

**Keywords:** 35 U.S.C. § 112, first paragraph; written description requirement; expansive claim language

**General:** Patentee cannot always satisfy written description requirement, in supporting expansive claim language, merely by clearly describing one embodiment of the claimed invention; specification of patent for method of digital compression using discreet wavelet transforms, which discloses single method of creating “seamless” DWT, does not entitle inventor to claim any and all means for achieving that objective.

*LizardTech Inc. v. Earth Resource Mapping Inc.*  
76 U.S.P.Q.2d 1724 (Fed. Cir. 2005)  
Decided October 4, 2005

## I. Facts

LizardTech, the exclusive licensee of the ‘835 patent, brought an action against Earth Resource Mapping (ERM) alleging infringement of the ‘835 patent. The technology at issues involves “wavelet transforms,” which allow digital images to be compressed to better determine and filter irrelevant or unnecessary image data. For purposes of digital image compression, the most useful type of wavelet transform is a “discrete wavelet transform” (DWT). The DWT of the image can be calculated by repeatedly applying two algorithms to the image using high-pass and low-pass finite impulse response filter functions.

One problem with calculating DWT images is that defects occur in the DWT at the edges of the image because artificial values (usually zero) are inserted into the filter functions at the edges to calculate values beyond the image edges, which is necessary in typical methods for calculating DWT. This problem is compounded due to the fact that the image is generally broken into pieces or “tiles” to minimize storage allocation during DWT calculation, since only a the data within a single tile will have to be stored in the memory at any one time. Disadvantageously, “tiling” creates edges throughout the image. Thus, defects occur throughout the image. Reducing edge artifacts while performing a DWT on individual tiles of an image for compression purposes is the object of the ‘835 patent.

The ‘835 patent addresses the boundary issues by employing information outside of a particular tile to calculate the DWT since the information is available. By employing data from adjacent tiles in the DWT calculation, the DWT will be identical to a DWT performed on the entire image. Thus, the specification and claims describe creating a seamless DWT by maintaining updated sums of DWT coefficients.

After construing the claim term “tile,” the district court granted ERM’s motion for summary judgment of non-infringement. The Federal Circuit reversed the district court’s construction of the word “tile” and remanded the case for further proceedings. On remand, the district court requested that a special master reconsider the court’s claim construction. Base on the construction suggested by the special master, the district court held on summary judgment that: 1) ERM did not infringe claims 1 and 13 of the ‘835 patent; 2) claim 21 was invalid for obviousness; and 3) claim 21 and its dependent claims were invalid for failing to satisfy the written description requirement under 35 U.S.C. § 112. LizardTech appeals each of the rulings.

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## II. Issues

- A. Did the district court correctly construe the claim terms in holding that ERM did not infringe claims 1 and 13?
- B. Did LizardTech satisfy the written description requirement of 35 U.S.C. § 112 with regard to claim 21 and those claims dependent thereon?

## III. Discussion

- A. Yes. The district court's non-infringement ruling was predicated on its interpretation of "maintaining updated sums" to mean "summing DWT coefficients of one tile together with overlapping DWT coefficients from one or more adjacent tiles." Both parties agreed to this construction. However, LizardTech asserts that the district court materially altered the construction by changing the meaning of the word "overlapping." Contrary to LizardTech's assertion, the Federal Circuit could discern no change in the district court's claim interpretation. The Court noted that "overlapping" in the context of the claims could only mean that the DWT coefficient at a given position, obtained from the data in one tile, is added to the DWT coefficient at the same position, obtained from the data in an adjacent file. The Court further found that this process is the basis for forming a "seamless" DWT in accordance with the '835 patent and that the district court clearly and consistently construed the claims accordingly. Because the ER Mapper does not add overlapping DWT coefficients from adjacent tiles together to form a seamless DWT, the Federal Circuit affirmed the district court's finding of non-infringement of claim 1 and 13.
- B. No. Claim 21 is identical to claim 1 except that it does not include the "maintaining updated sums...to form a seamless DWT..." or the "periodically compressing..." limitations. The Court notes that the specification only provides one method for creating a seamless DWT, which is to "maintain updated sums of DWT coefficients." The Court further noted that one skilled in the art, upon reading the entire patent and the prosecution history, would understand the DWT-compression processes recited in claim 21 to create a seamless DWT of the image.

However, because there are no limitations in claim 21 as to how the seamless DWT is accomplished, claim 21 refers to making a seamless DWT generically. The Court also noted that claim 21 cannot be directed to creating a seamless DWT only in the way that claim 1 recites (i.e., by maintaining updated sums of DWT coefficients), because that would impermissibly read a limitation into claim 21 and make claim 21 redundant of claim 1.

The written description requirement mandates that the specification: 1) describe the manner and process of making and using the invention so as to enable a person of skill in the art to make and use the full scope of the invention without undue experimentation; and 2) describe the invention sufficiently to convey to a person of ordinary skill in the art that the patentee had possession of the claimed invention at the time of the application.

The trouble the Court found with allowing claim 21 to cover all ways of performing a DWT-based compression process that leads to a seamless DWT is that there is no support for such a broad claim in the specification. The specification provides only a single way of creating a seamless DWT, which is by maintaining updated sums of DWT coefficients. There is no evidence that the specification contemplates a more generic way of creating a seamless array of DWT coefficients. Thus, the Court found that claim 21 is directed to a generic way of creating a seamless array of DWT coefficients, while the specification is directed to only a single way of doing so. While this, in and of itself, does not render claim 21 invalid, the fact that the specification does not enable one of ordinary skill in the art to practice the invention

of claim 21 without undue experimentation, nor does it convince one of ordinary skill that the inventor possessed the invention of claim 21, does.

Accordingly, the Court upheld the district court's holding of invalidity of claim 21 for failing to satisfy the written description requirement. In doing so, the Court cited *Tronzo v. Biomet, Inc.*, 47 U.S.P.Q.2d 1829 (Fed. Cir. 1998) (specification touted the advantages of its conically shaped cup of an artificial hip socket, but claimed cup implants with generic shape).

LizardTech also argued that since claim 21 is a part of the original disclosure that claim 21 itself provides the necessary support for satisfying § 112. While the Court noted that originally filed claims can provide the requisite support in satisfying the written description requirement, nothing in claim 21 or the specification provide an adequate written description of all seamless DWTs.