

United States District Court,  
S.D. New York.

**U.S. PHILIPS CORP,**  
Plaintiff.

v.

**IWASAKI ELECTRIC CO., et al,**  
Defendants.

No. 03 Civ. 0172(PKC)

**Jan. 3, 2006.**

***MEMORANDUM AND ORDER ON CLAIM CONSTRUCTION***

**CASTEL, J.**

This is a patent infringement suit brought by plaintiff U.S. Philips Corp. ("Philips") against Iwasaki Electric Co. ("Iwasaki") and others alleging infringement of certain patents related to super high-pressure mercury vapor discharge lamps and associated devices. The principal invention is said to be utilized in most projection televisions and digital projectors.

In an infringement action, the court first must determine the scope and meaning of the patent claims asserted and, then, the properly construed claims are compared to the allegedly infringing devices. *See* Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454 (Fed.Cir.1998). Claim construction presents a question of law to be decided by the Court. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed.Cir.1995), *aff'd*, 517 U.S. 370 (1996).

The Court of Appeals for the Federal Circuit recently had occasion to restate and clarify the standards for claim construction. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed.Cir.2005) (en banc). *Phillips* emphasizes that "[i]t is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Id.* at 1312 (citations omitted). The "words of a claim 'are generally given their ordinary and customary meaning,'" which "is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Id.* at 1312-13 (citations omitted). "[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.* at 1313. The specification may be the "single best guide to the meaning of a disputed term." *Id.* at 1315 (citation omitted). If it is in evidence, the prosecution history may also have important bearing on the meaning of a claim term, but it may lack the clarity of the specification and, hence, may be less helpful. *Id.* at 1317 (citations omitted).

A court may resort to extrinsic evidence, though it is of less significance and less value to the claim construction process. *Id.* at 1317 (citations omitted). Extrinsic evidence consists of "consists of all evidence

external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." *Id.* (citations omitted). The *Phillips* court provided substantial guidance on the proper use of extrinsic evidence:

In sum, extrinsic evidence may be useful to the court, but it is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence. Nonetheless, because extrinsic evidence can help educate the court regarding the field of the invention and can help the court determine what a person of ordinary skill in the art would understand claim terms to mean, it is permissible for the district court in its sound discretion to admit and use such evidence. In exercising that discretion, and in weighing all the evidence bearing on claim construction, the court should keep in mind the flaws inherent in each type of evidence and assess that evidence accordingly.

*Id.* at 1319.

The parties have extensively briefed the meaning of the claim language. They have been afforded the opportunity to call live witnesses but have elected to rely upon the paper record supplemented by oral argument. On November 22, 2005, a hearing was held at which the parties' made presentations. With the teachings of the Federal Circuit in mind, I turn to the claim language at issue.

### ***THE '181 PATENT***

Claim 1 of U.S. Patent No. 5,109,181 (the "'181 Patent") reads as follows:

A high-pressure mercury vapor discharge lamp comprising a discharge envelope, a pair of discharge electrodes comprising tungsten between which a discharge is maintained during lamp operation, and a filling essentially consisting of mercury, a rare gas, and a halogen for maintaining a tungsten transport cycle during lamp operation, characterized in that: the quantity of mercury is larger than  $0.2 \text{ mg/mm}^3$ , during lamp operation the mercury vapor pressure is higher than 200 bar and the wall load is higher than  $1 \text{ W/mm}^2$ , and in that at least one of the halogens Cl, Br or I is present in a quantity between  $10^{-6}$  and  $10^{-4}$   $\mu\text{mol/mm}^3$ .

Counsel in this case have agreed upon interpretations of most of the claim language or have agreed that the ordinary meaning is so clear that no interpretation is necessary. Court Exhibit 2 sets forth the agreed upon interpretations, is adopted as an order of this Court and will bind the parties in this proceeding. The parties further agree that the construction of terms in Claim 1 applies to Claim 2. The disputed language is discussed below.

