under the spectroscopic graph of reflectance (percent) versus wavelength

occupied by the specified color. The wavelength occupied by each specified color is as follows:
violet: 400-440 nm; blue: 420-490 nm; green: 490-550 nm; yellow: 550-590 nm; orange: 590-620 nm; red: 610-700 nm.

Violet-Blue	A color which, when analyzed spectroscopically, reflects in order of quantity or intensity, blue followed by violet and then green, wherein blue and violet have the two highest quantities or intensities, respectively. The relative quantities or intensities of each color are determined by comparing the areas under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified color. The wavelength occupied by each specified color is as follows: violet: 400-440 nm; blue: 420-490 nm; green: 490-550 nm; yellow: 550-590 nm; orange: 590-620 nm; red: 610-700 nm.
Green-Blue	A color which, when analyzed spectroscopically, reflects in order of quantity or intensity, blue followed by green and then violet, wherein blue and green have the two highest quantities or intensities, respectively. The relative quantities or intensities of each color are determined by comparing the areas under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified color. The wavelength occupied by each specified color is as follows: violet: 400-440 nm; blue: 420-490 nm; green: 490-550 nm; yellow: 550-590 nm; orange: 590-620 nm; red: 610-700 nm.
Green-Yellow	A color which, when analyzed spectroscopically, reflects in order of quantity or intensity, yellow followed by green and then orange, wherein yellow and green have the two highest quantities or intensities, respectively. The relative quantities or intensities of each color are determined by comparing the areas under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified color. The wavelength occupied by each specified color is as follows: violet: 400-440 nm; blue: 420-490 nm; green: 490-550 nm; yellow: 550-590 nm; orange: 590-620 nm; red: 610-700 nm.
Orange-Yellow	A color which, when analyzed spectroscopically, reflects in order of quantity or intensity, yellow followed by orange and then green, wherein yellow and orange have the two highest quantities or intensities, respectively. The relative quantities or intensities of each color are determined by comparing the areas under the spectroscopic graph of reflectance (percent) versus wavelength occupied by the specified color. The wavelength occupied by each specified color is as follows: violet: 400-440 nm; blue: 420-490 nm; green: 490-550 nm; yellow: 550-590 nm; orange: 590-620 nm; red: 610-700 nm.

N.D.III.,2009.

Only The First, Ltd. v. Seiko Epson Corp.

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