#### ***during lamp operation the mercury vapor pressure is higher than 200 bar and***

Within the phrase "during lamp operation the mercury vapor pressure is higher than 200 bar and", the parties agree as to the interpretation of "pressure", "during lamp operation", "higher" and "bar" (meaning a unit of pressure equal to one million dynes per square centimeter or about 0.98687 standard atmosphere). Taken together, Iwasaki argues that the phrase is too indefinite because (1) the force per unit area of mercury vapor cannot be directly determined in an operating lamp at pressures "higher than 200 bar", (2) there are a number of different methods for indirectly estimating pressure in the high pressure mercury vapor lamps that provide different values and (3) the '181 patent does not specify which pressure estimation method is to be used. In short, Iwasaki urges that claim construction is futile and the claim is indefinite because the

patent does not teach how to measure pressure; it argues that one skilled in the art could not know if he were infringing the claim.

The second paragraph of the Patent Act, 35 U.S.C. s. 112, provides that "[t]he specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." This statutory language requiring particularity and distinctiveness has led courts to develop the concept of definiteness. "The requirement that the claims 'particularly point[ ] out and distinctly claim [ ]' the invention is met when a person experienced in the field of the invention would understand the scope of the subject matter that is patented when reading the claim in conjunction with the rest of the specification." *Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1298 (Fed.Cir.2005). "Indefiniteness ... like claim construction, is a question of law...." *Id.*

That claim construction is an issue of law does not mean that extrinsic facts are insignificant. In some instances, the lack of definiteness will be apparent from the face of the claim language, and extrinsic evidence, at most, will have secondary utility. Here, Iwasaki relies upon extrinsic facts to demonstrate that, in the specific context of that which is claimed, seemingly definite terms are, in fact, indefinite. The importance of a fully developed factual record where extrinsic evidence is used to prove a lack of definiteness is apparent from the case law. In *SmithKline Beecham Corp. v. Apotex Corp.*, the Federal Circuit had occasion to discuss its earlier decision in *Morton Int'l, Inc. v. Cardinal Chem. Co.*, 5 F.3d 1464 (Fed.Cir.1993), and noted that "[t]he record in *Morton* contained "considerable evidence showing that those skilled in the art could not make the claimed compounds using the procedures of the specification, and no evidence that such compounds even exist." 403 F.3d at 1340 (Fed Cir.2005). *Morton* was a case where the indefiniteness finding, though legally distinct, was factually intertwined with the finding of lack of enablement. 5 F.3d at 1469-70 (citing para. 1, 35 U.S.C. s. 112). Iwasaki also relies upon *Honeywell Int'l., Inc. v. Int'l Trade Comm'n*, 341 F.3d 1332, 1340 (Fed.Cir.2003), a case, which I note, was decided based upon a full trial record developed before the International Trade Commission.

In the case before me, the factual record as to the available means of measuring mercury vapor pressure at high levels during lamp operation is not fully developed. Moreover, such a record is intertwined with the factual issue of whether the disclosure enabled one skilled in the art to practice the invention. It suffices for the purpose of this claim construction proceeding to conclude that the claim limitation of a pressure of 200 bar is precise and understandable to one of ordinary skill in the art. At this stage, I cannot say that, as a matter of law, the claim fails for lack of particularity and distinctiveness, *i.e.* lack of definiteness.

***that at least one of the halogens Cl, Br or I is present in a quantity***

The '181 Patent's "Summary of the Invention" describes the potential for tungsten evaporated from the electrodes to be deposited on the wall of the envelope (bulb), thereby causing blackening of the walls which would lead to higher wall temperatures and a shorter life of the lamp. It further describes how the presence of a small quantity of a halogen (chlorine, bromine or iodine) creates a cycle by which the evaporated tungsten is transported back to the electrodes, thereby lessening the blackening. (col.2, ll.30-34)

The parties dispute the interpretation of the phrase "that at least one of the halogens Cl, Br or I is present in a quantity between  $10^{-6}$  and  $10^{-4}$  ( $\mu$ ) mol/mm<sup>3</sup>." Neither party disputes that "Cl," "Br" and "I" are the abbreviations for the halogens chlorine, bromine and iodine. I construe "quantity" to mean a concentration- the amount per unit volume.

Philips reads the phrase "is present in a quantity" to mean only such of the halogen that is "participating, supporting and keeping in existence the tungsten transport cycle during lamp operation." (Philips Br. at 14-18; Philips Reply Br. at 4-5.) Philips relies upon the preamble language-"a halogen for maintaining a tungsten transport cycle during lamp operation"-preceding the transitional phrase "characterized in that:" FN1 I conclude that the phrase "a halogen for maintaining a tungsten transport cycle during lamp operation" identifies a filling material and describes the function of that material and nothing more. The phrase, fairly read, does not qualify or limit the halogen that "is present in a quantity".

FN1. As Philips urges me to do, I read the claim language as a whole and consider the preamble language to be relevant to claim interpretation. I note that a *Jepson*-type claim is one in which the existing art is described in a preamble followed by a transitional phrase such as the "improvement comprising" or "wherein the improvement comprises" after which the claimed elements are stated. *See* U.S. Pat. Off. Rule 75(e), 37 C.F.R. s. 1.75(e). *Ex Parte Jepson*, 243 O.G. 525 (1917). Iwasaki asserts that the "characterized in that" language (common in certain European applications) should be given a similar construction, thereby rendering everything prior to the transitional phrase admitted prior art. I need not and do not decide the issue at this time. *See generally Landis on Mechanics of Patent Claim Drafting* at s. 6:8 (R.C. Faber ed., PLI 2004).

Reading the claim as a whole, one of ordinary skill in the art would conclude that the quantity that is stated following the transitional phrase "characterized in that:" means the quantity of halogen in the bulb or envelope. It would be a strained construction to interpret the language to mean an amount of halogen less than the total quantity of halogen present in the envelope, i.e. only such of the quantity of halogen that is necessary "for participating, supporting and keeping in existence the tungsten transport cycle during lamp operation." FN2 I also have considered the extrinsic evidence and do not find it persuasive in Philips' favor.

FN2. "I would say that the quantity being added, when we look to measure this quantity, it is this quantity has to be there that is for the tungsten transport cycle. Any quantities that are there that are not used for the tungsten transport cycle are irrelevant. We're only claiming the quantities in the bulb for maintaining a tungsten transport cycle." (Counsel for Philips, Nov. 22 Hr'g at 38)

### ***a quantity between $10^{-6}$ and $10^{-4}$ ( $\mu$ )mol/mm<sup>3</sup>***

The parties also dispute the meaning of the phrase "a quantity between  $10^{-6}$  and  $10^{-4}$  ( $\mu$ )mol/mm<sup>3</sup>." There is no dispute that the phrase "( $\mu$ )mol/mm<sup>3</sup>" means micromoles per cubic millimeter. Iwasaki contends that " $10^{-6}$  and  $10^{-4}$ " is intended to express a specific numerical range between  $1 \times 10^{-6}$  and  $1 \times 10^{-4}$ " while Philips argues that the phrase refers to a range between two orders of magnitude. Philips points out that there is no multiplier preceding the values "between  $10^{-6}$  and  $10^{-4}$  ( $\mu$ )mol/mm<sup>3</sup>." Iwasaki points out that there are no words used such as "on the order of" or "approximately" or "of a magnitude of" that would give a person of ordinary skill in the art an awareness that the number that followed was not a specific numerical value.

I have examined other uses of scientific notation in the specification. There are references to quantities of methyl bromine in quantities of " $5.10^{-6}$ ". (col.3, 1.53) Elsewhere there is a reference to " $5.10^{-4}$  to  $5.10^{-2}$  g atoms of at least one of the halogens per cubic millimeter are fed into the envelope." (col.1, 1.22.) While the

use of a numerical multiplier is of some significance, it is also true that a numerical multiplier is not universally used when the multiplier is 1. FN3 For example, to one skilled in the art,  $10^5$  means 100,000 and it may also be expressed as  $1 \times 10^5$ . But, depending upon how it is used, it could also mean an order of magnitude of  $10^5$ , *i.e.* any numerical value in the hundreds of thousands. The specific context becomes critical to understanding. Here, I conclude that the use of two numbers in the phrase "a quantity between \_\_\_ and \_\_\_" implies a specific range, as argued by Iwasaki. It does not imply a range between two values which are themselves ranges.

FN3. I have considered the reference to " $10^{-5}$  Smol of Br/mm<sup>3</sup>" (col.3, 1.54) and conclude it to be ambiguous for the reasons discussed at the hearing. (Nov. 22 Hr'g, *compare 25-27 with 56-59.*)

Philips disclaims inexactitude in its interpretation. (Nov. 22 Hr'g at 78) To bring precision, Philips urges that, utilizing rounding principles, " $10^{-6}$ 66666 and  $10^{-4}$  (mu)mol/mm<sup>3</sup>" represent a specific numerical range and that the concentration of the halogen "could be as low as  $5 \times 10^{-7}$  (mu)mol/mm<sup>3</sup> and as high as  $5 \times 10^{-4}$  (mu)mol/mm<sup>3</sup>." (Expert Report of Dr. David R. Lide at 9) FN4 I am reluctant to read more into the claim language than is written. FN5 A more natural interpretation is that the phrase "between  $10^{-6}$  and  $10^{-4}$  (mu)mol/mm<sup>3</sup>" means a quantity between  $1 \times 10^{-6}$  and  $1 \times 10^{-4}$  (mu) mol/mm<sup>3</sup>. If the claim language were intended to refer to orders of magnitude, it likely would have used a modifier or qualifier and not have expressed the quantity in the seemingly absolute terms implied by the form "present in a quantity between \_\_\_ and \_\_\_". FN6

FN4. Another of Philips experts states as follows: "in my opinion, one skilled in the art would interpret the lower limit of halogen concentration in the '181 Patent Claims as extending downwards to  $10^{-6.5}$  6.5 5 5 5 " and the upper limit extends upwards to  $10^{-3.5}$  (mu)mol/mm<sup>3</sup>." (Expert Report of Dr. Robin Devonshire at 15)

FN5. Philips relies upon Holmes, et al. (U.S. Patent No. 3,382,396). In that patent in this field of art, quantities of iodine are displayed in a one single table in the form " $1 \times 10^{-5}$ " and also in the form " $10^{-4}$ ". For the reasons discussed at the November 22 hearing, these references are ambiguous.

FN6. I note that Claim 5 employs the language "that the mercury vapor pressure is *about* 400 bar." (emphasis added).

I conclude that the phrase "a quantity between  $10^{-6}$  and  $10^{-4}$  (mu)mol/mm<sup>3</sup>" means that the halogen is present in the envelope or bulb in a quantity between 1 divided by 1,000,000 and 1 divided by 10,000 micromoles per cubic millimeter.

## ***THE '717 PATENT***

U.S. Patent No. 6,300,717 (the " '717 Patent") describes an invention for positioning the lamp and reflector

in an optical system in a manner so as to maintain proper alignment. Proper alignment ensures uniformity of the lighting. Claim 1 reads as follows:

A unit of an electric lamp and reflector, comprising a reflector body including a reflector part with a concave reflecting surface having an optical axis, a hollow neck-shaped portion integral with said reflector body, and a light emission window surrounding said optical axis; an electric lamp comprising a light-transmitting vessel sealed in a vacuum tight manner, enclosing a cavity and having, a first and a second mutually opposing sealed end portion, an electric element arranged in the cavity and respective current conductors connected to the electric element, extending through said sealed end portions and issuing from the lamp vessel to the exterior, the electric lamp being fixed in the reflector body with the first end portion inside the neck-shaped portion, while the cavity lies within the reflecting portion and the electric element is on the optical axis wherein the reflector body has lugs on a side nearest the light emission window.

The parties have agreed on most claim construction issues relating to the '717 Patent, as well as all issues relating to the other patent in suit, U.S. Patent No. 5,506,464. (Johnson Letter of December 14, 2005, enclosing amended claim construction chart) The agreement is adopted as an order of this Court and will bind the parties in this proceeding. I turn to the disputed issues of interpretation.

***the reflector body has lugs on a side nearest the light emission window***

The parties are not far apart on the meaning of "lugs". Philips urges that it means "small projecting parts of the reflector body used for positioning the light source." Iwasaki advocates that it means "projections, pads or ridges". Based upon my review of the specification and without reading a non-existent functional limitation into the claim language, I conclude that lugs, in the context of the claim language, means "small projecting parts of the reflector body".FN7

FN7. I note that "lugs" is defined in *Webster's Third New Int'l Dictionary, Unabridged* (1961) as "a small projecting part of a larger member".

The parties disagree as to the meaning of "on a side nearest" in the phrase "the reflector body has lugs *on a side nearest* the light emission window". Philips argues that it means the lugs are positioned at the front or top end of the reflector body closest to the light emission window. Iwasaki urges that it means a side at the front end of the reflector body.

The claim language describes the relationship of the lamp to the reflector body: "the electric lamp being fixed in the reflector body with the first end portion inside the neck-shaped portion, while the cavity lies within the reflecting portion and the electric element is on the optical axis wherein the reflector body has lugs on a side nearest the light emission window." There is no dispute that the "light emission window" means a part of the reflector body through which light is omitted outside. At first review, the use of the indefinite article "a" -as in "a side"-and the superlative "nearest" in the phrase "lugs *on a side nearest* the light emission window" appears ambiguous. The use of both terms assumes the possibility of multiple. Furthermore, the claim language does not differentiate between reflector bodies that, at the end through which light is transmitted, are circular in shape and those that are rectangular in shape. Thus, there can be multiple sides to a given reflector body. In claim 6, the term "front side" is employed and, for the reasons that will later be explained, I construe that term to mean *the* side that faces in the same direction as the emitted light I will not construe "a side nearest the light emission window" to be synonymous with "front

side". I construe the term "a side nearest the light emission window" to mean any side that is at or near the end of the light emitting end of the reflector body and includes the "front side" as defined below, as well as the outer circumference of the reflector body at points closest to the light emitting end.

*at said front side*

The parties agree that terms used in Claim 1 of the '717 Patent have the same meaning in the other claims of the '717 Patent. They dispute the meaning of "front side" and "at said front side" in Claim 6 that reads in full as follows:

A lighting unit comprising: a lamp; a reflector that surrounds said lamp, said reflector having a front side that defines an emission window for exit of light emitted from said lamp, wherein said reflector has lugs at said front side; and a transparent plate located at said front side wherein said the lugs extend above the transparent plate.

Philips argues that "at said front side" means the lugs are positioned at the front or top end of the reflector body closest to the light emission window. Iwasaki asserts that "front side" means "a side at the front end of the reflector body opposite the back end of the reflector body." The use of the phrase "at said front side" is most naturally read to mean that there is a single front side; the language would not be understood by a person of ordinary skill in the art to mean " a side at the front end". The front side is the horizontal plane on the portion of the circumference of the reflector body that faces in the direction that the emitted light is traveling. Put another way, it is the surface of the edge of the rim of the reflector which faces in the same direction the light is traveling.FN8

FN8. The embodiments reflected in Figures 1, 2, 3 show the lugs (22) positioned on what I have construed to be the front side.

The foregoing constitutes my rulings on all outstanding issues of claim construction.

SO ORDERED.

S.D.N.Y.,2006.

U.S. Philips Corp. v. Iwasaki Elec. Co.

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